

ALMANAC XLV TRANSITS VISIBLE FROM MARS IN BCE

The almanac XLV contains a list of transits visible from Mars from the 125th millennium BCE to the 1st millennium BCE.

During the period of 250 000 years, the total number of transits visible from Mars is 74 301 transits visible from Mars (54 411 transits of Mercury, 13 099 transits of Venus, 3 392 transits of Earth, 3 399 transits of Moon).

125TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 125th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -124997-05-19 00:30 J | -43933592.59 | -43933592.48 | -43933592.36 | 0.1647 | 0.0301 | | |
| Mercury | -124992-01-23 05:18 J | -43931882.42 | -43931882.28 | -43931882.14 | 0.1865 | 0.0936 | | |
| Mercury | -124988-10-09 11:32 J | -43930162.14 | -43930162.02 | -43930161.90 | 0.1647 | 0.0112 | | |
| Mercury | -124986-09-14 15:23 J | -43929456.89 | -43929456.86 | -43929456.83 | 0.1648 | 0.1569 | | |
| Mercury | -124978-03-01 22:20 J | -43926731.68 | -43926731.57 | -43926731.45 | 0.1647 | 0.0528 | | |
| Mercury | -124976-02-04 02:25 J | -43926026.48 | -43926026.40 | -43926026.32 | 0.1648 | 0.1167 | | |
| Venus | -124972-10-11 06:44 J | -43924316.33 | -43924316.22 | -43924316.10 | 0.1865 | 0.1430 | | |
| Mercury | -124972-10-12 17:03 J | -43924314.89 | -43924314.79 | -43924314.69 | 0.1865 | 0.1488 | | |
| Venus | -124971-09-17 11:03 J | -43923975.18 | -43923975.04 | -43923974.89 | 0.1647 | 0.0862 | | |
| Venus | -124970-08-08 06:59 J | -43923650.38 | -43923650.21 | -43923650.03 | 0.1863 | 0.0337 | | |
| Venus | -124969-07-17 15:37 J | -43923306.02 | -43923305.85 | -43923305.68 | 0.1648 | 0.0031 | | |
| Mercury | -124969-07-22 09:23 J | -43923301.21 | -43923301.11 | -43923301.01 | 0.1648 | 0.0938 | | |
| Venus | -124967-05-17 17:32 J | -43922636.91 | -43922636.77 | -43922636.62 | 0.1651 | 0.0848 | | |
| Mercury | -124967-06-27 13:27 J | -43922596.04 | -43922595.94 | -43922595.83 | 0.1647 | 0.0762 | | |
| Moon | -124964-12-29 04:20 J | -43921315.45 | -43921315.32 | -43921315.20 | 0.1673 | 0.1168 | | |
| Earth | -124964-12-29 08:25 J | -43921315.29 | -43921315.15 | -43921315.01 | 0.1673 | 0.1080 | * | |
| Mercury | -124962-03-04 11:18 J | -43920885.19 | -43920885.03 | -43920884.87 | 0.1865 | 0.0317 | | |
| Mercury | -124960-12-12 20:11 J | -43919870.72 | -43919870.66 | -43919870.59 | 0.1648 | 0.1355 | | |
| Mercury | -124958-11-18 00:30 J | -43919165.59 | -43919165.48 | -43919165.36 | 0.1647 | 0.0355 | | |
| Mercury | -124953-07-24 05:47 J | -43917455.41 | -43917455.26 | -43917455.11 | 0.1865 | 0.0835 | | |
| Mercury | -124948-04-09 11:32 J | -43915735.14 | -43915735.02 | -43915734.90 | 0.1647 | 0.0059 | | |
| Mercury | -124946-03-15 15:23 J | -43915029.88 | -43915029.86 | -43915029.84 | 0.1648 | 0.1622 | | |

Mercury -124939-08-30 22:35 J -43912304.68 -43912304.56 -43912304.45 0.1647 0.0466

Venus -124939-09-16 02:54 J -43912288.49 -43912288.38 -43912288.28 0.1648 0.1260

Venus -124938-08-08 07:42 J -43911962.36 -43911962.18 -43911962.01 0.1865 0.0485

Venus -124937-07-16 07:56 J -43911619.33 -43911619.17 -43911619.01 0.1648 0.0434

Mercury -124937-08-05 02:25 J -43911599.47 -43911599.40 -43911599.32 0.1648 0.1223

Venus -124936-06-04 10:49 J -43911296.18 -43911296.05 -43911295.91 0.1860 0.1230

Venus -124935-05-16 11:03 J -43910950.21 -43910950.04 -43910949.88 0.1650 0.0424

Venus -124933-03-15 11:18 J -43910281.13 -43910281.03 -43910280.92 0.1654 0.1307

Mercury -124932-04-12 18:01 J -43909887.84 -43909887.75 -43909887.67 0.1865 0.1604

Mercury -124929-01-21 09:23 J -43908874.21 -43908874.11 -43908874.01 0.1648 0.0879

Mercury -124928-12-26 13:27 J -43908169.04 -43908168.94 -43908168.84 0.1647 0.0820

Mercury -124923-09-02 12:15 J -43906458.16 -43906457.99 -43906457.83 0.1865 0.0438

Mercury -124920-06-12 20:11 J -43905443.73 -43905443.66 -43905443.59 0.1648 0.1297

Mercury -124918-05-19 00:30 J -43904738.59 -43904738.48 -43904738.37 0.1647 0.0410

Mercury -124913-01-23 06:44 J -43903028.38 -43903028.22 -43903028.07 0.1865 0.0716

Mercury -124909-10-08 11:32 J -43901308.14 -43901308.02 -43901307.90 0.1647 0.0023

Venus -124906-08-08 08:54 J -43900274.26 -43900274.13 -43900274.00 0.1865 0.1312

Venus -124905-07-15 00:01 J -43899932.64 -43899932.50 -43899932.35 0.1647 0.0840

Venus -124904-06-04 09:37 J -43899608.28 -43899608.10 -43899607.93 0.1863 0.0450

Mercury -124904-06-14 01:27 J -43899598.46 -43899598.44 -43899598.42 0.1864 0.1846

Venus -124903-05-15 04:06 J -43899263.50 -43899263.33 -43899263.16 0.1649 0.0017

Venus -124901-03-14 05:32 J -43898594.41 -43898594.27 -43898594.12 0.1652 0.0876

Mercury -124899-02-28 22:20 J -43897877.68 -43897877.57 -43897877.45 0.1648 0.0414

Mercury -124897-02-04 02:25 J -43897172.47 -43897172.40 -43897172.33 0.1648 0.1276

Mercury -124893-10-11 18:30 J -43895460.79 -43895460.73 -43895460.67 0.1865 0.1707

Mercury -124890-07-22 09:23 J -43894447.21 -43894447.11 -43894447.01 0.1648 0.0822

Mercury -124888-06-26 13:27 J -43893742.04 -43893741.94 -43893741.84 0.1648 0.0873

Mercury -124883-03-03 12:59 J -43892031.12 -43892030.96 -43892030.80 0.1865 0.0549

Mercury -124881-12-11 20:11 J -43891016.73 -43891016.66 -43891016.58 0.1648 0.1237

Mercury -124879-11-17 00:30 J -43890311.59 -43890311.48 -43890311.37 0.1647 0.0469

Mercury -124874-07-24 07:27 J -43888601.34 -43888601.19 -43888601.03 0.1865 0.0598

Venus -124873-07-13 15:37 J -43888245.96 -43888245.85 -43888245.74 0.1647 0.1239

Venus -124872-06-04 10:20 J -43887920.25 -43887920.07 -43887919.89 0.1865 0.0371

Venus -124871-05-13 20:25 J -43887576.82 -43887576.65 -43887576.49 0.1648 0.0410

Venus -124870-04-01 14:11 J -43887254.03 -43887253.91 -43887253.79 0.1859 0.1335

Venus -124869-03-12 23:18 J -43886907.69 -43886907.53 -43886907.36 0.1650 0.0450

Mercury -124869-04-08 11:32 J -43886881.14 -43886881.02 -43886880.90 0.1647 0.0061

Venus -124867-01-10 23:32 J -43886238.62 -43886238.52 -43886238.42 0.1655 0.1335

Mercury -124865-12-13 02:11 J -43885171.46 -43885171.41 -43885171.35 0.1865 0.1727

Mercury -124860-08-29 22:20 J -43883450.68 -43883450.57 -43883450.45 0.1647 0.0355

Mercury -124858-08-05 02:25 J -43882745.47 -43882745.40 -43882745.33 0.1648 0.1332

Mercury -124853-04-11 19:13 J -43881033.73 -43881033.70 -43881033.66 0.1865 0.1819

Mercury -124850-01-20 09:23 J -43880020.22 -43880020.11 -43880020.01 0.1648 0.0767

Mercury -124849-12-25 13:27 J -43879315.04 -43879314.94 -43879314.84 0.1648 0.0928

Moon -124844-06-18 18:59 J -43877678.88 -43877678.71 -43877678.53 0.1835 0.0558

Earth -124844-06-19 00:30 J -43877678.68 -43877678.48 -43877678.29 0.1835 0.0363 *

Mercury -124844-09-01 13:42 J -43877604.09 -43877603.93 -43877603.78 0.1865 0.0661

Mercury -124841-06-11 20:11 J -43876589.74 -43876589.66 -43876589.58 0.1648 0.1180

Venus -124841-07-12 06:59 J -43876559.23 -43876559.21 -43876559.19 0.1648 0.1631

Venus -124840-06-04 11:18 J -43876232.17 -43876232.03 -43876231.90 0.1865 0.1195

Venus -124839-05-12 12:15 J -43875890.13 -43875889.99 -43875889.84 0.1647 0.0818

Mercury -124839-05-18 00:30 J -43875884.59 -43875884.48 -43875884.37 0.1647 0.0523

Venus -124838-04-01 13:13 J -43875566.12 -43875565.95 -43875565.78 0.1862 0.0551

Venus -124837-03-11 16:06 J -43875221.00 -43875220.83 -43875220.66 0.1649 0.0047

Venus -124835-01-09 17:47 J -43874551.90 -43874551.76 -43874551.62 0.1653 0.0902

Mercury -124834-01-22 07:56 J -43874174.32 -43874174.17 -43874174.01 0.1865 0.0498

Mercury -124832-11-02 06:59 J -43873159.23 -43873159.21 -43873159.18 0.1649 0.1597

Mercury -124830-10-08 11:32 J -43872454.14 -43872454.02 -43872453.90 0.1648 0.0120

Mercury -124825-06-13 03:08 J -43870744.45 -43870744.37 -43870744.29 0.1865 0.1612

Mercury -124820-02-27 22:20 J -43869023.68 -43869023.57 -43869023.45 0.1648 0.0298

Mercury -124818-02-03 02:25 J -43868318.46 -43868318.40 -43868318.34 0.1648 0.1387

Mercury -124811-07-21 09:23 J -43865593.22 -43865593.11 -43865593.00 0.1648 0.0706

Mercury -124809-06-25 13:27 J -43864888.03 -43864887.94 -43864887.85 0.1648 0.0986

Venus -124807-05-11 04:06 J -43864203.44 -43864203.33 -43864203.22 0.1648 0.1218

Venus -124806-04-01 12:44 J -43863878.15 -43863877.97 -43863877.79 0.1864 0.0255

Venus -124805-03-10 08:39 J -43863534.30 -43863534.14 -43863533.97 0.1648 0.0390

Venus -124804-01-26 18:15 J -43863211.85 -43863211.74 -43863211.63 0.1858 0.1431

Mercury -124804-03-02 14:25 J -43863177.05 -43863176.90 -43863176.75 0.1865 0.0772

Venus -124803-01-08 11:32 J -43862865.19 -43862865.02 -43862864.86 0.1651 0.0477

Venus -124802-11-08 11:18 J -43862196.13 -43862196.03 -43862195.94 0.1656 0.1366

Mercury -124802-12-11 20:11 J -43862162.74 -43862162.66 -43862162.57 0.1648 0.1122

Mercury -124800-11-16 00:30 J -43861457.59 -43861457.48 -43861457.37 0.1647 0.0581

Mercury -124795-07-23 08:54 J -43859747.29 -43859747.13 -43859746.97 0.1865 0.0378

Mercury -124792-05-03 06:59 J -43858732.25 -43858732.21 -43858732.17 0.1649 0.1542

Mercury -124790-04-08 11:18 J -43858027.14 -43858027.03 -43858026.91 0.1647 0.0182

Mercury -124786-12-13 03:37 J -43856317.44 -43856317.35 -43856317.26 0.1864 0.1510

Mercury -124781-08-28 22:20 J -43854596.68 -43854596.57 -43854596.45 0.1648 0.0241

Mercury -124779-08-04 02:25 J -43853891.46 -43853891.40 -43853891.35 0.1648 0.1442

Venus -124775-05-09 19:27 J -43852516.72 -43852516.69 -43852516.66 0.1648 0.1610

Venus -124774-04-01 13:13 J -43852190.10 -43852189.95 -43852189.80 0.1865 0.1076

Venus -124773-03-09 00:59 J -43851847.60 -43851847.46 -43851847.31 0.1648 0.0797

Venus -124772-01-26 16:06 J -43851523.99 -43851523.83 -43851523.66 0.1861 0.0661

Venus -124771-01-07 04:35 J -43851178.48 -43851178.31 -43851178.14 0.1650 0.0064

Mercury -124771-01-19 09:23 J -43851166.22 -43851166.11 -43851166.00 0.1648 0.0649

Venus -124770-11-07 05:47 J -43850509.40 -43850509.26 -43850509.12 0.1654 0.0932

Mercury -124770-12-25 13:27 J -43850461.03 -43850460.94 -43850460.85 0.1648 0.1041

Mercury -124765-08-31 15:23 J -43848750.00 -43848749.86 -43848749.71 0.1865 0.0895

Mercury -124762-06-11 20:11 J -43847735.75 -43847735.66 -43847735.57 0.1648 0.1063

Mercury -124760-05-17 00:30 J -43847030.59 -43847030.48 -43847030.37 0.1648 0.0637

Earth -124759-12-28 04:06 J -43846440.52 -43846440.33 -43846440.14 0.1679 0.0211

Moon -124759-12-28 07:42 J -43846440.36 -43846440.18 -43846440.01 0.1678 0.0252 *
 Mercury -124755-01-21 09:37 J -43845320.26 -43845320.10 -43845319.93 0.1865 0.0267
 Mercury -124753-11-01 06:59 J -43844305.26 -43844305.21 -43844305.16 0.1649 0.1482
 Mercury -124751-10-07 11:32 J -43843600.14 -43843600.02 -43843599.91 0.1647 0.0232
 Mercury -124746-06-13 04:20 J -43841890.42 -43841890.32 -43841890.21 0.1864 0.1397
 Mercury -124741-02-27 22:20 J -43840169.69 -43840169.57 -43840169.45 0.1648 0.0182
 Venus -124741-03-07 16:35 J -43840160.92 -43840160.81 -43840160.69 0.1647 0.1198
 Venus -124740-01-26 15:37 J -43839836.03 -43839835.85 -43839835.68 0.1864 0.0152
 Venus -124739-01-05 21:23 J -43839491.77 -43839491.61 -43839491.44 0.1648 0.0368
 Mercury -124739-02-02 02:25 J -43839464.45 -43839464.40 -43839464.36 0.1648 0.1498
 Venus -124739-11-23 21:51 J -43839169.69 -43839169.59 -43839169.49 0.1857 0.1531
 Venus -124738-11-05 23:47 J -43838822.67 -43838822.51 -43838822.35 0.1652 0.0501
 Venus -124736-09-04 22:49 J -43838153.64 -43838153.55 -43838153.46 0.1657 0.1397
 Mercury -124732-07-20 09:23 J -43836739.22 -43836739.11 -43836739.00 0.1648 0.0593
 Mercury -124730-06-25 13:27 J -43836034.03 -43836033.94 -43836033.86 0.1648 0.1096
 Mercury -124725-03-01 15:51 J -43834322.98 -43834322.84 -43834322.70 0.1865 0.0994
 Mercury -124723-12-10 20:11 J -43833308.75 -43833308.66 -43833308.57 0.1649 0.1007
 Mercury -124721-11-15 00:30 J -43832603.59 -43832603.48 -43832603.38 0.1648 0.0692
 Mercury -124716-07-22 10:20 J -43830893.24 -43830893.07 -43830892.91 0.1865 0.0159
 Mercury -124713-05-02 06:59 J -43829878.27 -43829878.21 -43829878.15 0.1649 0.1423
 Mercury -124711-04-07 11:18 J -43829173.14 -43829173.03 -43829172.91 0.1648 0.0292
 Venus -124709-03-06 08:11 J -43828474.20 -43828474.16 -43828474.12 0.1648 0.1590
 Venus -124708-01-26 16:20 J -43828147.98 -43828147.82 -43828147.67 0.1864 0.0967
 Venus -124707-01-04 13:42 J -43827805.08 -43827804.93 -43827804.78 0.1648 0.0778
 Venus -124707-11-23 20:11 J -43827481.83 -43827481.66 -43827481.50 0.1860 0.0760
 Mercury -124707-12-12 05:32 J -43827463.39 -43827463.27 -43827463.15 0.1864 0.1272
 Venus -124706-11-04 17:03 J -43827135.96 -43827135.79 -43827135.62 0.1650 0.0081
 Venus -124704-09-03 17:32 J -43826466.90 -43826466.77 -43826466.63 0.1654 0.0961
 Mercury -124702-08-28 22:20 J -43825742.68 -43825742.57 -43825742.45 0.1648 0.0133
 Mercury -124700-08-03 02:25 J -43825037.44 -43825037.40 -43825037.37 0.1648 0.1553

Mercury -124692-01-18 09:23 J -43822312.22 -43822312.11 -43822312.00 0.1648 0.0537

Mercury -124691-12-24 13:27 J -43821607.02 -43821606.94 -43821606.86 0.1648 0.1152

Mercury -124686-08-31 16:49 J -43819895.94 -43819895.80 -43819895.67 0.1865 0.1113

Mercury -124683-06-10 20:11 J -43818881.76 -43818881.66 -43818881.56 0.1648 0.0949

Mercury -124681-05-16 00:30 J -43818176.59 -43818176.48 -43818176.38 0.1648 0.0749

Earth -124680-12-30 09:51 J -43817583.17 -43817583.09 -43817583.00 0.1677 0.1485

Mercury -124676-01-20 11:18 J -43816466.20 -43816466.03 -43816465.87 0.1865 0.0044

Venus -124676-01-26 18:15 J -43816459.79 -43816459.74 -43816459.70 0.1865 0.1800

Venus -124675-01-03 05:32 J -43816118.38 -43816118.27 -43816118.15 0.1648 0.1181

Venus -124675-11-23 18:44 J -43815793.90 -43815793.72 -43815793.54 0.1863 0.0050

Mercury -124674-11-01 06:59 J -43815451.27 -43815451.21 -43815451.14 0.1649 0.1365

Venus -124674-11-03 09:51 J -43815449.26 -43815449.09 -43815448.93 0.1649 0.0343

Venus -124673-09-20 02:11 J -43815127.49 -43815127.41 -43815127.33 0.1856 0.1623

Venus -124672-09-02 11:32 J -43814780.18 -43814780.02 -43814779.86 0.1652 0.0530

Mercury -124672-10-06 11:32 J -43814746.14 -43814746.02 -43814745.91 0.1648 0.0348

Venus -124670-07-03 10:35 J -43814111.14 -43814111.06 -43814110.97 0.1658 0.1429

Mercury -124667-06-12 05:47 J -43813036.39 -43813036.26 -43813036.13 0.1864 0.1180

Mercury -124662-02-26 22:20 J -43811315.69 -43811315.57 -43811315.45 0.1648 0.0068

Mercury -124660-02-01 02:11 J -43810610.43 -43810610.41 -43810610.38 0.1648 0.1605

Mercury -124653-07-19 09:23 J -43807885.23 -43807885.11 -43807885.00 0.1648 0.0478

Mercury -124651-06-24 13:13 J -43807180.02 -43807179.95 -43807179.87 0.1648 0.1207

Mercury -124646-03-01 17:32 J -43805468.89 -43805468.77 -43805468.64 0.1865 0.1231

Mercury -124644-12-09 20:11 J -43804454.76 -43804454.66 -43804454.56 0.1648 0.0889

Venus -124643-01-01 21:23 J -43804431.66 -43804431.61 -43804431.57 0.1648 0.1575

Venus -124643-11-23 18:59 J -43804105.87 -43804105.71 -43804105.55 0.1864 0.0854

Venus -124642-11-02 02:25 J -43803762.56 -43803762.40 -43803762.25 0.1648 0.0757

Mercury -124642-11-15 00:30 J -43803749.58 -43803749.48 -43803749.38 0.1648 0.0806

Venus -124641-09-19 23:18 J -43803439.69 -43803439.53 -43803439.37 0.1859 0.0867

Venus -124640-09-01 05:03 J -43803093.46 -43803093.29 -43803093.12 0.1651 0.0105

Venus -124638-07-02 05:32 J -43802424.41 -43802424.27 -43802424.13 0.1655 0.0991

Mercury -124637-07-21 12:01 J -43802039.17 -43802039.00 -43802038.83 0.1865 0.0076

Mercury -124634-05-02 06:59 J -43801024.28 -43801024.21 -43801024.14 0.1649 0.1307

Mercury -124632-04-06 11:18 J -43800319.14 -43800319.03 -43800318.91 0.1648 0.0402

Mercury -124628-12-11 06:44 J -43798609.36 -43798609.22 -43798609.09 0.1864 0.1059

Mercury -124623-08-27 22:20 J -43796888.69 -43796888.57 -43796888.45 0.1648 0.0013

Mercury -124613-01-18 09:23 J -43793458.23 -43793458.11 -43793458.00 0.1648 0.0425

Mercury -124612-12-23 13:13 J -43792753.02 -43792752.95 -43792752.87 0.1648 0.1262

Venus -124611-11-23 20:54 J -43792417.70 -43792417.63 -43792417.56 0.1865 0.1689

Venus -124610-10-31 18:15 J -43792075.86 -43792075.74 -43792075.62 0.1648 0.1160

Venus -124609-09-19 21:23 J -43791751.79 -43791751.61 -43791751.43 0.1862 0.0081

Venus -124608-08-30 22:20 J -43791406.74 -43791406.57 -43791406.40 0.1649 0.0320

Venus -124607-07-18 06:15 J -43791085.30 -43791085.24 -43791085.18 0.1854 0.1720

Mercury -124607-08-30 18:15 J -43791041.85 -43791041.74 -43791041.62 0.1865 0.1337

Venus -124606-06-30 23:47 J -43790737.67 -43790737.51 -43790737.35 0.1653 0.0557

Venus -124604-04-29 22:06 J -43790068.66 -43790068.58 -43790068.50 0.1659 0.1463

Mercury -124604-06-09 20:11 J -43790027.76 -43790027.66 -43790027.56 0.1649 0.0833

Mercury -124602-05-16 00:15 J -43789322.58 -43789322.49 -43789322.39 0.1648 0.0860

Mercury -124597-01-20 12:44 J -43787612.14 -43787611.97 -43787611.81 0.1865 0.0187

Mercury -124595-10-31 06:59 J -43786597.29 -43786597.21 -43786597.13 0.1649 0.1248

Mercury -124593-10-05 11:18 J -43785892.14 -43785892.03 -43785891.91 0.1648 0.0456

Mercury -124588-06-11 07:27 J -43784182.33 -43784182.19 -43784182.05 0.1864 0.0945

Mercury -124583-02-25 22:20 J -43782461.69 -43782461.57 -43782461.45 0.1648 0.0050

Venus -124578-10-30 09:51 J -43780389.14 -43780389.09 -43780389.04 0.1648 0.1554

Venus -124577-09-19 22:06 J -43780063.74 -43780063.58 -43780063.42 0.1864 0.0744

Venus -124576-08-29 14:39 J -43779720.04 -43779719.89 -43779719.74 0.1648 0.0733

Venus -124575-07-18 03:08 J -43779397.52 -43779397.37 -43779397.22 0.1858 0.0969

Venus -124574-06-29 17:32 J -43779050.94 -43779050.77 -43779050.60 0.1651 0.0128

Mercury -124574-07-19 09:23 J -43779031.23 -43779031.11 -43779031.00 0.1648 0.0364

Venus -124572-04-28 17:32 J -43778381.91 -43778381.77 -43778381.64 0.1656 0.1022

Mercury -124572-06-23 13:27 J -43778326.01 -43778325.94 -43778325.88 0.1648 0.1318

Mercury -124567-02-28 18:59 J -43776614.81 -43776614.71 -43776614.61 0.1865 0.1447
 Mercury -124565-12-08 20:11 J -43775600.77 -43775600.66 -43775600.56 0.1649 0.0777
 Mercury -124563-11-14 00:15 J -43774895.58 -43774895.49 -43774895.39 0.1648 0.0916
 Earth -124560-06-18 15:08 J -43773948.03 -43773947.87 -43773947.71 0.1830 0.1065
 Moon -124560-06-18 17:18 J -43773947.91 -43773947.78 -43773947.65 0.1830 0.1274 *
 Mercury -124558-07-21 13:27 J -43773185.10 -43773184.94 -43773184.78 0.1865 0.0295
 Mercury -124555-05-01 06:59 J -43772170.29 -43772170.21 -43772170.13 0.1649 0.1193
 Earth -124554-12-26 22:35 J -43771565.63 -43771565.56 -43771565.49 0.1684 0.1554
 Moon -124554-12-27 05:18 J -43771565.30 -43771565.28 -43771565.25 0.1684 0.1663
 Mercury -124553-04-05 11:18 J -43771465.14 -43771465.03 -43771464.92 0.1648 0.0508
 Mercury -124549-12-10 08:11 J -43769755.31 -43769755.16 -43769755.02 0.1864 0.0843
 Mercury -124546-09-21 17:47 J -43768739.78 -43768739.76 -43768739.74 0.1650 0.1609
 Venus -124545-09-19 22:49 J -43768375.64 -43768375.55 -43768375.45 0.1865 0.1572
 Mercury -124544-08-26 22:20 J -43768034.69 -43768034.57 -43768034.45 0.1648 0.0104
 Venus -124544-08-28 06:44 J -43768033.34 -43768033.22 -43768033.10 0.1648 0.1139
 Venus -124543-07-18 00:59 J -43767709.64 -43767709.46 -43767709.28 0.1861 0.0186
 Venus -124542-06-28 10:35 J -43767364.23 -43767364.06 -43767363.90 0.1650 0.0297
 Venus -124541-05-14 10:35 J -43767043.09 -43767043.06 -43767043.03 0.1853 0.1812
 Venus -124540-04-27 11:32 J -43766695.18 -43766695.02 -43766694.86 0.1654 0.0586
 Venus -124538-02-25 09:37 J -43766026.17 -43766026.10 -43766026.03 0.1660 0.1496
 Mercury -124534-01-17 09:23 J -43764604.23 -43764604.11 -43764604.00 0.1648 0.0311
 Mercury -124533-12-22 13:13 J -43763899.01 -43763898.95 -43763898.88 0.1648 0.1371
 Mercury -124528-08-29 19:56 J -43762187.75 -43762187.67 -43762187.58 0.1865 0.1571
 Mercury -124525-06-08 20:11 J -43761173.77 -43761173.66 -43761173.55 0.1649 0.0718
 Mercury -124523-05-15 00:15 J -43760468.58 -43760468.49 -43760468.39 0.1648 0.0970
 Mercury -124518-01-19 14:11 J -43758758.07 -43758757.91 -43758757.74 0.1864 0.0413
 Mercury -124516-10-30 06:59 J -43757743.30 -43757743.21 -43757743.13 0.1649 0.1133
 Mercury -124514-10-05 11:18 J -43757038.14 -43757038.03 -43757037.92 0.1648 0.0569
 Venus -124512-08-26 22:35 J -43756346.62 -43756346.56 -43756346.50 0.1648 0.1536
 Venus -124511-07-18 00:30 J -43756021.65 -43756021.48 -43756021.31 0.1863 0.0629

Venus -124510-06-27 03:08 J -43755677.52 -43755677.37 -43755677.22 0.1649 0.0711

Venus -124509-05-14 06:15 J -43755355.38 -43755355.24 -43755355.09 0.1857 0.1075

Mercury -124509-06-10 08:54 J -43755328.28 -43755328.13 -43755327.98 0.1864 0.0728

Venus -124508-04-26 05:18 J -43755008.45 -43755008.28 -43755008.11 0.1652 0.0156

Venus -124506-02-24 04:49 J -43754339.43 -43754339.30 -43754339.17 0.1657 0.1054

Mercury -124506-03-22 17:47 J -43754312.80 -43754312.76 -43754312.73 0.1650 0.1553

Mercury -124504-02-24 22:20 J -43753607.69 -43753607.57 -43753607.45 0.1648 0.0160

Mercury -124500-10-31 04:06 J -43751898.36 -43751898.33 -43751898.31 0.1863 0.1832

Mercury -124495-07-18 09:08 J -43750177.23 -43750177.12 -43750177.00 0.1648 0.0257

Mercury -124493-06-22 13:13 J -43749472.01 -43749471.95 -43749471.89 0.1648 0.1423

Mercury -124488-02-27 20:25 J -43747760.72 -43747760.65 -43747760.58 0.1864 0.1667

Mercury -124486-12-08 20:11 J -43746746.77 -43746746.66 -43746746.55 0.1649 0.0662

Mercury -124484-11-13 00:15 J -43746041.58 -43746041.49 -43746041.40 0.1648 0.1025

Venus -124479-07-18 00:59 J -43744333.57 -43744333.46 -43744333.35 0.1865 0.1454

Mercury -124479-07-20 14:54 J -43744331.04 -43744330.88 -43744330.72 0.1865 0.0518

Venus -124478-06-25 19:27 J -43743990.82 -43743990.69 -43743990.57 0.1648 0.1118

Venus -124477-05-14 03:51 J -43743667.52 -43743667.34 -43743667.17 0.1860 0.0303

Venus -124476-04-24 22:35 J -43743321.72 -43743321.56 -43743321.39 0.1650 0.0272

Mercury -124476-04-30 06:59 J -43743316.30 -43743316.21 -43743316.12 0.1649 0.1074

Earth -124475-12-29 04:49 J -43742708.49 -43742708.30 -43742708.12 0.1682 0.0173

Moon -124475-12-29 10:06 J -43742708.25 -43742708.08 -43742707.91 0.1682 0.0453 *

Venus -124474-02-22 23:18 J -43742652.69 -43742652.53 -43742652.37 0.1655 0.0616

Mercury -124474-04-05 11:18 J -43742611.14 -43742611.03 -43742610.92 0.1648 0.0622

Venus -124473-12-22 21:08 J -43741983.68 -43741983.62 -43741983.55 0.1661 0.1529

Mercury -124470-12-10 09:51 J -43740901.24 -43740901.09 -43740900.93 0.1864 0.0605

Mercury -124467-09-20 17:47 J -43739885.81 -43739885.76 -43739885.71 0.1650 0.1492

Mercury -124465-08-25 22:20 J -43739180.69 -43739180.57 -43739180.45 0.1648 0.0217

Mercury -124460-05-01 04:35 J -43737471.37 -43737471.31 -43737471.25 0.1863 0.1729

Mercury -124455-01-16 09:08 J -43735750.23 -43735750.12 -43735750.00 0.1648 0.0203

Mercury -124454-12-22 13:13 J -43735045.00 -43735044.95 -43735044.90 0.1648 0.1480

Mercury -124449-08-28 21:23 J -43733333.65 -43733333.61 -43733333.56 0.1865 0.1788

Mercury -124446-06-08 20:11 J -43732319.77 -43732319.66 -43732319.55 0.1649 0.0605

Venus -124446-06-24 11:03 J -43732304.10 -43732304.04 -43732303.98 0.1648 0.1515

Venus -124445-05-14 03:37 J -43731979.52 -43731979.35 -43731979.18 0.1863 0.0516

Venus -124444-04-23 15:23 J -43731635.02 -43731634.86 -43731634.71 0.1649 0.0687

Mercury -124444-05-14 00:15 J -43731614.58 -43731614.49 -43731614.40 0.1648 0.1080

Venus -124443-03-11 09:51 J -43731313.23 -43731313.09 -43731312.96 0.1856 0.1179

Venus -124442-02-21 17:32 J -43730965.94 -43730965.77 -43730965.60 0.1652 0.0182

Venus -124441-12-21 16:49 J -43730296.93 -43730296.80 -43730296.67 0.1658 0.1081

Mercury -124439-01-18 15:51 J -43729904.00 -43729903.84 -43729903.69 0.1864 0.0635

Mercury -124437-10-29 06:59 J -43728889.30 -43728889.21 -43728889.12 0.1649 0.1018

Mercury -124435-10-04 11:18 J -43728184.14 -43728184.03 -43728183.92 0.1648 0.0677

Mercury -124430-06-10 10:06 J -43726474.24 -43726474.08 -43726473.92 0.1864 0.0516

Mercury -124427-03-21 17:47 J -43725458.82 -43725458.76 -43725458.71 0.1650 0.1437

Mercury -124425-02-24 22:20 J -43724753.69 -43724753.57 -43724753.46 0.1648 0.0272

Mercury -124421-10-30 05:32 J -43723044.35 -43723044.27 -43723044.19 0.1863 0.1608

Mercury -124416-07-17 09:08 J -43721323.23 -43721323.12 -43721323.00 0.1648 0.0150

Mercury -124414-06-22 13:13 J -43720617.99 -43720617.95 -43720617.91 0.1648 0.1534

Venus -124413-05-14 03:37 J -43720291.47 -43720291.35 -43720291.23 0.1864 0.1337

Venus -124412-04-22 07:42 J -43719948.31 -43719948.18 -43719948.06 0.1648 0.1095

Venus -124411-03-11 07:42 J -43719625.36 -43719625.18 -43719625.01 0.1859 0.0402

Venus -124410-02-20 10:49 J -43719279.22 -43719279.05 -43719278.88 0.1651 0.0244

Venus -124409-12-20 11:32 J -43718610.18 -43718610.02 -43718609.86 0.1655 0.0640

Venus -124407-10-20 08:54 J -43717941.18 -43717941.13 -43717941.07 0.1662 0.1561

Mercury -124407-12-07 20:11 J -43717892.77 -43717892.66 -43717892.55 0.1649 0.0545

Mercury -124405-11-12 00:15 J -43717187.57 -43717187.49 -43717187.40 0.1648 0.1137

Mercury -124400-07-19 16:35 J -43715476.96 -43715476.81 -43715476.66 0.1864 0.0744

Mercury -124397-04-29 06:59 J -43714462.31 -43714462.21 -43714462.12 0.1649 0.0962

Mercury -124395-04-04 11:18 J -43713757.14 -43713757.03 -43713756.93 0.1648 0.0732

Mercury -124391-12-09 11:18 J -43712047.19 -43712047.03 -43712046.87 0.1864 0.0393

Mercury -124388-09-19 17:47 J -43711031.82 -43711031.76 -43711031.70 0.1650 0.1378

Mercury -124386-08-25 22:20 J -43710326.69 -43710326.57 -43710326.46 0.1648 0.0329

Mercury -124381-04-30 06:01 J -43708617.34 -43708617.25 -43708617.15 0.1863 0.1508

Venus -124380-04-20 23:47 J -43708261.58 -43708261.51 -43708261.45 0.1648 0.1496

Venus -124379-03-11 06:15 J -43707937.42 -43707937.24 -43707937.07 0.1862 0.0401

Venus -124378-02-19 03:51 J -43707592.50 -43707592.34 -43707592.19 0.1649 0.0664

Venus -124377-01-06 14:25 J -43707271.03 -43707270.90 -43707270.77 0.1854 0.1273

Venus -124377-12-19 05:47 J -43706923.43 -43706923.26 -43706923.09 0.1653 0.0208

Mercury -124376-01-15 09:08 J -43706896.23 -43706896.12 -43706896.00 0.1648 0.0097

Venus -124375-10-19 04:35 J -43706254.44 -43706254.31 -43706254.19 0.1659 0.1114

Mercury -124375-12-21 13:13 J -43706190.98 -43706190.95 -43706190.92 0.1648 0.1587

Mercury -124367-06-07 20:11 J -43703465.78 -43703465.66 -43703465.55 0.1649 0.0492

Mercury -124365-05-13 00:15 J -43702760.57 -43702760.49 -43702760.41 0.1648 0.1188

Mercury -124360-01-17 17:18 J -43701049.93 -43701049.78 -43701049.64 0.1865 0.0853

Mercury -124358-10-29 06:59 J -43700035.31 -43700035.21 -43700035.11 0.1649 0.0902

Mercury -124356-10-03 11:18 J -43699330.13 -43699330.03 -43699329.93 0.1648 0.0788

Mercury -124351-06-09 12:01 J -43697620.16 -43697620.00 -43697619.84 0.1864 0.0276

Mercury -124348-03-20 17:47 J -43696604.83 -43696604.76 -43696604.69 0.1650 0.1319

Venus -124347-03-11 05:47 J -43696249.39 -43696249.26 -43696249.12 0.1863 0.1219

Venus -124346-02-17 20:25 J -43695905.78 -43695905.65 -43695905.52 0.1648 0.1075

Mercury -124346-02-23 22:20 J -43695899.69 -43695899.57 -43695899.46 0.1648 0.0386

Venus -124345-01-06 11:18 J -43695583.20 -43695583.03 -43695582.86 0.1858 0.0506

Venus -124345-12-17 23:18 J -43695236.70 -43695236.53 -43695236.36 0.1651 0.0224

Venus -124343-10-17 23:18 J -43694567.68 -43694567.53 -43694567.37 0.1656 0.0673

Mercury -124342-10-30 06:59 J -43694190.32 -43694190.21 -43694190.10 0.1863 0.1390

Venus -124341-08-16 19:56 J -43693898.71 -43693898.67 -43693898.62 0.1664 0.1599

Mercury -124337-07-16 09:08 J -43692469.23 -43692469.12 -43692469.00 0.1648 0.0055

Mercury -124335-06-21 13:13 J -43691763.96 -43691763.95 -43691763.95 0.1648 0.1642

Mercury -124328-12-06 20:11 J -43689038.78 -43689038.66 -43689038.55 0.1649 0.0437

Mercury -124326-11-12 00:15 J -43688333.57 -43688333.49 -43688333.42 0.1648 0.1243

Mercury -124321-07-18 18:01 J -43686622.89 -43686622.75 -43686622.61 0.1864 0.0967

Mercury -124318-04-29 06:59 J -43685608.31 -43685608.21 -43685608.11 0.1649 0.0847

Mercury -124316-04-03 11:18 J -43684903.13 -43684903.03 -43684902.93 0.1648 0.0843

Venus -124314-02-16 12:15 J -43684219.06 -43684218.99 -43684218.92 0.1648 0.1476

Venus -124313-01-06 09:37 J -43683895.28 -43683895.10 -43683894.92 0.1861 0.0292

Venus -124313-12-16 16:20 J -43683549.97 -43683549.82 -43683549.66 0.1650 0.0644

Venus -124312-11-02 18:15 J -43683228.86 -43683228.74 -43683228.62 0.1852 0.1371

Mercury -124312-12-08 12:30 J -43683193.14 -43683192.98 -43683192.81 0.1864 0.0179

Venus -124311-10-16 18:01 J -43682880.92 -43682880.75 -43682880.58 0.1654 0.0236

Venus -124309-08-15 15:51 J -43682211.96 -43682211.84 -43682211.71 0.1660 0.1147

Mercury -124309-09-18 17:47 J -43682177.84 -43682177.76 -43682177.69 0.1650 0.1260

Mercury -124307-08-24 22:20 J -43681472.69 -43681472.57 -43681472.46 0.1648 0.0441

Mercury -124302-04-30 07:42 J -43679763.30 -43679763.18 -43679763.06 0.1863 0.1282

Mercury -124297-01-15 09:08 J -43678042.24 -43678042.12 -43678042.00 0.1648 0.0050

Mercury -124288-06-06 20:11 J -43674611.78 -43674611.66 -43674611.55 0.1649 0.0376

Mercury -124286-05-13 00:15 J -43673906.56 -43673906.49 -43673906.42 0.1648 0.1299

Venus -124281-01-06 09:23 J -43672207.25 -43672207.11 -43672206.97 0.1863 0.1111

Mercury -124281-01-17 18:59 J -43672195.85 -43672195.71 -43672195.58 0.1864 0.1082

Venus -124281-12-15 08:54 J -43671863.26 -43671863.13 -43671863.00 0.1649 0.1055

Venus -124280-11-02 15:23 J -43671541.03 -43671540.86 -43671540.69 0.1857 0.0606

Venus -124279-10-15 11:18 J -43671194.20 -43671194.03 -43671193.86 0.1652 0.0202

Mercury -124279-10-28 06:59 J -43671181.31 -43671181.21 -43671181.11 0.1649 0.0788

Venus -124277-08-14 11:18 J -43670525.19 -43670525.03 -43670524.88 0.1657 0.0700

Mercury -124277-10-02 11:18 J -43670476.13 -43670476.03 -43670475.93 0.1648 0.0900

Earth -124276-06-18 09:08 J -43670217.20 -43670217.12 -43670217.04 0.1824 0.1643

Moon -124276-06-18 10:49 J -43670217.11 -43670217.05 -43670216.99 0.1824 0.1709 *

Venus -124275-06-14 07:27 J -43669856.22 -43669856.19 -43669856.16 0.1665 0.1633

Mercury -124272-06-08 13:27 J -43668766.11 -43668765.94 -43668765.78 0.1864 0.0068

Earth -124270-12-27 22:06 J -43667833.71 -43667833.58 -43667833.44 0.1688 0.1201

Moon -124270-12-28 04:20 J -43667833.47 -43667833.32 -43667833.16 0.1688 0.0936 *

Mercury -124269-03-19 17:47 J -43667750.84 -43667750.76 -43667750.68 0.1650 0.1206

Mercury -124267-02-22 22:06 J -43667045.69 -43667045.58 -43667045.46 0.1648 0.0498

Mercury -124263-10-29 08:25 J -43665336.28 -43665336.15 -43665336.02 0.1863 0.1173

Mercury -124260-08-10 04:20 J -43664320.33 -43664320.32 -43664320.30 0.1651 0.1624

Mercury -124258-07-16 09:08 J -43663615.24 -43663615.12 -43663615.00 0.1648 0.0095

Mercury -124249-12-05 20:11 J -43660184.78 -43660184.66 -43660184.55 0.1649 0.0321

Venus -124249-12-14 00:59 J -43660176.54 -43660176.46 -43660176.38 0.1648 0.1458

Venus -124248-11-02 12:44 J -43659853.15 -43659852.97 -43659852.79 0.1860 0.0183

Venus -124247-10-14 04:35 J -43659507.47 -43659507.31 -43659507.15 0.1650 0.0620

Mercury -124247-11-11 00:15 J -43659479.56 -43659479.49 -43659479.43 0.1648 0.1353

Venus -124246-08-30 23:03 J -43659186.64 -43659186.54 -43659186.43 0.1851 0.1461

Venus -124245-08-13 05:32 J -43658838.44 -43658838.27 -43658838.10 0.1655 0.0261

Venus -124243-06-13 03:37 J -43658169.47 -43658169.35 -43658169.23 0.1661 0.1180

Mercury -124242-07-18 19:42 J -43657768.81 -43657768.68 -43657768.56 0.1865 0.1190

Mercury -124239-04-28 06:59 J -43656754.32 -43656754.21 -43656754.10 0.1649 0.0730

Mercury -124237-04-02 11:18 J -43656049.13 -43656049.03 -43656048.94 0.1648 0.0954

Mercury -124233-12-07 14:25 J -43654339.07 -43654338.90 -43654338.74 0.1864 0.0062

Mercury -124230-09-18 17:47 J -43653323.85 -43653323.76 -43653323.68 0.1650 0.1146

Mercury -124228-08-23 22:20 J -43652618.68 -43652618.57 -43652618.46 0.1648 0.0553

Mercury -124223-04-29 09:08 J -43650909.26 -43650909.12 -43650908.99 0.1863 0.1069

Mercury -124220-02-08 04:20 J -43649893.35 -43649893.32 -43649893.28 0.1651 0.1566

Mercury -124218-01-14 09:08 J -43649188.24 -43649188.12 -43649188.00 0.1648 0.0148

Venus -124216-11-02 12:01 J -43648165.15 -43648165.00 -43648164.85 0.1862 0.0996

Venus -124215-10-12 21:23 J -43647820.74 -43647820.61 -43647820.48 0.1649 0.1035

Venus -124214-08-30 18:59 J -43647498.87 -43647498.71 -43647498.54 0.1855 0.0710

Venus -124213-08-11 23:32 J -43647151.69 -43647151.52 -43647151.35 0.1653 0.0173

Venus -124211-06-11 22:49 J -43646482.70 -43646482.55 -43646482.39 0.1658 0.0734

Mercury -124209-06-05 20:11 J -43645757.78 -43645757.66 -43645757.55 0.1649 0.0268

Mercury -124207-05-12 00:15 J -43645052.55 -43645052.49 -43645052.44 0.1648 0.1407

Mercury -124202-01-16 20:25 J -43643341.77 -43643341.65 -43643341.53 0.1864 0.1302

Mercury -124200-10-27 06:59 J -43642327.32 -43642327.21 -43642327.10 0.1650 0.0675
 Mercury -124198-10-02 11:18 J -43641622.13 -43641622.03 -43641621.94 0.1648 0.1008
 Moon -124197-06-21 06:15 J -43641359.34 -43641359.24 -43641359.14 0.1828 0.1527
 Earth -124197-06-21 12:30 J -43641359.09 -43641358.98 -43641358.86 0.1828 0.1458
 Mercury -124193-06-07 14:39 J -43639912.05 -43639911.89 -43639911.72 0.1864 0.0152
 Earth -124191-12-30 04:20 J -43638976.50 -43638976.32 -43638976.14 0.1686 0.0539
 Moon -124191-12-30 06:01 J -43638976.42 -43638976.25 -43638976.08 0.1686 0.0501 *
 Mercury -124190-03-19 17:47 J -43638896.85 -43638896.76 -43638896.67 0.1650 0.1090
 Mercury -124188-02-21 22:06 J -43638191.68 -43638191.58 -43638191.47 0.1648 0.0608
 Mercury -124184-10-28 10:06 J -43636482.22 -43636482.08 -43636481.94 0.1863 0.0944
 Venus -124184-11-02 13:13 J -43636476.98 -43636476.95 -43636476.92 0.1864 0.1830
 Venus -124183-10-11 13:27 J -43636134.02 -43636133.94 -43636133.86 0.1648 0.1439
 Venus -124182-08-30 16:06 J -43635811.01 -43635810.83 -43635810.65 0.1859 0.0073
 Mercury -124181-08-09 04:35 J -43635466.36 -43635466.31 -43635466.27 0.1651 0.1503
 Venus -124181-08-10 17:03 J -43635464.95 -43635464.79 -43635464.63 0.1651 0.0598
 Venus -124180-06-27 03:23 J -43635144.46 -43635144.36 -43635144.27 0.1849 0.1556
 Venus -124179-06-10 17:47 J -43634795.93 -43634795.76 -43634795.59 0.1656 0.0288
 Mercury -124179-07-15 09:08 J -43634761.23 -43634761.12 -43634761.00 0.1648 0.0208
 Venus -124177-04-09 14:54 J -43634127.00 -43634126.88 -43634126.77 0.1663 0.1217
 Mercury -124170-12-05 20:11 J -43631330.78 -43631330.66 -43631330.55 0.1649 0.0210
 Mercury -124168-11-10 00:15 J -43630625.54 -43630625.49 -43630625.44 0.1648 0.1463
 Mercury -124163-07-17 21:08 J -43628914.73 -43628914.62 -43628914.51 0.1864 0.1411
 Mercury -124160-04-27 06:59 J -43627900.32 -43627900.21 -43627900.10 0.1650 0.0619
 Mercury -124158-04-02 11:18 J -43627195.12 -43627195.03 -43627194.95 0.1648 0.1064
 Mercury -124154-12-07 15:51 J -43625485.01 -43625484.84 -43625484.68 0.1864 0.0278
 Mercury -124151-09-17 17:47 J -43624469.85 -43624469.76 -43624469.67 0.1650 0.1031
 Venus -124150-08-30 15:37 J -43624123.00 -43624122.85 -43624122.69 0.1861 0.0890
 Venus -124149-08-09 09:37 J -43623778.23 -43623778.10 -43623777.96 0.1649 0.1014
 Mercury -124149-08-22 22:06 J -43623764.68 -43623764.58 -43623764.47 0.1648 0.0665
 Venus -124148-06-26 22:49 J -43623456.70 -43623456.55 -43623456.39 0.1854 0.0812

Venus -124147-06-09 11:47 J -43623109.18 -43623109.01 -43623108.84 0.1653 0.0147
 Venus -124145-04-08 10:35 J -43622440.21 -43622440.06 -43622439.90 0.1659 0.0764
 Mercury -124144-04-28 10:35 J -43622055.21 -43622055.06 -43622054.92 0.1863 0.0848
 Mercury -124141-02-08 04:20 J -43621039.37 -43621039.32 -43621039.26 0.1651 0.1451
 Mercury -124139-01-13 09:08 J -43620334.24 -43620334.12 -43620334.00 0.1649 0.0257
 Mercury -124130-06-05 20:11 J -43616903.78 -43616903.66 -43616903.55 0.1649 0.0164
 Mercury -124128-05-11 00:01 J -43616198.54 -43616198.50 -43616198.45 0.1648 0.1515
 Mercury -124123-01-15 21:51 J -43614487.68 -43614487.59 -43614487.49 0.1864 0.1527
 Mercury -124121-10-26 06:59 J -43613473.32 -43613473.21 -43613473.10 0.1650 0.0558
 Mercury -124119-10-01 11:18 J -43612768.12 -43612768.03 -43612767.95 0.1648 0.1120
 Venus -124118-08-30 15:37 J -43612434.91 -43612434.85 -43612434.78 0.1863 0.1714
 Venus -124117-08-08 02:11 J -43612091.50 -43612091.41 -43612091.33 0.1649 0.1419
 Venus -124116-06-26 19:42 J -43611768.86 -43611768.68 -43611768.50 0.1858 0.0037
 Venus -124115-06-08 05:03 J -43611422.45 -43611422.29 -43611422.12 0.1651 0.0574
 Venus -124114-04-24 08:11 J -43611102.23 -43611102.16 -43611102.08 0.1848 0.1647
 Mercury -124114-06-07 16:35 J -43611057.97 -43611057.81 -43611057.65 0.1864 0.0390
 Venus -124113-04-07 05:18 J -43610753.45 -43610753.28 -43610753.11 0.1656 0.0319
 Venus -124111-02-05 02:11 J -43610084.52 -43610084.41 -43610084.29 0.1664 0.1251
 Mercury -124111-03-18 17:47 J -43610042.86 -43610042.76 -43610042.67 0.1650 0.0974
 Mercury -124109-02-21 22:20 J -43609337.68 -43609337.57 -43609337.47 0.1648 0.0721
 Mercury -124105-10-27 11:18 J -43607628.18 -43607628.03 -43607627.87 0.1863 0.0734
 Mercury -124102-08-09 04:20 J -43606612.38 -43606612.32 -43606612.25 0.1651 0.1393
 Mercury -124100-07-14 09:08 J -43605907.24 -43605907.12 -43605907.00 0.1648 0.0313
 Mercury -124095-03-19 06:30 J -43604198.25 -43604198.23 -43604198.20 0.1862 0.1828
 Mercury -124091-12-04 20:11 J -43602476.78 -43602476.66 -43602476.55 0.1649 0.0115
 Mercury -124089-11-09 00:01 J -43601771.53 -43601771.50 -43601771.46 0.1648 0.1570
 Venus -124084-06-26 18:15 J -43600080.90 -43600080.74 -43600080.58 0.1861 0.0776
 Mercury -124084-07-16 22:49 J -43600060.63 -43600060.55 -43600060.48 0.1864 0.1635
 Venus -124083-06-06 22:06 J -43599735.71 -43599735.58 -43599735.44 0.1650 0.0991
 Venus -124082-04-24 02:54 J -43599414.54 -43599414.38 -43599414.23 0.1852 0.0915

Venus -124081-04-05 23:32 J -43599066.69 -43599066.52 -43599066.35 0.1654 0.0119

Mercury -124081-04-26 06:59 J -43599046.32 -43599046.21 -43599046.10 0.1650 0.0504

Venus -124079-02-03 22:06 J -43598397.74 -43598397.58 -43598397.43 0.1660 0.0798

Mercury -124079-04-01 11:03 J -43598341.12 -43598341.04 -43598340.95 0.1648 0.1172

Mercury -124075-12-06 17:03 J -43596630.95 -43596630.79 -43596630.63 0.1864 0.0492

Mercury -124072-09-16 17:47 J -43595615.86 -43595615.76 -43595615.66 0.1650 0.0916

Mercury -124070-08-22 22:06 J -43594910.68 -43594910.58 -43594910.47 0.1648 0.0772

Mercury -124065-04-27 12:15 J -43593201.15 -43593200.99 -43593200.84 0.1863 0.0622

Mercury -124062-02-07 04:35 J -43592185.38 -43592185.31 -43592185.24 0.1651 0.1332

Mercury -124060-01-12 09:08 J -43591480.23 -43591480.12 -43591480.00 0.1649 0.0370

Mercury -124056-09-17 07:27 J -43589771.25 -43589771.19 -43589771.13 0.1862 0.1709

Venus -124052-06-26 17:47 J -43588392.85 -43588392.76 -43588392.67 0.1863 0.1598

Mercury -124051-06-04 20:11 J -43588049.78 -43588049.66 -43588049.55 0.1649 0.0059

Venus -124051-06-05 14:39 J -43588048.98 -43588048.89 -43588048.80 0.1649 0.1398

Venus -124050-04-23 23:03 J -43587726.72 -43587726.54 -43587726.36 0.1856 0.0144

Venus -124049-04-04 17:18 J -43587379.94 -43587379.78 -43587379.62 0.1652 0.0549

Mercury -124049-05-10 00:01 J -43587344.51 -43587344.50 -43587344.48 0.1648 0.1625

Venus -124048-02-18 12:30 J -43587060.04 -43587059.98 -43587059.92 0.1846 0.1740

Venus -124047-02-02 17:03 J -43586710.96 -43586710.79 -43586710.62 0.1658 0.0349

Venus -124046-12-03 13:42 J -43586042.04 -43586041.93 -43586041.82 0.1665 0.1284

Mercury -124044-01-14 23:32 J -43585633.57 -43585633.52 -43585633.46 0.1864 0.1748

Mercury -124042-10-26 06:59 J -43584619.33 -43584619.21 -43584619.10 0.1650 0.0447

Mercury -124040-09-30 11:03 J -43583914.11 -43583914.04 -43583913.96 0.1648 0.1228

Mercury -124035-06-06 18:01 J -43582203.91 -43582203.75 -43582203.60 0.1864 0.0603

Mercury -124032-03-17 17:47 J -43581188.86 -43581188.76 -43581188.66 0.1650 0.0862

Mercury -124030-02-20 22:06 J -43580483.68 -43580483.58 -43580483.48 0.1648 0.0826

Mercury -124026-10-27 12:59 J -43578774.12 -43578773.96 -43578773.81 0.1863 0.0514

Mercury -124023-08-08 04:35 J -43577758.39 -43577758.31 -43577758.24 0.1651 0.1276

Mercury -124021-07-13 09:08 J -43577053.23 -43577053.12 -43577053.01 0.1649 0.0425

Venus -124018-04-23 21:51 J -43576038.76 -43576038.59 -43576038.43 0.1860 0.0668

Venus -124017-04-03 10:20 J -43575693.21 -43575693.07 -43575692.94 0.1650 0.0969

Venus -124016-02-18 06:30 J -43575372.37 -43575372.23 -43575372.08 0.1851 0.1018

Mercury -124016-03-18 07:56 J -43575344.25 -43575344.17 -43575344.09 0.1862 0.1614

Venus -124015-02-01 11:47 J -43575024.18 -43575024.01 -43575023.84 0.1655 0.0098

Venus -124014-12-02 09:51 J -43574355.24 -43574355.09 -43574354.94 0.1662 0.0826

Mercury -124012-12-03 20:11 J -43573622.78 -43573622.66 -43573622.55 0.1649 0.0062

Mercury -124005-07-16 00:15 J -43571206.50 -43571206.49 -43571206.48 0.1864 0.1856

Mercury -124002-04-26 06:59 J -43570192.33 -43570192.21 -43570192.10 0.1650 0.0390

124TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 124th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -124000-03-31 11:03 J | -43569487.11 | -43569487.04 | -43569486.97 | 0.1648 | 0.1280 | | |
| Mercury | -123996-12-05 18:59 J | -43567776.86 | -43567776.71 | -43567776.56 | 0.1863 | 0.0725 | | |
| Mercury | -123993-09-15 17:47 J | -43566761.86 | -43566761.76 | -43566761.66 | 0.1650 | 0.0802 | | |
| Mercury | -123991-08-21 22:06 J | -43566056.67 | -43566056.58 | -43566056.48 | 0.1648 | 0.0885 | | |
| Venus | -123986-04-23 20:54 J | -43564350.74 | -43564350.63 | -43564350.53 | 0.1862 | 0.1484 | | |
| Mercury | -123986-04-27 13:27 J | -43564347.10 | -43564346.94 | -43564346.77 | 0.1863 | 0.0410 | | |
| Earth | -123986-12-28 21:23 J | -43564101.77 | -43564101.61 | -43564101.44 | 0.1692 | 0.0851 | | |
| Moon | -123986-12-29 00:44 J | -43564101.62 | -43564101.47 | -43564101.31 | 0.1692 | 0.0838 | * | |
| Venus | -123985-04-02 02:54 J | -43564006.47 | -43564006.38 | -43564006.29 | 0.1649 | 0.1377 | | |

Venus -123984-02-18 03:08 J -43563684.54 -43563684.37 -43563684.19 0.1855 0.0249

Venus -123983-01-31 05:18 J -43563337.44 -43563337.28 -43563337.12 0.1653 0.0524

Mercury -123983-02-06 04:35 J -43563331.39 -43563331.31 -43563331.24 0.1651 0.1219

Venus -123983-12-16 17:47 J -43563017.78 -43563017.76 -43563017.73 0.1844 0.1827

Venus -123982-12-01 05:03 J -43562668.46 -43562668.29 -43562668.12 0.1658 0.0376

Mercury -123981-01-12 09:08 J -43562626.23 -43562626.12 -43562626.01 0.1649 0.0481

Venus -123980-09-30 01:13 J -43561999.56 -43561999.45 -43561999.35 0.1666 0.1318

Mercury -123977-09-16 08:54 J -43560917.22 -43560917.13 -43560917.03 0.1862 0.1494

Mercury -123974-06-29 15:08 J -43559900.88 -43559900.87 -43559900.86 0.1652 0.1636

Mercury -123972-06-03 19:56 J -43559195.78 -43559195.67 -43559195.55 0.1649 0.0086

Mercury -123963-10-25 06:59 J -43555765.33 -43555765.21 -43555765.10 0.1650 0.0335

Mercury -123961-09-29 11:03 J -43555060.10 -43555060.04 -43555059.97 0.1648 0.1334

Mercury -123956-06-05 19:27 J -43553349.84 -43553349.69 -43553349.55 0.1863 0.0819

Mercury -123953-03-16 17:47 J -43552334.87 -43552334.76 -43552334.66 0.1651 0.0745

Venus -123952-02-18 00:44 J -43551996.64 -43551996.47 -43551996.30 0.1859 0.0554

Venus -123951-01-29 22:35 J -43551650.70 -43551650.56 -43551650.42 0.1651 0.0947

Mercury -123951-02-19 22:06 J -43551629.67 -43551629.58 -43551629.48 0.1648 0.0937

Venus -123951-12-16 11:47 J -43551330.15 -43551330.01 -43551329.87 0.1849 0.1110

Venus -123950-11-29 23:47 J -43550981.69 -43550981.51 -43550981.34 0.1656 0.0078

Venus -123948-09-28 21:08 J -43550312.76 -43550312.62 -43550312.47 0.1663 0.0859

Mercury -123947-10-26 14:39 J -43549920.05 -43549919.89 -43549919.73 0.1863 0.0283

Mercury -123944-08-07 04:35 J -43548904.39 -43548904.31 -43548904.23 0.1651 0.1157

Mercury -123942-07-13 09:08 J -43548199.23 -43548199.12 -43548199.01 0.1649 0.0537

Mercury -123937-03-17 09:37 J -43546490.21 -43546490.10 -43546490.00 0.1861 0.1392

Mercury -123935-12-28 15:08 J -43545473.90 -43545473.87 -43545473.84 0.1652 0.1579

Mercury -123933-12-02 20:11 J -43544768.78 -43544768.66 -43544768.55 0.1649 0.0145

Mercury -123923-04-25 06:59 J -43541338.33 -43541338.21 -43541338.10 0.1650 0.0281

Mercury -123921-03-30 11:03 J -43540633.10 -43540633.04 -43540632.98 0.1648 0.1389

Venus -123920-02-17 23:32 J -43540308.64 -43540308.52 -43540308.40 0.1861 0.1368

Venus -123919-01-28 15:37 J -43539963.94 -43539963.85 -43539963.75 0.1650 0.1359

Venus -123919-12-16 07:27 J -43539642.37 -43539642.19 -43539642.02 0.1854 0.0348

Venus -123918-11-28 17:47 J -43539294.92 -43539294.76 -43539294.60 0.1654 0.0501

Mercury -123917-12-04 20:25 J -43538922.79 -43538922.65 -43538922.51 0.1863 0.0942

Venus -123916-09-27 16:49 J -43538625.97 -43538625.80 -43538625.64 0.1660 0.0408

Venus -123914-07-28 12:15 J -43537957.09 -43537956.99 -43537956.89 0.1668 0.1355

Mercury -123914-09-15 17:47 J -43537907.87 -43537907.76 -43537907.65 0.1651 0.0688

Moon -123913-06-20 22:49 J -43537628.74 -43537628.55 -43537628.36 0.1822 0.0381

Earth -123913-06-21 07:27 J -43537628.37 -43537628.19 -43537628.02 0.1822 0.0882 *

Mercury -123912-08-20 22:06 J -43537202.67 -43537202.58 -43537202.49 0.1648 0.0991

Mercury -123907-04-26 14:54 J -43535493.04 -43535492.88 -43535492.71 0.1862 0.0195

Moon -123907-12-31 00:59 J -43535244.61 -43535244.46 -43535244.30 0.1690 0.0800

Earth -123907-12-31 03:51 J -43535244.50 -43535244.34 -43535244.18 0.1690 0.0910 *

Mercury -123904-02-05 04:35 J -43534477.40 -43534477.31 -43534477.23 0.1652 0.1106

Mercury -123902-01-11 09:08 J -43533772.23 -43533772.12 -43533772.01 0.1649 0.0590

Mercury -123898-09-16 10:20 J -43532063.19 -43532063.07 -43532062.96 0.1862 0.1283

Mercury -123895-06-28 15:08 J -43531046.91 -43531046.87 -43531046.82 0.1652 0.1519

Mercury -123893-06-02 19:56 J -43530341.78 -43530341.67 -43530341.55 0.1649 0.0193

Venus -123887-12-16 04:35 J -43527954.48 -43527954.31 -43527954.13 0.1858 0.0447

Venus -123886-11-27 11:18 J -43527608.17 -43527608.03 -43527607.89 0.1652 0.0926

Venus -123885-10-12 15:51 J -43527287.97 -43527287.84 -43527287.71 0.1848 0.1208

Venus -123884-09-26 11:47 J -43526939.18 -43526939.01 -43526938.84 0.1657 0.0042

Mercury -123884-10-24 06:59 J -43526911.33 -43526911.21 -43526911.09 0.1650 0.0218

Venus -123882-07-27 08:39 J -43526270.28 -43526270.14 -43526269.99 0.1664 0.0892

Mercury -123882-09-29 11:03 J -43526206.09 -43526206.04 -43526205.98 0.1648 0.1444

Mercury -123877-06-04 21:08 J -43524495.75 -43524495.62 -43524495.48 0.1863 0.1051

Mercury -123874-03-16 17:47 J -43523480.87 -43523480.76 -43523480.65 0.1651 0.0633

Mercury -123872-02-18 22:06 J -43522775.67 -43522775.58 -43522775.49 0.1648 0.1046

Mercury -123868-10-25 15:51 J -43521066.00 -43521065.84 -43521065.67 0.1863 0.0081

Mercury -123865-08-06 04:35 J -43520050.40 -43520050.31 -43520050.22 0.1651 0.1047

Mercury -123863-07-12 09:08 J -43519345.23 -43519345.12 -43519345.01 0.1649 0.0646

Mercury -123858-03-17 11:03 J -43517636.17 -43517636.04 -43517635.92 0.1861 0.1174

Mercury -123856-12-27 15:08 J -43516619.92 -43516619.87 -43516619.81 0.1653 0.1463

Venus -123855-12-16 03:23 J -43516266.49 -43516266.36 -43516266.23 0.1860 0.1261

Venus -123854-11-26 03:51 J -43515921.43 -43515921.34 -43515921.24 0.1650 0.1339

Mercury -123854-12-02 19:56 J -43515914.78 -43515914.67 -43515914.55 0.1649 0.0249

Venus -123853-10-12 11:47 J -43515600.18 -43515600.01 -43515599.84 0.1852 0.0448

Venus -123852-09-25 05:47 J -43515252.43 -43515252.26 -43515252.10 0.1654 0.0478

Venus -123850-07-26 04:35 J -43514583.48 -43514583.31 -43514583.14 0.1660 0.0435

Venus -123848-05-24 23:32 J -43513914.61 -43513914.52 -43513914.42 0.1669 0.1392

Mercury -123844-04-24 06:59 J -43512484.33 -43512484.21 -43512484.10 0.1650 0.0172

Mercury -123842-03-30 11:03 J -43511779.09 -43511779.04 -43511778.99 0.1648 0.1494

Mercury -123838-12-04 21:51 J -43510068.72 -43510068.59 -43510068.46 0.1863 0.1153

Mercury -123835-09-14 17:47 J -43509053.87 -43509053.76 -43509053.65 0.1651 0.0574

Mercury -123833-08-19 22:06 J -43508348.67 -43508348.58 -43508348.49 0.1649 0.1099

Mercury -123828-04-25 16:49 J -43506638.97 -43506638.80 -43506638.64 0.1863 0.0048

Mercury -123825-02-05 04:35 J -43505623.41 -43505623.31 -43505623.22 0.1651 0.0987

Mercury -123823-01-10 09:08 J -43504918.23 -43504918.12 -43504918.02 0.1649 0.0703

Venus -123821-10-12 07:56 J -43503912.34 -43503912.17 -43503911.99 0.1856 0.0339

Venus -123820-09-23 23:03 J -43503565.68 -43503565.54 -43503565.39 0.1652 0.0903

Venus -123819-08-09 21:08 J -43503245.74 -43503245.62 -43503245.49 0.1846 0.1295

Mercury -123819-09-15 12:01 J -43503209.14 -43503209.00 -43503208.87 0.1861 0.1060

Venus -123818-07-24 23:18 J -43502896.70 -43502896.53 -43502896.35 0.1657 0.0040

Venus -123816-05-23 20:11 J -43502227.80 -43502227.66 -43502227.52 0.1665 0.0926

Mercury -123816-06-27 15:08 J -43502192.93 -43502192.87 -43502192.81 0.1652 0.1405

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Mercury -123805-10-23 06:59 J -43498057.33 -43498057.21 -43498057.10 0.1650 0.0118

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Mercury -123798-06-04 22:35 J -43495641.68 -43495641.56 -43495641.44 0.1863 0.1266

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Mercury -123793-02-18 22:06 J -43493921.66 -43493921.58 -43493921.50 0.1648 0.1153

Venus -123789-10-12 06:01 J -43492224.38 -43492224.25 -43492224.11 0.1859 0.1148

Mercury -123789-10-24 17:32 J -43492211.94 -43492211.77 -43492211.61 0.1862 0.0153

Venus -123788-09-22 16:20 J -43491878.92 -43491878.82 -43491878.72 0.1651 0.1318

Venus -123787-08-09 15:51 J -43491558.01 -43491557.84 -43491557.67 0.1851 0.0550

Venus -123786-07-23 17:47 J -43491209.93 -43491209.76 -43491209.60 0.1655 0.0451

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Venus -123784-05-22 16:06 J -43490541.00 -43490540.83 -43490540.67 0.1662 0.0469

Mercury -123784-07-11 09:08 J -43490491.23 -43490491.12 -43490491.02 0.1649 0.0757

Venus -123782-03-22 10:06 J -43489872.16 -43489872.08 -43489871.99 0.1670 0.1433

Mercury -123779-03-16 12:30 J -43488782.12 -43488781.98 -43488781.84 0.1862 0.0961

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Mercury -123775-12-01 19:56 J -43487060.78 -43487060.67 -43487060.55 0.1649 0.0356

Mercury -123765-04-23 06:59 J -43483630.33 -43483630.21 -43483630.09 0.1650 0.0058

Mercury -123763-03-29 11:03 J -43482925.06 -43482925.04 -43482925.02 0.1648 0.1603

Mercury -123759-12-03 23:32 J -43481214.62 -43481214.52 -43481214.41 0.1863 0.1389

Mercury -123756-09-13 17:47 J -43480199.87 -43480199.76 -43480199.65 0.1651 0.0460

Venus -123755-08-09 11:32 J -43479870.19 -43479870.02 -43479869.84 0.1855 0.0230

Venus -123754-07-22 11:32 J -43479523.16 -43479523.02 -43479522.87 0.1653 0.0881

Mercury -123754-08-19 22:06 J -43479494.66 -43479494.58 -43479494.50 0.1648 0.1210

Venus -123753-06-06 01:27 J -43479203.55 -43479203.44 -43479203.32 0.1844 0.1389

Venus -123752-05-21 11:18 J -43478854.20 -43478854.03 -43478853.86 0.1659 0.0018

Venus -123750-03-21 07:13 J -43478185.34 -43478185.20 -43478185.06 0.1667 0.0964

Mercury -123749-04-24 18:01 J -43477784.91 -43477784.75 -43477784.58 0.1862 0.0255

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Mercury -123740-09-14 13:13 J -43474355.09 -43474354.95 -43474354.80 0.1861 0.0846

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Mercury -123726-10-23 06:59 J -43469203.33 -43469203.21 -43469203.09 0.1650 0.0037

Venus -123723-08-09 10:06 J -43468182.23 -43468182.08 -43468181.93 0.1858 0.1041

Venus -123722-07-21 04:35 J -43467836.41 -43467836.31 -43467836.20 0.1651 0.1297
 Venus -123721-06-05 19:56 J -43467515.83 -43467515.67 -43467515.50 0.1850 0.0649
 Venus -123720-05-20 05:47 J -43467167.43 -43467167.26 -43467167.10 0.1656 0.0424
 Mercury -123719-06-04 00:01 J -43466787.60 -43466787.50 -43466787.40 0.1863 0.1480
 Venus -123718-03-20 03:37 J -43466498.52 -43466498.35 -43466498.19 0.1663 0.0500
 Venus -123716-01-16 21:08 J -43465829.70 -43465829.62 -43465829.54 0.1672 0.1473
 Mercury -123716-03-14 17:47 J -43465772.88 -43465772.76 -43465772.65 0.1651 0.0405
 Mercury -123714-02-17 22:06 J -43465067.66 -43465067.58 -43465067.51 0.1649 0.1262
 Mercury -123710-10-24 19:13 J -43463357.86 -43463357.70 -43463357.54 0.1863 0.0375
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 Mercury -123705-07-10 09:08 J -43461637.22 -43461637.12 -43461637.02 0.1649 0.0867
 Moon -123702-12-29 18:15 J -43460369.90 -43460369.74 -43460369.58 0.1696 0.0642
 Earth -123702-12-29 19:27 J -43460369.87 -43460369.69 -43460369.51 0.1696 0.0528 *
 Mercury -123700-03-15 13:56 J -43459928.07 -43459927.92 -43459927.77 0.1861 0.0741
 Mercury -123698-12-26 15:08 J -43458911.94 -43458911.87 -43458911.79 0.1653 0.1234
 Mercury -123696-11-30 19:56 J -43458206.78 -43458206.67 -43458206.55 0.1649 0.0468
 Mercury -123691-08-05 09:22 J -43456498.14 -43456498.11 -43456498.07 0.1860 0.1813
 Venus -123689-06-05 15:37 J -43455828.02 -43455827.85 -43455827.67 0.1854 0.0126
 Mercury -123688-05-18 01:56 J -43455481.42 -43455481.42 -43455481.42 0.1654 0.1652
 Venus -123688-05-18 23:32 J -43455480.66 -43455480.52 -43455480.37 0.1654 0.0854
 Venus -123687-04-03 06:58 J -43455161.31 -43455161.21 -43455161.11 0.1842 0.1477
 Venus -123686-03-18 22:49 J -43454811.72 -43454811.55 -43454811.38 0.1660 0.0047
 Mercury -123686-04-23 06:58 J -43454776.33 -43454776.21 -43454776.10 0.1650 0.0079
 Venus -123684-01-15 18:44 J -43454142.86 -43454142.72 -43454142.59 0.1668 0.0999
 Mercury -123680-12-03 00:58 J -43452360.54 -43452360.46 -43452360.37 0.1863 0.1603
 Mercury -123677-09-12 17:46 J -43451345.88 -43451345.76 -43451345.65 0.1651 0.0350
 Mercury -123675-08-18 22:06 J -43450640.65 -43450640.58 -43450640.51 0.1648 0.1315
 Mercury -123670-04-24 19:27 J -43448930.85 -43448930.69 -43448930.53 0.1862 0.0465
 Mercury -123667-02-03 04:34 J -43447915.42 -43447915.31 -43447915.21 0.1652 0.0762
 Mercury -123665-01-09 09:08 J -43447210.22 -43447210.12 -43447210.03 0.1649 0.0921

Mercury -123661-09-13 14:54 J -43445501.04 -43445500.88 -43445500.73 0.1862 0.0628

Mercury -123658-06-26 15:22 J -43444484.95 -43444484.86 -43444484.78 0.1653 0.1173

Venus -123657-06-05 13:13 J -43444140.11 -43444139.95 -43444139.80 0.1857 0.0928

Venus -123656-05-17 16:49 J -43443793.90 -43443793.80 -43443793.69 0.1652 0.1276

Mercury -123656-05-31 19:56 J -43443779.78 -43443779.67 -43443779.56 0.1650 0.0521

Venus -123655-04-03 00:15 J -43443473.65 -43443473.49 -43443473.33 0.1848 0.0750

Venus -123654-03-17 17:32 J -43443124.94 -43443124.77 -43443124.60 0.1657 0.0396

Venus -123652-01-14 14:54 J -43442456.04 -43442455.88 -43442455.71 0.1664 0.0535

Mercury -123651-02-03 10:20 J -43442071.14 -43442071.07 -43442071.01 0.1860 0.1702

Venus -123651-11-14 08:25 J -43441787.22 -43441787.15 -43441787.08 0.1673 0.1510

Mercury -123649-11-16 01:56 J -43441054.45 -43441054.42 -43441054.39 0.1654 0.1592

Mercury -123647-10-22 06:58 J -43440349.33 -43440349.21 -43440349.09 0.1650 0.0120

Mercury -123640-06-03 01:42 J -43437933.49 -43437933.43 -43437933.36 0.1863 0.1709

Mercury -123637-03-13 17:46 J -43436918.88 -43436918.76 -43436918.65 0.1651 0.0296

Mercury -123635-02-16 22:06 J -43436213.65 -43436213.58 -43436213.52 0.1649 0.1370

Mercury -123631-10-23 20:25 J -43434503.80 -43434503.65 -43434503.49 0.1862 0.0588

Moon -123629-06-20 19:27 J -43433897.89 -43433897.69 -43433897.49 0.1816 0.0382

Earth -123629-06-21 03:51 J -43433897.54 -43433897.34 -43433897.15 0.1817 0.0369 *

Mercury -123628-08-04 04:34 J -43433488.42 -43433488.31 -43433488.21 0.1652 0.0704

Mercury -123626-07-10 09:08 J -43432783.22 -43432783.12 -43432783.03 0.1649 0.0976

Venus -123625-06-05 11:46 J -43432452.07 -43432452.01 -43432451.95 0.1861 0.1746

Venus -123623-04-02 19:27 J -43431785.87 -43431785.69 -43431785.52 0.1852 0.0045

Moon -123623-12-31 20:54 J -43431512.74 -43431512.63 -43431512.52 0.1694 0.1359

Earth -123622-01-01 03:22 J -43431512.48 -43431512.36 -43431512.24 0.1694 0.1279

Venus -123622-03-16 11:46 J -43431438.16 -43431438.01 -43431437.86 0.1654 0.0831

Venus -123621-01-29 11:46 J -43431119.10 -43431119.01 -43431118.92 0.1840 0.1569

Mercury -123621-03-14 15:22 J -43431074.01 -43431073.86 -43431073.70 0.1861 0.0525

Venus -123620-01-13 10:34 J -43430769.23 -43430769.06 -43430768.89 0.1661 0.0077

Venus -123619-11-13 05:46 J -43430100.39 -43430100.26 -43430100.12 0.1669 0.1036

Mercury -123619-12-25 15:08 J -43430057.95 -43430057.87 -43430057.78 0.1653 0.1120

Mercury -123617-11-29 19:56 J -43429352.78 -43429352.67 -43429352.56 0.1649 0.0575

Mercury -123612-08-04 10:34 J -43427644.13 -43427644.06 -43427643.98 0.1860 0.1609

Mercury -123609-05-17 01:56 J -43426627.46 -43426627.42 -43426627.38 0.1654 0.1537

Mercury -123607-04-22 06:44 J -43425922.33 -43425922.22 -43425922.10 0.1650 0.0180

Mercury -123601-12-02 02:25 J -43423506.43 -43423506.40 -43423506.36 0.1863 0.1814

Mercury -123598-09-12 17:46 J -43422491.88 -43422491.76 -43422491.64 0.1651 0.0235

Mercury -123596-08-17 22:06 J -43421786.64 -43421786.58 -43421786.53 0.1649 0.1424

Venus -123591-04-02 16:49 J -43420097.96 -43420097.80 -43420097.64 0.1856 0.0821

Mercury -123591-04-23 21:22 J -43420076.76 -43420076.61 -43420076.46 0.1862 0.0698

Venus -123590-03-15 05:03 J -43419751.40 -43419751.29 -43419751.18 0.1652 0.1253

Venus -123589-01-29 04:34 J -43419431.46 -43419431.31 -43419431.15 0.1846 0.0850

Venus -123588-01-12 05:46 J -43419082.43 -43419082.26 -43419082.10 0.1658 0.0374

Mercury -123588-02-02 04:34 J -43419061.42 -43419061.31 -43419061.20 0.1652 0.0645

Venus -123587-11-12 02:39 J -43418413.56 -43418413.39 -43418413.23 0.1665 0.0566

Mercury -123586-01-08 09:08 J -43418356.21 -43418356.12 -43418356.03 0.1649 0.1031

Venus -123585-09-10 18:58 J -43417744.77 -43417744.71 -43417744.65 0.1675 0.1552

Mercury -123582-09-13 16:20 J -43416646.98 -43416646.82 -43416646.66 0.1861 0.0410

Mercury -123579-06-25 15:08 J -43415630.96 -43415630.87 -43415630.78 0.1653 0.1062

Mercury -123577-05-30 19:56 J -43414925.78 -43414925.67 -43414925.56 0.1649 0.0628

Mercury -123572-02-02 11:32 J -43413217.11 -43413217.02 -43413216.92 0.1860 0.1496

Mercury -123570-11-16 01:56 J -43412200.47 -43412200.42 -43412200.37 0.1654 0.1479

Mercury -123568-10-21 06:58 J -43411495.33 -43411495.21 -43411495.10 0.1650 0.0233

Venus -123559-04-02 14:54 J -43408409.96 -43408409.88 -43408409.80 0.1859 0.1632

Mercury -123558-03-13 17:46 J -43408064.88 -43408064.76 -43408064.64 0.1651 0.0183

Venus -123557-01-29 00:01 J -43407743.68 -43407743.50 -43407743.32 0.1851 0.0084

Venus -123556-01-10 23:46 J -43407395.66 -43407395.51 -43407395.36 0.1655 0.0809

Mercury -123556-02-15 22:06 J -43407359.63 -43407359.58 -43407359.53 0.1649 0.1477

Venus -123556-11-25 17:18 J -43407076.85 -43407076.78 -43407076.70 0.1839 0.1654

Venus -123555-11-10 22:20 J -43406726.74 -43406726.57 -43406726.40 0.1662 0.0106

Venus -123553-09-09 17:03 J -43406057.92 -43406057.79 -43406057.66 0.1670 0.1071

Mercury -123552-10-22 21:51 J -43405649.73 -43405649.59 -43405649.44 0.1862 0.0800

Mercury -123549-08-03 04:34 J -43404634.42 -43404634.31 -43404634.20 0.1652 0.0591

Mercury -123547-07-09 08:54 J -43403929.21 -43403929.13 -43403929.04 0.1649 0.1082

Mercury -123542-03-14 16:49 J -43402219.96 -43402219.80 -43402219.63 0.1862 0.0313

Mercury -123540-12-24 15:22 J -43401203.96 -43401203.86 -43401203.77 0.1653 0.1004

Mercury -123538-11-29 19:56 J -43400498.78 -43400498.67 -43400498.56 0.1650 0.0684

Mercury -123533-08-03 12:30 J -43398790.09 -43398789.98 -43398789.87 0.1860 0.1380

Mercury -123530-05-17 01:56 J -43397773.48 -43397773.42 -43397773.36 0.1654 0.1420

Mercury -123528-04-21 06:58 J -43397068.33 -43397068.21 -43397068.10 0.1650 0.0286

Venus -123525-01-28 20:25 J -43396055.82 -43396055.65 -43396055.49 0.1855 0.0710

Venus -123524-01-09 17:18 J -43395708.89 -43395708.78 -43395708.66 0.1653 0.1235

Venus -123524-11-25 09:51 J -43395389.24 -43395389.09 -43395388.94 0.1844 0.0940

Venus -123523-11-09 17:18 J -43395039.94 -43395039.78 -43395039.61 0.1659 0.0345

Venus -123521-09-08 13:42 J -43394371.09 -43394370.93 -43394370.77 0.1666 0.0600

Venus -123519-07-09 05:46 J -43393702.31 -43393702.26 -43393702.20 0.1677 0.1593

Mercury -123519-09-11 17:46 J -43393637.88 -43393637.76 -43393637.64 0.1651 0.0125

Mercury -123517-08-16 22:06 J -43392932.62 -43392932.58 -43392932.54 0.1649 0.1531

Mercury -123512-04-22 22:34 J -43391222.70 -43391222.56 -43391222.41 0.1862 0.0906

Mercury -123509-02-02 04:34 J -43390207.43 -43390207.31 -43390207.20 0.1652 0.0537

Mercury -123507-01-07 08:54 J -43389502.21 -43389502.13 -43389502.04 0.1649 0.1135

Mercury -123503-09-12 17:46 J -43387792.92 -43387792.76 -43387792.60 0.1861 0.0195

Mercury -123500-06-24 15:22 J -43386776.96 -43386776.86 -43386776.77 0.1653 0.0948

Mercury -123498-05-30 19:56 J -43386071.77 -43386071.67 -43386071.57 0.1650 0.0737

Venus -123493-01-28 18:01 J -43384367.85 -43384367.75 -43384367.65 0.1858 0.1519

Mercury -123493-02-02 12:44 J -43384363.08 -43384362.97 -43384362.85 0.1860 0.1289

Venus -123492-01-08 10:49 J -43384022.06 -43384022.05 -43384022.05 0.1651 0.1648

Venus -123492-11-25 04:20 J -43383701.50 -43383701.32 -43383701.14 0.1849 0.0184

Venus -123491-11-08 11:46 J -43383353.16 -43383353.01 -43383352.85 0.1656 0.0786

Mercury -123491-11-15 01:56 J -43383346.48 -43383346.42 -43383346.35 0.1654 0.1362

Venus -123490-09-22 22:20 J -43383034.62 -43383034.57 -43383034.51 0.1836 0.1743

Venus -123489-09-07 09:37 J -43382684.27 -43382684.10 -43382683.92 0.1663 0.0145

Mercury -123489-10-20 06:58 J -43382641.33 -43382641.21 -43382641.10 0.1650 0.0341

Venus -123487-07-08 03:51 J -43382015.47 -43382015.34 -43382015.21 0.1672 0.1111

Mercury -123479-03-12 17:46 J -43379210.88 -43379210.76 -43379210.64 0.1651 0.0077

Mercury -123477-02-15 21:51 J -43378505.62 -43378505.59 -43378505.56 0.1649 0.1583

Mercury -123473-10-21 23:46 J -43376795.65 -43376795.51 -43376795.37 0.1862 0.1029

Mercury -123470-08-03 04:34 J -43375780.42 -43375780.31 -43375780.20 0.1652 0.0476

Mercury -123468-07-08 08:54 J -43375075.21 -43375075.13 -43375075.05 0.1649 0.1192

Mercury -123463-03-13 18:30 J -43373365.90 -43373365.73 -43373365.57 0.1861 0.0091

Mercury -123461-12-23 15:22 J -43372349.96 -43372349.86 -43372349.77 0.1653 0.0892

Venus -123460-11-25 00:30 J -43372013.65 -43372013.48 -43372013.31 0.1854 0.0605

Venus -123459-11-07 05:46 J -43371666.38 -43371666.26 -43371666.15 0.1654 0.1212

Mercury -123459-11-28 19:56 J -43371644.77 -43371644.67 -43371644.57 0.1650 0.0794

Venus -123458-09-22 14:25 J -43371347.04 -43371346.90 -43371346.75 0.1842 0.1038

Venus -123457-09-06 05:18 J -43370997.45 -43370997.28 -43370997.11 0.1660 0.0317

Venus -123455-07-07 00:58 J -43370328.62 -43370328.46 -43370328.30 0.1668 0.0636

Mercury -123454-08-03 13:42 J -43369936.05 -43369935.93 -43369935.80 0.1860 0.1173

Venus -123453-05-05 16:34 J -43369659.84 -43369659.81 -43369659.77 0.1678 0.1636

Mercury -123451-05-16 01:56 J -43368919.49 -43368919.42 -43368919.35 0.1654 0.1307

Mercury -123449-04-20 06:44 J -43368214.33 -43368214.22 -43368214.10 0.1650 0.0392

Mercury -123440-09-10 17:46 J -43364783.88 -43364783.76 -43364783.64 0.1651 0.0032

Mercury -123438-08-16 21:51 J -43364078.60 -43364078.59 -43364078.58 0.1649 0.1635

Mercury -123433-04-22 00:01 J -43362368.63 -43362368.50 -43362368.36 0.1862 0.1119

Mercury -123430-02-01 04:34 J -43361353.43 -43361353.31 -43361353.20 0.1652 0.0422

Mercury -123428-01-06 08:54 J -43360648.20 -43360648.13 -43360648.05 0.1649 0.1244

Venus -123428-11-24 22:06 J -43360325.70 -43360325.58 -43360325.47 0.1857 0.1414

Venus -123427-11-05 22:49 J -43359979.57 -43359979.55 -43359979.52 0.1652 0.1626

Venus -123426-09-22 09:08 J -43359659.29 -43359659.12 -43359658.94 0.1848 0.0282

Venus -123425-09-04 23:46 J -43359310.66 -43359310.51 -43359310.36 0.1657 0.0759

Venus -123424-07-20 04:06 J -43358992.34 -43358992.33 -43358992.31 0.1834 0.1828

Mercury -123424-09-11 19:27 J -43358938.86 -43358938.69 -43358938.53 0.1861 0.0048
 Venus -123423-07-05 21:37 J -43358641.78 -43358641.60 -43358641.43 0.1664 0.0171
 Venus -123421-05-04 15:08 J -43357973.00 -43357972.87 -43357972.75 0.1674 0.1149
 Mercury -123421-06-23 15:22 J -43357922.96 -43357922.86 -43357922.76 0.1653 0.0831
 Mercury -123419-05-29 19:56 J -43357217.77 -43357217.67 -43357217.57 0.1650 0.0847
 Moon -123418-12-30 11:32 J -43356638.21 -43356638.02 -43356637.84 0.1700 0.0117
 Earth -123418-12-30 17:18 J -43356637.97 -43356637.78 -43356637.60 0.1700 0.0215 *
 Mercury -123414-02-01 14:39 J -43355509.03 -43355508.89 -43355508.76 0.1860 0.1063
 Mercury -123412-11-14 01:56 J -43354492.50 -43354492.42 -43354492.34 0.1654 0.1249
 Mercury -123410-10-20 06:58 J -43353787.33 -43353787.21 -43353787.10 0.1650 0.0451
 Mercury -123400-03-11 17:46 J -43350356.88 -43350356.76 -43350356.64 0.1651 0.0058
 Venus -123394-09-22 04:20 J -43347971.49 -43347971.32 -43347971.15 0.1852 0.0497
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 Venus -123392-07-19 20:10 J -43347304.80 -43347304.66 -43347304.52 0.1840 0.1125
 Venus -123391-07-04 16:49 J -43346954.97 -43346954.80 -43346954.63 0.1661 0.0289
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 Venus -123389-05-03 12:15 J -43346286.15 -43346285.99 -43346285.83 0.1669 0.0671
 Mercury -123389-07-07 08:54 J -43346221.20 -43346221.13 -43346221.06 0.1649 0.1297
 Mercury -123384-03-12 19:56 J -43344511.84 -43344511.67 -43344511.51 0.1861 0.0123
 Mercury -123382-12-23 15:08 J -43343495.97 -43343495.87 -43343495.76 0.1653 0.0780
 Mercury -123380-11-27 19:56 J -43342790.77 -43342790.67 -43342790.57 0.1650 0.0900
 Mercury -123375-08-02 15:08 J -43341082.01 -43341081.87 -43341081.73 0.1860 0.0969
 Mercury -123372-05-15 01:56 J -43340065.50 -43340065.42 -43340065.34 0.1654 0.1192
 Mercury -123370-04-20 06:44 J -43339360.33 -43339360.22 -43339360.10 0.1650 0.0502
 Mercury -123363-10-05 12:30 J -43336635.00 -43336634.98 -43336634.95 0.1655 0.1610
 Venus -123362-09-22 01:13 J -43336283.57 -43336283.45 -43336283.32 0.1856 0.1302
 Venus -123361-09-02 11:18 J -43335937.07 -43335937.03 -43335937.00 0.1653 0.1607
 Mercury -123361-09-09 17:46 J -43335929.88 -43335929.76 -43335929.64 0.1651 0.0100
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Venus -123359-07-03 11:46 J -43335268.17 -43335268.01 -43335267.86 0.1658 0.0734
 Venus -123357-05-02 08:39 J -43334599.31 -43334599.14 -43334598.97 0.1665 0.0203
 Venus -123355-03-02 01:27 J -43333930.56 -43333930.44 -43333930.32 0.1675 0.1192
 Mercury -123354-04-22 01:56 J -43333514.53 -43333514.42 -43333514.31 0.1862 0.1349
 Mercury -123351-01-31 04:34 J -43332499.43 -43332499.31 -43332499.20 0.1652 0.0310
 Mercury -123349-01-06 08:54 J -43331794.19 -43331794.13 -43331794.06 0.1649 0.1351
 Moon -123345-06-20 21:37 J -43330166.81 -43330166.60 -43330166.39 0.1811 0.0187
 Earth -123345-06-21 00:58 J -43330166.66 -43330166.46 -43330166.26 0.1811 0.0088 *
 Mercury -123345-09-10 20:39 J -43330084.80 -43330084.64 -43330084.47 0.1861 0.0241
 Mercury -123342-06-23 15:08 J -43329068.97 -43329068.87 -43329068.76 0.1653 0.0724
 Mercury -123340-05-28 19:56 J -43328363.77 -43328363.67 -43328363.58 0.1650 0.0954
 Moon -123338-01-01 19:42 J -43327780.80 -43327780.68 -43327780.55 0.1698 0.1312
 Earth -123338-01-02 01:27 J -43327780.49 -43327780.44 -43327780.39 0.1698 0.1624
 Mercury -123335-01-31 15:51 J -43326654.98 -43326654.84 -43326654.69 0.1860 0.0855
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 Mercury -123331-10-19 06:44 J -43324933.33 -43324933.22 -43324933.11 0.1650 0.0558
 Venus -123328-07-19 07:56 J -43323929.34 -43323929.17 -43323928.99 0.1851 0.0389
 Venus -123327-07-02 06:01 J -43323581.37 -43323581.25 -43323581.13 0.1655 0.1166
 Venus -123326-05-17 00:44 J -43323262.60 -43323262.47 -43323262.34 0.1838 0.1221
 Venus -123325-05-01 04:20 J -43322912.49 -43322912.32 -43322912.15 0.1662 0.0260
 Venus -123323-02-28 23:03 J -43322243.70 -43322243.54 -43322243.38 0.1671 0.0710
 Mercury -123323-04-05 12:30 J -43322208.02 -43322207.98 -43322207.94 0.1656 0.1555
 Mercury -123321-03-10 17:46 J -43321502.88 -43321502.76 -43321502.65 0.1651 0.0158
 Mercury -123315-10-21 02:25 J -43319087.50 -43319087.40 -43319087.29 0.1862 0.1448
 Mercury -123312-08-01 04:34 J -43318072.43 -43318072.31 -43318072.20 0.1652 0.0256
 Mercury -123310-07-07 08:54 J -43317367.19 -43317367.13 -43317367.07 0.1649 0.1402
 Mercury -123305-03-11 21:22 J -43315657.77 -43315657.61 -43315657.44 0.1861 0.0345
 Mercury -123303-12-22 15:22 J -43314641.97 -43314641.86 -43314641.75 0.1653 0.0663
 Mercury -123301-11-26 19:56 J -43313936.76 -43313936.67 -43313936.58 0.1650 0.1009
 Venus -123296-07-19 05:18 J -43312241.42 -43312241.28 -43312241.15 0.1855 0.1195

Mercury -123296-08-01 16:49 J -43312227.95 -43312227.80 -43312227.65 0.1860 0.0740

Venus -123295-06-30 23:18 J -43311894.57 -43311894.53 -43311894.48 0.1653 0.1585

Venus -123294-05-16 18:01 J -43311574.92 -43311574.75 -43311574.58 0.1844 0.0484

Venus -123293-04-29 23:18 J -43311225.68 -43311225.53 -43311225.37 0.1659 0.0705

Mercury -123293-05-14 01:56 J -43311211.51 -43311211.42 -43311211.33 0.1654 0.1078

Venus -123291-02-27 20:10 J -43310556.84 -43310556.66 -43310556.49 0.1667 0.0238

Mercury -123291-04-19 06:44 J -43310506.32 -43310506.22 -43310506.11 0.1650 0.0615

Venus -123290-12-28 12:30 J -43309888.10 -43309887.98 -43309887.87 0.1677 0.1231

Mercury -123287-12-22 12:15 J -43308798.02 -43308797.99 -43308797.96 0.1858 0.1807

Mercury -123284-10-04 12:30 J -43307781.03 -43307780.98 -43307780.93 0.1655 0.1498

Mercury -123282-09-09 17:46 J -43307075.88 -43307075.76 -43307075.65 0.1651 0.0212

Mercury -123275-04-21 03:22 J -43304660.45 -43304660.36 -43304660.28 0.1862 0.1556

Mercury -123272-01-30 04:34 J -43303645.43 -43303645.31 -43303645.20 0.1652 0.0204

Mercury -123270-01-05 08:54 J -43302940.18 -43302940.13 -43302940.08 0.1649 0.1455

Mercury -123266-09-10 22:20 J -43301230.73 -43301230.57 -43301230.41 0.1861 0.0452

Mercury -123263-06-22 15:22 J -43300214.97 -43300214.86 -43300214.75 0.1653 0.0609

Venus -123262-05-16 12:30 J -43299887.16 -43299886.98 -43299886.81 0.1849 0.0284

Venus -123261-04-28 17:32 J -43299538.89 -43299538.77 -43299538.64 0.1656 0.1139

Mercury -123261-05-27 19:56 J -43299509.76 -43299509.67 -43299509.58 0.1650 0.1062

Venus -123260-03-13 06:30 J -43299220.35 -43299220.23 -43299220.11 0.1836 0.1308

Venus -123259-02-26 15:51 J -43298870.01 -43298869.84 -43298869.67 0.1663 0.0227

Venus -123258-12-27 10:20 J -43298201.22 -43298201.07 -43298200.91 0.1672 0.0743

Mercury -123256-01-30 17:18 J -43297800.94 -43297800.78 -43297800.63 0.1860 0.0649

Mercury -123254-11-13 01:56 J -43296784.51 -43296784.42 -43296784.32 0.1654 0.1021

Mercury -123252-10-18 06:44 J -43296079.32 -43296079.22 -43296079.11 0.1650 0.0665

Mercury -123247-06-22 12:58 J -43294371.02 -43294370.96 -43294370.89 0.1858 0.1699

Mercury -123244-04-04 12:30 J -43293354.03 -43293353.98 -43293353.92 0.1655 0.1440

Mercury -123242-03-10 17:46 J -43292648.88 -43292648.76 -43292648.65 0.1651 0.0266

Mercury -123236-10-20 04:20 J -43290233.39 -43290233.32 -43290233.25 0.1862 0.1680

Mercury -123233-07-31 04:34 J -43289218.43 -43289218.31 -43289218.19 0.1652 0.0142

Mercury -123231-07-06 08:54 J -43288513.17 -43288513.13 -43288513.08 0.1649 0.1510

Venus -123230-05-16 08:39 J -43288199.28 -43288199.14 -43288198.99 0.1853 0.1082

Venus -123229-04-27 11:18 J -43287852.08 -43287852.03 -43287851.97 0.1654 0.1563

Venus -123228-03-12 22:34 J -43287532.72 -43287532.56 -43287532.39 0.1842 0.0585

Venus -123227-02-25 11:03 J -43287183.20 -43287183.04 -43287182.88 0.1660 0.0677

Mercury -123226-03-11 22:49 J -43286803.70 -43286803.55 -43286803.39 0.1861 0.0557

Venus -123226-12-26 07:27 J -43286514.36 -43286514.19 -43286514.02 0.1668 0.0270

Venus -123224-10-24 23:18 J -43285845.65 -43285845.53 -43285845.42 0.1678 0.1272

Mercury -123224-12-21 15:22 J -43285787.98 -43285787.86 -43285787.75 0.1653 0.0555

Mercury -123222-11-26 19:56 J -43285082.76 -43285082.67 -43285082.59 0.1650 0.1116

Mercury -123217-07-31 18:15 J -43283373.90 -43283373.74 -43283373.59 0.1860 0.0535

Mercury -123214-05-14 01:56 J -43282357.52 -43282357.42 -43282357.32 0.1654 0.0967

Moon -123213-12-27 22:49 J -43281763.56 -43281763.55 -43281763.54 0.1708 0.1700

Mercury -123212-04-18 06:44 J -43281652.32 -43281652.22 -43281652.11 0.1650 0.0716

Mercury -123208-12-21 13:42 J -43279944.01 -43279943.93 -43279943.85 0.1858 0.1601

Mercury -123205-10-03 12:30 J -43278927.04 -43278926.98 -43278926.91 0.1656 0.1384

Mercury -123203-09-08 17:46 J -43278221.88 -43278221.76 -43278221.65 0.1651 0.0320

Venus -123196-03-12 16:34 J -43275844.99 -43275844.81 -43275844.64 0.1847 0.0181

Mercury -123196-04-20 04:34 J -43275806.35 -43275806.31 -43275806.26 0.1862 0.1767

Venus -123195-02-24 05:46 J -43275496.39 -43275496.26 -43275496.13 0.1657 0.1116

Venus -123194-01-08 12:01 J -43275178.11 -43275178.00 -43275177.89 0.1834 0.1396

Venus -123194-12-25 03:37 J -43274827.52 -43274827.35 -43274827.18 0.1664 0.0200

Mercury -123193-01-30 04:34 J -43274791.43 -43274791.31 -43274791.19 0.1652 0.0092

Venus -123192-10-23 21:22 J -43274158.76 -43274158.61 -43274158.46 0.1674 0.0783

Mercury -123191-01-04 08:54 J -43274086.16 -43274086.13 -43274086.10 0.1649 0.1561

Mercury -123187-09-09 23:46 J -43272376.66 -43272376.51 -43272376.35 0.1861 0.0671

Mercury -123184-06-21 15:22 J -43271360.98 -43271360.86 -43271360.75 0.1653 0.0496

Mercury -123182-05-27 19:56 J -43270655.76 -43270655.67 -43270655.59 0.1650 0.1169

Mercury -123177-01-30 18:58 J -43268946.87 -43268946.71 -43268946.55 0.1859 0.0426

Mercury -123175-11-12 01:56 J -43267930.52 -43267930.42 -43267930.32 0.1654 0.0909

Mercury -123173-10-17 06:44 J -43267225.32 -43267225.22 -43267225.11 0.1650 0.0776

Mercury -123168-06-21 14:25 J -43265517.00 -43265516.90 -43265516.81 0.1858 0.1494

Mercury -123165-04-03 12:30 J -43264500.05 -43264499.98 -43264499.91 0.1656 0.1327

Venus -123164-03-12 12:44 J -43264157.11 -43264156.97 -43264156.81 0.1852 0.0977

Venus -123163-02-22 23:32 J -43263809.58 -43263809.52 -43263809.46 0.1655 0.1542

Mercury -123163-03-09 17:46 J -43263794.88 -43263794.76 -43263794.65 0.1651 0.0375

Venus -123162-01-08 03:37 J -43263490.51 -43263490.35 -43263490.19 0.1840 0.0681

Venus -123162-12-23 23:03 J -43263140.69 -43263140.54 -43263140.38 0.1661 0.0656

Venus -123160-10-22 18:44 J -43262471.89 -43262471.72 -43262471.55 0.1669 0.0302

Venus -123158-08-22 09:37 J -43261803.20 -43261803.10 -43261802.99 0.1680 0.1316

Mercury -123154-07-31 04:34 J -43260364.43 -43260364.31 -43260364.19 0.1652 0.0055

Mercury -123152-07-05 08:54 J -43259659.15 -43259659.13 -43259659.11 0.1649 0.1612

Mercury -123147-03-11 00:15 J -43257949.63 -43257949.49 -43257949.33 0.1861 0.0768

Mercury -123145-12-20 15:22 J -43256933.98 -43256933.86 -43256933.75 0.1653 0.0445

Mercury -123143-11-25 19:56 J -43256228.75 -43256228.67 -43256228.60 0.1650 0.1222

Mercury -123138-07-31 19:27 J -43254519.85 -43254519.69 -43254519.53 0.1860 0.0328

Mercury -123135-05-13 01:56 J -43253503.52 -43253503.42 -43253503.32 0.1654 0.0852

Moon -123134-12-31 07:27 J -43252906.38 -43252906.19 -43252906.00 0.1705 0.0245

Earth -123134-12-31 13:56 J -43252906.11 -43252905.92 -43252905.73 0.1705 0.0097 *

Mercury -123133-04-17 06:44 J -43252798.32 -43252798.22 -43252798.12 0.1651 0.0826

Venus -123132-03-12 09:37 J -43252469.14 -43252469.10 -43252469.05 0.1856 0.1784

Venus -123130-01-07 21:37 J -43251802.77 -43251802.60 -43251802.42 0.1846 0.0089

Venus -123130-12-22 17:46 J -43251453.89 -43251453.76 -43251453.64 0.1658 0.1095

Venus -123129-11-04 17:46 J -43251135.86 -43251135.76 -43251135.66 0.1832 0.1480

Mercury -123129-12-20 15:22 J -43251089.97 -43251089.86 -43251089.75 0.1858 0.1377

Venus -123128-10-21 15:08 J -43250785.04 -43250784.87 -43250784.70 0.1665 0.0170

Venus -123126-08-21 08:25 J -43250116.30 -43250116.15 -43250116.00 0.1675 0.0820

Mercury -123126-10-03 12:44 J -43250073.05 -43250072.97 -43250072.90 0.1656 0.1267

Mercury -123124-09-07 17:46 J -43249367.88 -43249367.76 -43249367.65 0.1651 0.0429

Mercury -123114-01-29 04:34 J -43245937.43 -43245937.31 -43245937.19 0.1652 0.0045

Mercury -123108-09-09 01:13 J -43243522.59 -43243522.45 -43243522.30 0.1861 0.0880

Mercury -123105-06-20 15:22 J -43242506.98 -43242506.86 -43242506.75 0.1653 0.0388

Mercury -123103-05-26 19:42 J -43241801.75 -43241801.68 -43241801.60 0.1650 0.1276

Venus -123098-01-07 16:49 J -43240114.95 -43240114.80 -43240114.64 0.1851 0.0868

Mercury -123098-01-29 20:25 J -43240092.81 -43240092.65 -43240092.49 0.1860 0.0214

Venus -123098-12-21 11:46 J -43239767.08 -43239767.01 -43239766.95 0.1655 0.1522

Venus -123097-11-04 08:54 J -43239448.29 -43239448.13 -43239447.97 0.1838 0.0772

Venus -123096-10-20 10:34 J -43239098.22 -43239098.06 -43239097.90 0.1662 0.0625

Mercury -123096-11-11 01:56 J -43239076.52 -43239076.42 -43239076.31 0.1654 0.0797

Venus -123094-08-20 05:46 J -43238429.43 -43238429.26 -43238429.09 0.1671 0.0338

Mercury -123094-10-17 06:44 J -43238371.32 -43238371.22 -43238371.12 0.1650 0.0880

Venus -123092-06-18 20:25 J -43237760.75 -43237760.65 -43237760.55 0.1682 0.1359

Mercury -123089-06-20 15:37 J -43236662.96 -43236662.85 -43236662.73 0.1858 0.1290

Mercury -123086-04-03 12:30 J -43235646.06 -43235645.98 -43235645.90 0.1656 0.1215

Mercury -123084-03-08 17:32 J -43234940.88 -43234940.77 -43234940.65 0.1651 0.0482

Mercury -123077-08-23 23:18 J -43232215.55 -43232215.53 -43232215.52 0.1657 0.1631

Mercury -123075-07-30 04:34 J -43231510.43 -43231510.31 -43231510.19 0.1652 0.0085

Mercury -123068-03-10 02:10 J -43229095.55 -43229095.41 -43229095.28 0.1861 0.0989

Venus -123066-01-07 13:13 J -43228427.02 -43228426.95 -43228426.87 0.1855 0.1671

Mercury -123066-12-20 15:22 J -43228079.98 -43228079.86 -43228079.75 0.1653 0.0328

Venus -123065-11-04 02:10 J -43227760.59 -43227760.41 -43227760.24 0.1844 0.0038

Venus -123064-10-19 05:32 J -43227411.40 -43227411.27 -43227411.14 0.1659 0.1070

Mercury -123064-11-24 19:56 J -43227374.74 -43227374.67 -43227374.61 0.1650 0.1330

Venus -123063-09-01 23:18 J -43227093.62 -43227093.53 -43227093.44 0.1830 0.1567

Venus -123062-08-19 02:25 J -43226742.58 -43226742.40 -43226742.23 0.1667 0.0143

Earth -123061-06-21 00:44 J -43226435.66 -43226435.47 -43226435.28 0.1805 0.0449

Moon -123061-06-21 04:49 J -43226435.50 -43226435.30 -43226435.10 0.1805 0.0459 *

Venus -123060-06-17 18:58 J -43226073.85 -43226073.71 -43226073.56 0.1677 0.0863

Mercury -123059-07-30 21:08 J -43225665.78 -43225665.62 -43225665.46 0.1859 0.0106

Mercury -123056-05-12 01:56 J -43224649.52 -43224649.42 -43224649.31 0.1654 0.0741

Mercury -123054-04-17 06:44 J -43223944.32 -43223944.22 -43223944.12 0.1650 0.0933

Mercury -123050-12-20 16:34 J -43222235.94 -43222235.81 -43222235.69 0.1858 0.1178

Mercury -123047-10-02 12:30 J -43221219.06 -43221218.98 -43221218.89 0.1656 0.1158

Mercury -123045-09-06 17:46 J -43220513.88 -43220513.76 -43220513.65 0.1651 0.0538

Mercury -123037-02-22 23:03 J -43217788.57 -43217788.54 -43217788.50 0.1657 0.1577

Mercury -123035-01-28 04:34 J -43217083.43 -43217083.31 -43217083.20 0.1652 0.0142

Venus -123033-11-03 20:54 J -43216072.79 -43216072.63 -43216072.47 0.1849 0.0762

Venus -123032-10-17 23:46 J -43215724.58 -43215724.51 -43215724.44 0.1656 0.1501

Venus -123031-09-01 13:56 J -43215406.07 -43215405.92 -43215405.77 0.1836 0.0868

Venus -123030-08-17 22:20 J -43215055.73 -43215055.57 -43215055.41 0.1663 0.0599

Mercury -123029-09-08 02:39 J -43214668.52 -43214668.39 -43214668.25 0.1861 0.1093

Venus -123028-06-16 16:49 J -43214386.97 -43214386.80 -43214386.63 0.1672 0.0373

Venus -123026-04-16 06:30 J -43213718.32 -43213718.23 -43213718.13 0.1683 0.1407

Mercury -123026-06-20 15:22 J -43213652.98 -43213652.86 -43213652.75 0.1653 0.0278

Mercury -123024-05-25 19:42 J -43212947.74 -43212947.68 -43212947.61 0.1650 0.1379

Mercury -123019-01-28 21:37 J -43211238.76 -43211238.60 -43211238.44 0.1860 0.0013

Mercury -123017-11-10 01:56 J -43210222.52 -43210222.42 -43210222.31 0.1655 0.0685

Mercury -123015-10-16 06:44 J -43209517.31 -43209517.22 -43209517.13 0.1651 0.0986

Mercury -123010-06-20 17:18 J -43207808.91 -43207808.78 -43207808.64 0.1858 0.1068

Mercury -123007-04-02 12:44 J -43206792.06 -43206791.97 -43206791.89 0.1656 0.1099

Mercury -123005-03-07 17:46 J -43206086.87 -43206086.76 -43206086.65 0.1651 0.0593

Venus -123001-11-03 17:18 J -43204384.87 -43204384.78 -43204384.69 0.1853 0.1565

123RD MILLENNIUM BCE

This is a list of transits visible from Mars in the 123rd millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Venus | -122999-09-01 07:27 J | -43203718.37 | -43203718.19 | -43203718.02 | 0.1842 | 0.0120 | | |
| Venus | -122998-08-16 17:18 J | -43203368.91 | -43203368.78 | -43203368.65 | 0.1660 | 0.1046 | | |
| Mercury | -122998-08-23 23:18 J | -43203361.58 | -43203361.53 | -43203361.49 | 0.1657 | 0.1518 | | |
| Venus | -122997-06-29 05:03 J | -43203051.36 | -43203051.29 | -43203051.21 | 0.1828 | 0.1652 | | |
| Venus | -122996-06-15 13:56 J | -43202700.09 | -43202699.92 | -43202699.75 | 0.1668 | 0.0105 | | |
| Mercury | -122996-07-29 04:34 J | -43202656.43 | -43202656.31 | -43202656.19 | 0.1652 | 0.0190 | | |
| Venus | -122994-04-15 05:46 J | -43202031.40 | -43202031.26 | -43202031.11 | 0.1678 | 0.0904 | | |
| Mercury | -122989-03-09 03:22 J | -43200241.48 | -43200241.36 | -43200241.23 | 0.1861 | 0.1194 | | |
| Mercury | -122987-12-19 15:08 J | -43199225.98 | -43199225.87 | -43199225.75 | 0.1653 | 0.0229 | | |
| Mercury | -122985-11-23 19:42 J | -43198520.73 | -43198520.68 | -43198520.62 | 0.1650 | 0.1433 | | |
| Mercury | -122980-07-29 22:34 J | -43196811.72 | -43196811.56 | -43196811.40 | 0.1859 | 0.0103 | | |
| Mercury | -122977-05-11 01:56 J | -43195795.53 | -43195795.42 | -43195795.31 | 0.1655 | 0.0631 | | |
| Mercury | -122975-04-16 06:44 J | -43195090.31 | -43195090.22 | -43195090.13 | 0.1651 | 0.1038 | | |
| Mercury | -122971-12-19 17:46 J | -43193381.89 | -43193381.76 | -43193381.62 | 0.1858 | 0.0973 | | |
| Mercury | -122968-10-01 12:44 J | -43192365.07 | -43192364.97 | -43192364.88 | 0.1656 | 0.1043 | | |
| Venus | -122967-09-01 01:27 J | -43192030.61 | -43192030.44 | -43192030.28 | 0.1847 | 0.0657 | | |
| Venus | -122966-08-15 11:46 J | -43191682.09 | -43191682.01 | -43191681.94 | 0.1657 | 0.1478 | | |
| Mercury | -122966-09-06 17:46 J | -43191659.87 | -43191659.76 | -43191659.66 | 0.1651 | 0.0646 | | |
| Venus | -122965-06-28 19:56 J | -43191363.82 | -43191363.67 | -43191363.52 | 0.1834 | 0.0954 | | |
| Venus | -122964-06-14 09:51 J | -43191013.25 | -43191013.09 | -43191012.93 | 0.1664 | 0.0567 | | |
| Venus | -122962-04-14 03:37 J | -43190344.52 | -43190344.35 | -43190344.18 | 0.1674 | 0.0413 | | |
| Venus | -122960-02-10 17:03 J | -43189675.88 | -43189675.79 | -43189675.70 | 0.1685 | 0.1453 | | |
| Mercury | -122958-02-21 23:18 J | -43188934.59 | -43188934.53 | -43188934.48 | 0.1657 | 0.1460 | | |
| Mercury | -122956-01-27 04:34 J | -43188229.43 | -43188229.31 | -43188229.20 | 0.1652 | 0.0249 | | |
| Mercury | -122950-09-08 04:20 J | -43185814.43 | -43185814.32 | -43185814.20 | 0.1861 | 0.1311 | | |

Mercury -122947-06-19 15:22 J -43184798.98 -43184798.86 -43184798.74 0.1653 0.0165

Mercury -122945-05-24 19:42 J -43184093.73 -43184093.68 -43184093.63 0.1650 0.1485

Mercury -122940-01-27 23:18 J -43182384.69 -43182384.53 -43182384.36 0.1859 0.0212

Mercury -122938-11-10 01:56 J -43181368.53 -43181368.42 -43181368.31 0.1654 0.0574

Mercury -122936-10-15 06:44 J -43180663.31 -43180663.22 -43180663.13 0.1651 0.1095

Venus -122935-08-31 21:08 J -43180342.73 -43180342.62 -43180342.51 0.1852 0.1456

Venus -122933-06-28 12:01 J -43179676.18 -43179676.00 -43179675.83 0.1840 0.0219

Venus -122932-06-13 05:03 J -43179326.42 -43179326.29 -43179326.15 0.1661 0.1019

Venus -122931-04-26 11:18 J -43179009.08 -43179009.03 -43179008.98 0.1825 0.1736

Mercury -122931-06-19 18:44 J -43178954.87 -43178954.72 -43178954.58 0.1858 0.0868

Venus -122930-04-13 00:44 J -43178657.64 -43178657.47 -43178657.29 0.1669 0.0070

Earth -122929-12-29 00:01 J -43178031.58 -43178031.50 -43178031.42 0.1712 0.1540

Venus -122928-02-09 16:06 J -43177988.97 -43177988.83 -43177988.68 0.1680 0.0949

Mercury -122928-04-01 12:44 J -43177938.07 -43177937.97 -43177937.88 0.1656 0.0989

Mercury -122926-03-07 17:32 J -43177232.87 -43177232.77 -43177232.66 0.1651 0.0697

Mercury -122919-08-22 23:18 J -43174507.59 -43174507.53 -43174507.47 0.1657 0.1406

Mercury -122917-07-28 04:34 J -43173802.43 -43173802.31 -43173802.20 0.1652 0.0302

Mercury -122910-03-09 04:49 J -43171387.40 -43171387.30 -43171387.19 0.1861 0.1405

Mercury -122908-12-18 15:22 J -43170371.98 -43170371.86 -43170371.75 0.1653 0.0122

Mercury -122906-11-23 19:42 J -43169666.72 -43169666.68 -43169666.64 0.1650 0.1537

Venus -122901-06-28 05:18 J -43167988.45 -43167988.28 -43167988.11 0.1846 0.0549

Mercury -122901-07-28 23:46 J -43167957.67 -43167957.51 -43167957.34 0.1860 0.0313

Venus -122900-06-12 00:01 J -43167639.58 -43167639.50 -43167639.42 0.1658 0.1456

Venus -122899-04-26 01:13 J -43167321.60 -43167321.45 -43167321.31 0.1832 0.1049

Venus -122898-04-11 21:08 J -43166970.78 -43166970.62 -43166970.46 0.1666 0.0536

Mercury -122898-05-11 01:56 J -43166941.53 -43166941.42 -43166941.30 0.1655 0.0519

Venus -122896-02-08 14:25 J -43166302.07 -43166301.90 -43166301.73 0.1675 0.0453

Mercury -122896-04-15 06:44 J -43166236.30 -43166236.22 -43166236.14 0.1651 0.1145

Venus -122895-12-09 03:22 J -43165633.44 -43165633.36 -43165633.29 0.1687 0.1499

Mercury -122892-12-18 19:42 J -43164527.83 -43164527.68 -43164527.53 0.1858 0.0751

Mercury -122889-09-30 12:44 J -43163511.07 -43163510.97 -43163510.87 0.1656 0.0930
 Mercury -122887-09-05 17:32 J -43162805.87 -43162805.77 -43162805.66 0.1651 0.0754
 Mercury -122882-05-10 15:08 J -43161097.91 -43161097.87 -43161097.84 0.1856 0.1803
 Mercury -122879-02-20 23:18 J -43160080.60 -43160080.53 -43160080.47 0.1657 0.1350
 Mercury -122877-01-27 04:34 J -43159375.43 -43159375.31 -43159375.20 0.1652 0.0354
 Mercury -122871-09-07 05:46 J -43156960.35 -43156960.26 -43156960.16 0.1861 0.1518
 Venus -122869-06-28 01:13 J -43156300.57 -43156300.45 -43156300.33 0.1850 0.1351
 Mercury -122868-06-18 15:22 J -43155944.98 -43155944.86 -43155944.75 0.1653 0.0075
 Venus -122867-04-25 17:03 J -43155633.97 -43155633.79 -43155633.62 0.1838 0.0317
 Venus -122866-04-10 16:34 J -43155283.95 -43155283.81 -43155283.67 0.1662 0.0991
 Mercury -122866-05-24 19:42 J -43155239.71 -43155239.68 -43155239.65 0.1650 0.1589
 Venus -122865-02-21 16:49 J -43154966.80 -43154966.80 -43154966.79 0.1823 0.1821
 Venus -122864-02-07 12:01 J -43154615.17 -43154615.00 -43154614.82 0.1671 0.0054
 Venus -122863-12-08 02:54 J -43153946.52 -43153946.38 -43153946.24 0.1682 0.0988
 Mercury -122861-01-28 00:44 J -43153530.63 -43153530.47 -43153530.31 0.1859 0.0421
 Mercury -122859-11-09 01:56 J -43152514.53 -43152514.42 -43152514.30 0.1655 0.0464
 Mercury -122857-10-14 06:44 J -43151809.30 -43151809.22 -43151809.14 0.1651 0.1198
 Mercury -122852-06-18 19:56 J -43150100.82 -43150100.67 -43150100.52 0.1858 0.0665
 Moon -122849-01-01 08:39 J -43149174.34 -43149174.14 -43149173.95 0.1709 0.0560
 Earth -122849-01-01 09:22 J -43149174.30 -43149174.11 -43149173.93 0.1709 0.0353 *
 Mercury -122849-03-31 12:44 J -43149084.08 -43149083.97 -43149083.87 0.1656 0.0878
 Mercury -122847-03-06 17:32 J -43148378.87 -43148378.77 -43148378.66 0.1652 0.0803
 Mercury -122843-11-08 16:06 J -43146670.90 -43146670.83 -43146670.77 0.1856 0.1693
 Mercury -122840-08-21 23:18 J -43145653.60 -43145653.53 -43145653.46 0.1657 0.1288
 Mercury -122838-07-28 04:34 J -43144948.43 -43144948.31 -43144948.20 0.1652 0.0409
 Venus -122835-04-25 10:06 J -43143946.25 -43143946.08 -43143945.91 0.1844 0.0446
 Venus -122834-04-09 11:18 J -43143597.11 -43143597.03 -43143596.94 0.1659 0.1430
 Venus -122833-02-21 06:58 J -43143279.35 -43143279.21 -43143279.07 0.1830 0.1134
 Venus -122832-02-06 08:25 J -43142928.31 -43142928.15 -43142927.99 0.1667 0.0505
 Mercury -122831-03-08 06:30 J -43142533.30 -43142533.23 -43142533.15 0.1861 0.1628

Venus -122831-12-07 01:27 J -43142259.60 -43142259.44 -43142259.27 0.1677 0.0488
 Venus -122829-10-05 13:42 J -43141591.00 -43141590.93 -43141590.86 0.1689 0.1545
 Mercury -122829-12-17 15:22 J -43141517.98 -43141517.86 -43141517.74 0.1653 0.0030
 Mercury -122827-11-22 19:42 J -43140812.69 -43140812.68 -43140812.67 0.1650 0.1642
 Mercury -122822-07-29 01:27 J -43139103.60 -43139103.44 -43139103.28 0.1859 0.0526
 Mercury -122819-05-10 01:56 J -43138087.53 -43138087.42 -43138087.30 0.1655 0.0408
 Mercury -122817-04-14 06:44 J -43137382.30 -43137382.22 -43137382.15 0.1651 0.1251
 Mercury -122813-12-17 20:54 J -43135673.79 -43135673.63 -43135673.48 0.1858 0.0549
 Mercury -122810-09-30 12:44 J -43134657.08 -43134656.97 -43134656.87 0.1656 0.0819
 Mercury -122808-09-04 17:32 J -43133951.87 -43133951.77 -43133951.67 0.1651 0.0858
 Venus -122803-04-25 05:03 J -43132258.42 -43132258.29 -43132258.16 0.1849 0.1240
 Mercury -122803-05-09 16:34 J -43132243.89 -43132243.81 -43132243.73 0.1856 0.1594
 Venus -122801-02-20 21:51 J -43131591.76 -43131591.59 -43131591.42 0.1836 0.0415
 Venus -122800-02-05 04:06 J -43131241.47 -43131241.33 -43131241.19 0.1663 0.0963
 Mercury -122800-02-19 23:18 J -43131226.61 -43131226.53 -43131226.45 0.1657 0.1236
 Venus -122799-12-05 23:03 J -43130572.71 -43130572.54 -43130572.36 0.1672 0.0030
 Mercury -122798-01-26 04:34 J -43130521.43 -43130521.31 -43130521.20 0.1652 0.0463
 Venus -122797-10-04 13:13 J -43129904.08 -43129903.95 -43129903.81 0.1683 0.1033
 Mercury -122792-09-06 07:13 J -43128106.26 -43128106.20 -43128106.14 0.1860 0.1726
 Mercury -122791-07-13 09:51 J -43127796.10 -43127796.09 -43127796.09 0.1659 0.1655
 Mercury -122789-06-17 15:08 J -43127090.98 -43127090.87 -43127090.75 0.1653 0.0084
 Mercury -122782-01-27 02:10 J -43124676.57 -43124676.41 -43124676.26 0.1859 0.0625
 Mercury -122780-11-08 01:56 J -43123660.53 -43123660.42 -43123660.30 0.1655 0.0355
 Mercury -122778-10-14 06:44 J -43122955.29 -43122955.22 -43122955.15 0.1651 0.1304
 Earth -122777-06-21 01:56 J -43122704.59 -43122704.42 -43122704.24 0.1799 0.0753
 Moon -122777-06-21 10:06 J -43122704.27 -43122704.08 -43122703.88 0.1799 0.0386 *
 Mercury -122773-06-17 21:37 J -43121246.76 -43121246.60 -43121246.44 0.1858 0.0441
 Mercury -122770-03-31 12:44 J -43120230.08 -43120229.97 -43120229.87 0.1656 0.0762
 Venus -122769-02-20 14:25 J -43119904.07 -43119903.90 -43119903.73 0.1842 0.0340
 Venus -122768-02-03 23:18 J -43119554.61 -43119554.53 -43119554.44 0.1660 0.1408

Mercury -122768-03-05 17:32 J -43119524.86 -43119524.77 -43119524.67 0.1651 0.0913

Venus -122768-12-18 12:58 J -43119237.09 -43119236.96 -43119236.83 0.1828 0.1222

Venus -122767-12-04 19:56 J -43118885.84 -43118885.67 -43118885.50 0.1668 0.0475

Venus -122765-10-03 12:15 J -43118217.16 -43118216.99 -43118216.83 0.1678 0.0529

Mercury -122764-11-07 17:18 J -43117816.87 -43117816.78 -43117816.68 0.1856 0.1488

Venus -122763-08-02 23:32 J -43117548.57 -43117548.52 -43117548.47 0.1691 0.1596

Mercury -122761-08-20 23:18 J -43116799.61 -43116799.53 -43116799.45 0.1657 0.1178

Mercury -122759-07-27 04:20 J -43116094.43 -43116094.32 -43116094.20 0.1652 0.0516

Mercury -122752-03-07 07:56 J -43113679.20 -43113679.17 -43113679.14 0.1861 0.1829

Mercury -122751-01-11 09:37 J -43113369.12 -43113369.10 -43113369.07 0.1659 0.1601

Mercury -122750-12-17 15:08 J -43112663.98 -43112663.87 -43112663.75 0.1653 0.0128

Mercury -122743-07-28 02:54 J -43110249.53 -43110249.38 -43110249.22 0.1859 0.0738

Mercury -122740-05-09 01:56 J -43109233.53 -43109233.42 -43109233.30 0.1655 0.0298

Mercury -122738-04-14 06:44 J -43108528.29 -43108528.22 -43108528.16 0.1651 0.1356

Venus -122737-02-20 09:37 J -43108216.24 -43108216.10 -43108215.96 0.1847 0.1135

Venus -122736-12-18 03:22 J -43107549.53 -43107549.36 -43107549.19 0.1834 0.0511

Venus -122735-12-03 16:06 J -43107198.97 -43107198.83 -43107198.69 0.1664 0.0938

Mercury -122734-12-17 22:06 J -43106819.74 -43106819.58 -43106819.42 0.1858 0.0347

Venus -122733-10-02 10:20 J -43106530.24 -43106530.07 -43106529.90 0.1674 0.0035

Venus -122731-08-01 23:46 J -43105861.65 -43105861.51 -43105861.38 0.1685 0.1078

Mercury -122731-09-29 12:44 J -43105803.08 -43105802.97 -43105802.86 0.1656 0.0707

Mercury -122729-09-03 17:32 J -43105097.86 -43105097.77 -43105097.67 0.1652 0.0963

Mercury -122724-05-08 18:01 J -43103389.86 -43103389.75 -43103389.65 0.1856 0.1390

Mercury -122721-02-19 23:18 J -43102372.62 -43102372.53 -43102372.44 0.1657 0.1121

Mercury -122719-01-25 04:20 J -43101667.43 -43101667.32 -43101667.21 0.1653 0.0568

Mercury -122712-07-12 09:51 J -43098942.13 -43098942.09 -43098942.05 0.1659 0.1541

Mercury -122710-06-17 15:22 J -43098236.98 -43098236.86 -43098236.75 0.1653 0.0171

Venus -122704-12-17 20:10 J -43095861.84 -43095861.66 -43095861.49 0.1840 0.0248

Mercury -122703-01-26 03:51 J -43095822.49 -43095822.34 -43095822.20 0.1859 0.0844

Venus -122703-12-02 11:03 J -43095512.13 -43095512.04 -43095511.94 0.1661 0.1384

Venus -122702-10-15 18:58 J -43095194.83 -43095194.71 -43095194.59 0.1826 0.1306

Venus -122701-10-01 07:13 J -43094843.37 -43094843.20 -43094843.03 0.1669 0.0444

Mercury -122701-11-07 01:56 J -43094806.53 -43094806.42 -43094806.30 0.1655 0.0246

Venus -122699-07-31 23:03 J -43094174.70 -43094174.54 -43094174.37 0.1680 0.0569

Mercury -122699-10-13 06:44 J -43094101.28 -43094101.22 -43094101.16 0.1651 0.1409

Moon -122698-06-25 03:37 J -43093846.39 -43093846.35 -43093846.30 0.1803 0.1748

Venus -122697-05-30 09:37 J -43093506.13 -43093506.10 -43093506.06 0.1693 0.1647

Mercury -122694-06-17 22:49 J -43092392.71 -43092392.55 -43092392.38 0.1858 0.0245

Mercury -122691-03-30 12:44 J -43091376.08 -43091375.97 -43091375.87 0.1656 0.0656

Mercury -122689-03-04 17:32 J -43090670.86 -43090670.77 -43090670.68 0.1651 0.1014

Mercury -122685-11-06 18:44 J -43088962.83 -43088962.72 -43088962.60 0.1856 0.1282

Mercury -122682-08-20 23:18 J -43087945.62 -43087945.53 -43087945.44 0.1658 0.1066

Mercury -122680-07-26 04:20 J -43087240.42 -43087240.32 -43087240.21 0.1652 0.0622

Mercury -122672-01-10 09:51 J -43084515.14 -43084515.09 -43084515.04 0.1659 0.1484

Venus -122672-12-17 13:56 J -43084174.06 -43084173.92 -43084173.77 0.1846 0.1029

Mercury -122671-12-16 15:22 J -43083809.98 -43083809.86 -43083809.75 0.1654 0.0226

Venus -122670-10-15 08:54 J -43083507.29 -43083507.13 -43083506.96 0.1832 0.0602

Venus -122669-09-30 03:22 J -43083156.50 -43083156.36 -43083156.22 0.1666 0.0908

Venus -122667-07-30 21:08 J -43082487.79 -43082487.62 -43082487.45 0.1675 0.0072

Venus -122665-05-29 10:06 J -43081819.20 -43081819.08 -43081818.95 0.1687 0.1123

Mercury -122664-07-27 04:20 J -43081395.46 -43081395.32 -43081395.18 0.1859 0.0940

Mercury -122661-05-08 01:56 J -43080379.53 -43080379.42 -43080379.30 0.1655 0.0190

Mercury -122659-04-13 06:30 J -43079674.28 -43079674.23 -43079674.17 0.1651 0.1459

Mercury -122655-12-17 00:01 J -43077965.67 -43077965.50 -43077965.34 0.1858 0.0133

Mercury -122652-09-28 12:44 J -43076949.08 -43076948.97 -43076948.86 0.1656 0.0595

Mercury -122650-09-03 17:32 J -43076243.86 -43076243.77 -43076243.68 0.1651 0.1071

Mercury -122645-05-07 19:13 J -43074535.82 -43074535.70 -43074535.57 0.1856 0.1186

Moon -122645-12-29 17:46 J -43074299.92 -43074299.76 -43074299.60 0.1717 0.1072

Earth -122645-12-29 18:15 J -43074299.86 -43074299.74 -43074299.62 0.1717 0.1319 *

Mercury -122642-02-18 23:18 J -43073518.62 -43073518.53 -43073518.44 0.1658 0.1011

Mercury -122640-01-24 04:20 J -43072813.42 -43072813.32 -43072813.21 0.1652 0.0675

Venus -122640-12-17 09:08 J -43072486.14 -43072486.12 -43072486.10 0.1850 0.1827

Venus -122638-10-15 00:44 J -43071819.64 -43071819.47 -43071819.29 0.1838 0.0145

Venus -122637-09-28 22:49 J -43071469.65 -43071469.55 -43071469.45 0.1662 0.1359

Venus -122636-08-12 01:13 J -43071152.56 -43071152.45 -43071152.34 0.1823 0.1391

Venus -122635-07-29 18:15 J -43070800.90 -43070800.74 -43070800.57 0.1671 0.0413

Venus -122633-05-28 09:37 J -43070132.26 -43070132.10 -43070131.94 0.1682 0.0611

Mercury -122633-07-11 09:51 J -43070088.15 -43070088.09 -43070088.03 0.1659 0.1428

Mercury -122631-06-16 15:08 J -43069382.98 -43069382.87 -43069382.75 0.1653 0.0279

Mercury -122624-01-25 05:18 J -43066968.42 -43066968.28 -43066968.15 0.1859 0.1050

Mercury -122622-11-07 01:56 J -43065952.54 -43065952.42 -43065952.30 0.1655 0.0137

Mercury -122620-10-12 06:30 J -43065247.27 -43065247.23 -43065247.18 0.1651 0.1512

Mercury -122615-06-17 00:15 J -43063538.66 -43063538.49 -43063538.33 0.1857 0.0045

Mercury -122612-03-29 12:44 J -43062522.08 -43062521.97 -43062521.86 0.1656 0.0542

Mercury -122610-03-04 17:32 J -43061816.86 -43061816.77 -43061816.69 0.1652 0.1120

Venus -122606-10-14 18:30 J -43060131.89 -43060131.73 -43060131.58 0.1844 0.0925

Mercury -122606-11-06 20:10 J -43060108.79 -43060108.66 -43060108.52 0.1856 0.1073

Venus -122604-08-11 14:25 J -43059465.06 -43059464.90 -43059464.74 0.1830 0.0696

Venus -122603-07-28 15:08 J -43059114.02 -43059113.87 -43059113.73 0.1667 0.0882

Mercury -122603-08-19 23:18 J -43059091.62 -43059091.53 -43059091.43 0.1657 0.0952

Venus -122601-05-27 08:10 J -43058445.34 -43058445.16 -43058444.99 0.1677 0.0117

Mercury -122601-07-25 04:20 J -43058386.42 -43058386.32 -43058386.21 0.1653 0.0730

Venus -122599-03-26 19:56 J -43057776.79 -43057776.67 -43057776.54 0.1689 0.1174

Mercury -122593-01-10 09:51 J -43055661.16 -43055661.09 -43055661.03 0.1659 0.1373

Mercury -122592-12-15 15:22 J -43054955.98 -43054955.86 -43054955.75 0.1653 0.0332

Mercury -122585-07-26 06:01 J -43052541.38 -43052541.25 -43052541.13 0.1859 0.1155

Mercury -122582-05-08 01:56 J -43051525.54 -43051525.42 -43051525.30 0.1655 0.0083

Mercury -122580-04-12 06:30 J -43050820.26 -43050820.23 -43050820.19 0.1651 0.1564

Mercury -122576-12-16 01:13 J -43049111.61 -43049111.45 -43049111.29 0.1858 0.0080

Venus -122574-10-14 13:27 J -43048444.00 -43048443.94 -43048443.88 0.1849 0.1722

Mercury -122573-09-27 12:44 J -43048095.08 -43048094.97 -43048094.86 0.1656 0.0485

Venus -122572-08-11 06:30 J -43047777.41 -43047777.23 -43047777.05 0.1836 0.0051

Venus -122571-07-27 10:20 J -43047427.17 -43047427.07 -43047426.96 0.1663 0.1335

Mercury -122571-09-02 17:32 J -43047389.85 -43047389.77 -43047389.69 0.1651 0.1174

Venus -122570-06-09 07:13 J -43047110.30 -43047110.20 -43047110.10 0.1821 0.1474

Venus -122569-05-26 05:46 J -43046758.43 -43046758.26 -43046758.09 0.1672 0.0380

Venus -122567-03-25 19:56 J -43046089.83 -43046089.67 -43046089.51 0.1684 0.0656

Mercury -122566-05-07 20:39 J -43045681.77 -43045681.64 -43045681.50 0.1855 0.0980

Earth -122565-01-02 04:20 J -43045442.50 -43045442.32 -43045442.15 0.1714 0.0619

Moon -122565-01-02 10:20 J -43045442.26 -43045442.07 -43045441.88 0.1714 0.0488 *

Mercury -122563-02-17 23:18 J -43044664.63 -43044664.53 -43044664.43 0.1658 0.0900

Mercury -122561-01-24 04:20 J -43043959.42 -43043959.32 -43043959.21 0.1653 0.0779

Mercury -122554-07-11 09:51 J -43041234.16 -43041234.09 -43041234.02 0.1659 0.1315

Mercury -122552-06-15 15:08 J -43040528.98 -43040528.87 -43040528.75 0.1654 0.0384

Mercury -122545-01-25 06:44 J -43038114.34 -43038114.22 -43038114.10 0.1859 0.1258

Mercury -122543-11-06 01:56 J -43037098.53 -43037098.42 -43037098.30 0.1655 0.0067

Mercury -122541-10-11 06:30 J -43036393.25 -43036393.23 -43036393.21 0.1651 0.1617

Venus -122540-08-10 23:03 J -43036089.69 -43036089.54 -43036089.38 0.1842 0.0820

Venus -122538-06-08 20:25 J -43035422.80 -43035422.65 -43035422.49 0.1828 0.0781

Venus -122537-05-25 02:10 J -43035071.56 -43035071.41 -43035071.26 0.1668 0.0850

Mercury -122536-06-16 01:56 J -43034684.58 -43034684.42 -43034684.25 0.1857 0.0188

Venus -122535-03-24 18:30 J -43034402.90 -43034402.73 -43034402.55 0.1678 0.0153

Venus -122533-01-22 06:15 J -43033734.36 -43033734.24 -43033734.12 0.1691 0.1222

Mercury -122533-03-28 12:44 J -43033668.09 -43033667.97 -43033667.86 0.1656 0.0431

Mercury -122531-03-03 17:32 J -43032962.85 -43032962.77 -43032962.69 0.1652 0.1227

Mercury -122527-11-05 21:37 J -43031254.75 -43031254.60 -43031254.46 0.1855 0.0872

Mercury -122524-08-18 23:18 J -43030237.63 -43030237.53 -43030237.43 0.1658 0.0843

Mercury -122522-07-25 04:20 J -43029532.42 -43029532.32 -43029532.22 0.1652 0.0833

Mercury -122514-01-09 09:51 J -43026807.17 -43026807.09 -43026807.01 0.1659 0.1260

Mercury -122513-12-14 15:08 J -43026101.98 -43026101.87 -43026101.75 0.1654 0.0438

Venus -122508-08-10 17:32 J -43024401.85 -43024401.77 -43024401.68 0.1847 0.1613
 Venus -122506-06-08 11:18 J -43023735.20 -43023735.03 -43023734.85 0.1834 0.0053
 Mercury -122506-07-26 07:27 J -43023687.30 -43023687.19 -43023687.08 0.1859 0.1364
 Venus -122505-05-23 22:06 J -43023384.69 -43023384.58 -43023384.48 0.1665 0.1307
 Venus -122504-04-05 13:27 J -43023068.02 -43023067.94 -43023067.85 0.1818 0.1558
 Venus -122503-03-23 16:20 J -43022715.99 -43022715.82 -43022715.65 0.1674 0.0341
 Mercury -122503-05-07 01:56 J -43022671.54 -43022671.42 -43022671.30 0.1655 0.0047
 Venus -122501-01-21 06:15 J -43022047.40 -43022047.24 -43022047.08 0.1685 0.0701
 Mercury -122497-12-15 02:25 J -43020257.56 -43020257.40 -43020257.24 0.1857 0.0279
 Mercury -122494-09-27 12:44 J -43019241.09 -43019240.97 -43019240.86 0.1656 0.0376
 Earth -122493-06-21 04:06 J -43018973.49 -43018973.33 -43018973.17 0.1793 0.1000
 Moon -122493-06-21 10:20 J -43018973.21 -43018973.07 -43018972.93 0.1794 0.1151 *
 Mercury -122492-09-01 17:32 J -43018535.84 -43018535.77 -43018535.70 0.1652 0.1277
 Mercury -122487-05-06 22:20 J -43016827.72 -43016827.57 -43016827.43 0.1856 0.0771
 Mercury -122484-02-16 23:18 J -43015810.63 -43015810.53 -43015810.42 0.1658 0.0786
 Mercury -122482-01-23 04:20 J -43015105.42 -43015105.32 -43015105.22 0.1653 0.0887
 Mercury -122478-09-26 18:30 J -43013397.77 -43013397.73 -43013397.69 0.1853 0.1783
 Mercury -122475-07-10 09:51 J -43012380.17 -43012380.09 -43012380.01 0.1659 0.1202
 Venus -122474-06-08 03:22 J -43012047.52 -43012047.36 -43012047.20 0.1840 0.0712
 Mercury -122473-06-14 15:22 J -43011674.98 -43011674.86 -43011674.75 0.1654 0.0492
 Venus -122472-04-05 02:10 J -43011380.56 -43011380.41 -43011380.26 0.1825 0.0873
 Venus -122471-03-22 13:27 J -43011029.09 -43011028.94 -43011028.79 0.1670 0.0819
 Venus -122469-01-20 05:18 J -43010360.45 -43010360.28 -43010360.11 0.1680 0.0191
 Venus -122468-11-18 16:20 J -43009691.93 -43009691.82 -43009691.71 0.1693 0.1272
 Mercury -122466-01-24 08:10 J -43009260.26 -43009260.16 -43009260.06 0.1859 0.1469
 Mercury -122466-11-30 20:25 J -43008949.68 -43008949.65 -43008949.63 0.1661 0.1625
 Mercury -122464-11-05 01:56 J -43008244.54 -43008244.42 -43008244.30 0.1655 0.0091
 Mercury -122457-06-15 03:22 J -43005830.52 -43005830.36 -43005830.20 0.1857 0.0386
 Mercury -122454-03-28 12:44 J -43004814.09 -43004813.97 -43004813.86 0.1656 0.0324
 Mercury -122452-03-02 17:32 J -43004108.84 -43004108.77 -43004108.70 0.1652 0.1329

Mercury -122448-11-04 23:03 J -43002400.69 -43002400.54 -43002400.39 0.1855 0.0664

Mercury -122445-08-17 23:18 J -43001383.63 -43001383.53 -43001383.42 0.1658 0.0731

Mercury -122443-07-24 04:20 J -43000678.41 -43000678.32 -43000678.22 0.1653 0.0939

Venus -122442-06-07 22:06 J -43000359.68 -43000359.58 -43000359.48 0.1846 0.1508

Venus -122440-04-04 16:49 J -42999692.97 -42999692.80 -42999692.62 0.1832 0.0145

Venus -122439-03-21 09:22 J -42999342.22 -42999342.11 -42999342.00 0.1666 0.1280

Venus -122438-01-31 19:42 J -42999025.75 -42999025.68 -42999025.61 0.1816 0.1642

Mercury -122438-03-27 18:44 J -42998970.78 -42998970.72 -42998970.66 0.1853 0.1699

Venus -122437-01-19 03:51 J -42998673.52 -42998673.34 -42998673.17 0.1675 0.0311

Venus -122436-11-17 16:49 J -42998004.96 -42998004.80 -42998004.64 0.1687 0.0744

Mercury -122435-01-08 09:51 J -42997953.17 -42997953.09 -42997953.00 0.1659 0.1146

Mercury -122434-12-14 15:08 J -42997247.98 -42997247.87 -42997247.75 0.1654 0.0544

Mercury -122427-07-25 08:54 J -42994833.22 -42994833.13 -42994833.05 0.1859 0.1568

Mercury -122426-05-31 20:25 J -42994522.69 -42994522.65 -42994522.62 0.1661 0.1567

Mercury -122424-05-06 01:56 J -42993817.54 -42993817.42 -42993817.30 0.1655 0.0146

Mercury -122418-12-15 04:20 J -42991403.48 -42991403.32 -42991403.16 0.1857 0.0501

Mercury -122415-09-26 12:44 J -42990387.09 -42990386.97 -42990386.85 0.1656 0.0264

Earth -122414-06-25 00:01 J -42990115.59 -42990115.50 -42990115.40 0.1797 0.1570

Mercury -122413-08-31 17:32 J -42989681.83 -42989681.77 -42989681.71 0.1652 0.1384

Venus -122408-04-04 08:39 J -42988005.31 -42988005.14 -42988004.98 0.1838 0.0612

Mercury -122408-05-05 23:32 J -42987973.67 -42987973.52 -42987973.36 0.1855 0.0568

Venus -122406-01-31 08:39 J -42987338.29 -42987338.14 -42987337.99 0.1823 0.0957

Venus -122405-01-18 00:44 J -42986986.63 -42986986.47 -42986986.32 0.1671 0.0789

Mercury -122405-02-16 23:18 J -42986956.64 -42986956.53 -42986956.42 0.1658 0.0677

Venus -122404-11-16 16:06 J -42986318.00 -42986317.83 -42986317.65 0.1682 0.0230

Mercury -122403-01-22 04:20 J -42986251.41 -42986251.32 -42986251.22 0.1653 0.0991

Venus -122402-09-16 02:25 J -42985649.51 -42985649.40 -42985649.29 0.1695 0.1321

Mercury -122399-09-25 19:42 J -42984543.76 -42984543.68 -42984543.60 0.1853 0.1586

Mercury -122396-07-09 09:51 J -42983526.18 -42983526.09 -42983526.00 0.1659 0.1092

Mercury -122394-06-14 15:08 J -42982820.98 -42982820.87 -42982820.76 0.1654 0.0594

Mercury -122387-01-23 09:37 J -42980406.16 -42980406.10 -42980406.03 0.1859 0.1678

Mercury -122387-11-29 20:25 J -42980095.70 -42980095.65 -42980095.61 0.1661 0.1512

Mercury -122385-11-04 01:56 J -42979390.53 -42979390.42 -42979390.30 0.1655 0.0198

Mercury -122378-06-15 04:34 J -42976976.46 -42976976.31 -42976976.15 0.1857 0.0585

Venus -122376-04-04 02:25 J -42976317.52 -42976317.40 -42976317.29 0.1844 0.1399

Mercury -122375-03-27 12:44 J -42975960.09 -42975959.97 -42975959.85 0.1656 0.0212

Venus -122374-01-30 22:06 J -42975650.75 -42975650.58 -42975650.40 0.1830 0.0246

Venus -122373-01-16 20:54 J -42975299.74 -42975299.63 -42975299.52 0.1667 0.1253

Mercury -122373-03-01 17:32 J -42975254.83 -42975254.77 -42975254.72 0.1652 0.1434

Venus -122373-11-28 03:08 J -42974983.42 -42974983.37 -42974983.32 0.1813 0.1715

Venus -122372-11-15 14:25 J -42974631.07 -42974630.90 -42974630.73 0.1677 0.0271

Venus -122370-09-15 02:54 J -42973962.53 -42973962.38 -42973962.23 0.1689 0.0790

Mercury -122369-11-04 00:30 J -42973546.64 -42973546.48 -42973546.32 0.1856 0.0455

Mercury -122366-08-17 23:18 J -42972529.64 -42972529.53 -42972529.42 0.1658 0.0621

Mercury -122364-07-23 04:20 J -42971824.41 -42971824.32 -42971824.23 0.1653 0.1044

Earth -122361-12-30 11:18 J -42970568.17 -42970568.03 -42970567.88 0.1722 0.1113

Moon -122361-12-30 12:44 J -42970568.12 -42970567.97 -42970567.82 0.1722 0.1196 *

Mercury -122359-03-26 20:25 J -42970116.75 -42970116.65 -42970116.56 0.1853 0.1487

Mercury -122356-01-07 09:51 J -42969099.18 -42969099.09 -42969099.00 0.1659 0.1036

Mercury -122355-12-13 15:08 J -42968393.97 -42968393.87 -42968393.76 0.1654 0.0653

Mercury -122348-07-24 10:20 J -42965979.11 -42965979.07 -42965979.02 0.1859 0.1781

Mercury -122347-05-30 20:25 J -42965668.71 -42965668.65 -42965668.60 0.1661 0.1454

Mercury -122345-05-05 01:56 J -42964963.54 -42964963.42 -42964963.30 0.1655 0.0249

Venus -122342-01-30 13:27 J -42963963.11 -42963962.94 -42963962.77 0.1836 0.0508

Venus -122341-11-27 14:54 J -42963296.02 -42963295.88 -42963295.74 0.1821 0.1043

Venus -122340-11-14 11:46 J -42962944.16 -42962944.01 -42962943.85 0.1672 0.0758

Mercury -122339-12-14 05:32 J -42962549.42 -42962549.27 -42962549.11 0.1857 0.0703

Venus -122338-09-14 02:25 J -42962275.57 -42962275.40 -42962275.22 0.1684 0.0274

Venus -122336-07-13 12:01 J -42961607.10 -42961607.00 -42961606.90 0.1697 0.1374

Mercury -122336-09-25 12:44 J -42961533.09 -42961532.97 -42961532.85 0.1656 0.0156

Mercury -122334-08-31 17:32 J -42960827.82 -42960827.77 -42960827.73 0.1652 0.1485
 Mercury -122329-05-05 00:58 J -42959119.62 -42959119.46 -42959119.30 0.1855 0.0364
 Mercury -122326-02-15 23:18 J -42958102.64 -42958102.53 -42958102.42 0.1658 0.0568
 Mercury -122324-01-21 04:20 J -42957397.41 -42957397.32 -42957397.23 0.1653 0.1094
 Mercury -122320-09-24 20:54 J -42955689.73 -42955689.63 -42955689.52 0.1853 0.1390
 Mercury -122317-07-08 09:51 J -42954672.18 -42954672.09 -42954671.99 0.1659 0.0979
 Mercury -122315-06-13 15:08 J -42953966.97 -42953966.87 -42953966.76 0.1654 0.0702
 Venus -122310-01-30 07:27 J -42952275.32 -42952275.19 -42952275.07 0.1842 0.1299
 Venus -122309-11-27 04:06 J -42951608.50 -42951608.33 -42951608.16 0.1828 0.0337
 Venus -122308-11-13 08:39 J -42951257.26 -42951257.14 -42951257.03 0.1668 0.1227
 Mercury -122308-11-28 20:25 J -42951241.71 -42951241.65 -42951241.59 0.1661 0.1396
 Venus -122307-09-25 09:37 J -42950941.12 -42950941.10 -42950941.08 0.1811 0.1794
 Venus -122306-09-13 01:27 J -42950588.62 -42950588.44 -42950588.27 0.1679 0.0238
 Mercury -122306-11-04 01:56 J -42950536.53 -42950536.42 -42950536.30 0.1655 0.0312
 Venus -122304-07-12 12:58 J -42949920.11 -42949919.96 -42949919.81 0.1691 0.0838
 Mercury -122299-06-14 06:15 J -42948122.38 -42948122.24 -42948122.09 0.1857 0.0807
 Mercury -122296-03-26 12:44 J -42947106.09 -42947105.97 -42947105.85 0.1656 0.0105
 Mercury -122294-03-01 17:32 J -42946400.81 -42946400.77 -42946400.73 0.1652 0.1538
 Mercury -122290-11-04 01:56 J -42944692.59 -42944692.42 -42944692.26 0.1855 0.0257
 Mercury -122287-08-16 23:18 J -42943675.64 -42943675.53 -42943675.41 0.1658 0.0512
 Mercury -122285-07-22 04:20 J -42942970.40 -42942970.32 -42942970.24 0.1653 0.1148
 Earth -122281-01-02 22:34 J -42941710.73 -42941710.56 -42941710.40 0.1719 0.0866
 Moon -122281-01-03 03:37 J -42941710.53 -42941710.35 -42941710.18 0.1719 0.0828 *
 Mercury -122280-03-25 21:51 J -42941262.71 -42941262.59 -42941262.48 0.1853 0.1286
 Mercury -122277-01-07 09:51 J -42940245.19 -42940245.09 -42940244.99 0.1659 0.0925
 Venus -122277-11-26 19:27 J -42939920.86 -42939920.69 -42939920.52 0.1834 0.0416
 Mercury -122276-12-12 15:08 J -42939539.97 -42939539.87 -42939539.76 0.1654 0.0756
 Venus -122275-09-24 21:22 J -42939253.74 -42939253.61 -42939253.47 0.1819 0.1126
 Venus -122274-09-11 22:49 J -42938901.70 -42938901.55 -42938901.39 0.1674 0.0726
 Venus -122272-07-11 13:27 J -42938233.12 -42938232.94 -42938232.77 0.1685 0.0314

Venus -122270-05-10 22:06 J -42937564.68 -42937564.58 -42937564.49 0.1699 0.1426

Mercury -122268-05-29 20:25 J -42936814.72 -42936814.65 -42936814.58 0.1661 0.1342

Mercury -122266-05-05 01:56 J -42936109.53 -42936109.42 -42936109.30 0.1655 0.0354

Mercury -122260-12-13 06:58 J -42933695.36 -42933695.21 -42933695.07 0.1857 0.0900

Mercury -122257-09-24 12:44 J -42932679.09 -42932678.97 -42932678.85 0.1656 0.0047

Mercury -122255-08-30 17:18 J -42931973.80 -42931973.78 -42931973.75 0.1652 0.1589

Mercury -122250-05-05 02:39 J -42930265.55 -42930265.39 -42930265.23 0.1856 0.0150

Mercury -122247-02-14 23:18 J -42929248.64 -42929248.53 -42929248.41 0.1658 0.0458

Mercury -122245-01-21 04:20 J -42928543.40 -42928543.32 -42928543.24 0.1653 0.1201

Venus -122245-11-26 12:01 J -42928233.13 -42928233.00 -42928232.86 0.1840 0.1194

Venus -122243-09-24 10:06 J -42927566.25 -42927566.08 -42927565.91 0.1825 0.0425

Venus -122242-09-10 19:42 J -42927214.80 -42927214.68 -42927214.56 0.1670 0.1197

Mercury -122241-09-23 22:34 J -42926835.68 -42926835.56 -42926835.43 0.1853 0.1177

Venus -122240-07-10 12:01 J -42926546.17 -42926546.00 -42926545.82 0.1680 0.0200

Venus -122238-05-09 23:18 J -42925877.68 -42925877.53 -42925877.38 0.1693 0.0885

Mercury -122238-07-08 09:51 J -42925818.19 -42925818.09 -42925817.98 0.1659 0.0869

Mercury -122236-06-12 15:08 J -42925112.97 -42925112.87 -42925112.76 0.1654 0.0809

Mercury -122229-11-27 20:25 J -42922387.72 -42922387.65 -42922387.58 0.1661 0.1287

Mercury -122227-11-03 01:56 J -42921682.53 -42921682.42 -42921682.30 0.1655 0.0409

Mercury -122220-06-13 07:42 J -42919268.32 -42919268.18 -42919268.04 0.1857 0.1007

Mercury -122217-03-25 12:44 J -42918252.09 -42918251.97 -42918251.85 0.1656 0.0016

Mercury -122215-02-28 17:18 J -42917546.79 -42917546.78 -42917546.77 0.1652 0.1639

Venus -122211-09-24 00:44 J -42915878.64 -42915878.47 -42915878.30 0.1832 0.0318

Mercury -122211-11-03 03:22 J -42915838.53 -42915838.36 -42915838.20 0.1855 0.0055

Venus -122210-09-09 15:51 J -42915527.86 -42915527.84 -42915527.82 0.1666 0.1654

Earth -122209-06-21 09:08 J -42915242.27 -42915242.12 -42915241.98 0.1787 0.1162

Moon -122209-06-21 16:20 J -42915241.97 -42915241.82 -42915241.67 0.1788 0.1192

Venus -122209-07-22 03:51 J -42915211.46 -42915211.34 -42915211.21 0.1816 0.1212

Venus -122208-07-09 10:06 J -42914859.24 -42914859.08 -42914858.92 0.1675 0.0691

Mercury -122208-08-15 23:18 J -42914821.64 -42914821.53 -42914821.41 0.1658 0.0404

Venus -122206-05-08 23:32 J -42914190.69 -42914190.52 -42914190.35 0.1687 0.0358

Mercury -122206-07-22 04:20 J -42914116.39 -42914116.32 -42914116.24 0.1653 0.1252

Venus -122204-03-07 07:13 J -42913522.28 -42913522.20 -42913522.11 0.1701 0.1484

Mercury -122201-03-24 23:03 J -42912408.67 -42912408.54 -42912408.41 0.1853 0.1091

Mercury -122198-01-06 09:51 J -42911391.19 -42911391.09 -42911390.98 0.1660 0.0814

Mercury -122197-12-11 15:08 J -42910685.97 -42910685.87 -42910685.77 0.1654 0.0859

Mercury -122189-05-28 20:25 J -42907960.73 -42907960.65 -42907960.57 0.1661 0.1229

Mercury -122187-05-04 01:56 J -42907255.53 -42907255.42 -42907255.30 0.1655 0.0466

Mercury -122181-12-12 08:39 J -42904841.27 -42904841.14 -42904841.01 0.1857 0.1123

Mercury -122180-10-19 06:44 J -42904530.23 -42904530.22 -42904530.20 0.1663 0.1652

Venus -122179-09-23 17:03 J -42904190.93 -42904190.79 -42904190.65 0.1838 0.1091

Mercury -122178-09-24 12:44 J -42903825.09 -42903824.97 -42903824.85 0.1656 0.0064

Venus -122177-07-21 15:51 J -42903524.00 -42903523.84 -42903523.67 0.1823 0.0520

Venus -122176-07-08 07:27 J -42903172.32 -42903172.19 -42903172.07 0.1671 0.1170

Venus -122174-05-07 22:49 J -42902503.73 -42902503.55 -42902503.38 0.1682 0.0162

Venus -122172-03-06 08:54 J -42901835.28 -42901835.13 -42901834.99 0.1695 0.0939

Mercury -122171-05-04 03:51 J -42901411.50 -42901411.34 -42901411.17 0.1855 0.0052

Mercury -122168-02-13 23:18 J -42900394.64 -42900394.53 -42900394.41 0.1658 0.0349

Mercury -122166-01-20 04:20 J -42899689.39 -42899689.32 -42899689.25 0.1653 0.1303

Mercury -122162-09-24 00:01 J -42897981.64 -42897981.50 -42897981.36 0.1853 0.0978

Mercury -122159-07-07 09:51 J -42896964.19 -42896964.09 -42896963.98 0.1660 0.0760

Mercury -122157-06-11 15:08 J -42896258.97 -42896258.87 -42896258.77 0.1654 0.0911

Mercury -122150-11-27 20:25 J -42893533.73 -42893533.65 -42893533.56 0.1661 0.1174

Mercury -122148-11-02 01:56 J -42892828.53 -42892828.42 -42892828.30 0.1655 0.0518

Venus -122145-07-21 06:30 J -42891836.40 -42891836.23 -42891836.05 0.1830 0.0229

Venus -122144-07-07 03:22 J -42891485.39 -42891485.36 -42891485.33 0.1667 0.1628

Venus -122143-05-19 10:20 J -42891169.19 -42891169.07 -42891168.95 0.1814 0.1295

Venus -122142-05-06 20:54 J -42890816.79 -42890816.63 -42890816.47 0.1677 0.0656

Mercury -122141-06-12 09:08 J -42890414.25 -42890414.12 -42890414.00 0.1857 0.1206

Venus -122140-03-05 09:37 J -42890148.26 -42890148.10 -42890147.93 0.1689 0.0406

Mercury -122140-04-19 06:58 J -42890103.24 -42890103.21 -42890103.18 0.1663 0.1594

Venus -122138-01-02 16:49 J -42889479.88 -42889479.80 -42889479.73 0.1703 0.1542

Mercury -122138-03-25 12:44 J -42889398.09 -42889397.97 -42889397.85 0.1657 0.0114

Mercury -122132-11-02 04:49 J -42886984.46 -42886984.30 -42886984.13 0.1856 0.0169

Earth -122130-06-25 02:54 J -42886384.51 -42886384.38 -42886384.25 0.1791 0.1296

Moon -122130-06-25 10:06 J -42886384.13 -42886384.08 -42886384.02 0.1791 0.1715

Mercury -122129-08-14 23:32 J -42885967.64 -42885967.52 -42885967.41 0.1658 0.0295

Mercury -122127-07-21 04:20 J -42885262.38 -42885262.32 -42885262.25 0.1653 0.1356

Mercury -122122-03-25 00:30 J -42883554.62 -42883554.48 -42883554.33 0.1853 0.0880

Mercury -122119-01-05 09:51 J -42882537.19 -42882537.09 -42882536.98 0.1660 0.0706

Mercury -122118-12-11 15:08 J -42881831.96 -42881831.87 -42881831.77 0.1654 0.0967

Venus -122113-07-20 21:51 J -42880148.73 -42880148.59 -42880148.44 0.1836 0.0988

Venus -122111-05-18 22:20 J -42879481.73 -42879481.57 -42879481.41 0.1821 0.0604

Venus -122110-05-05 18:01 J -42879129.87 -42879129.75 -42879129.62 0.1672 0.1137

Mercury -122110-05-28 20:25 J -42879106.73 -42879106.65 -42879106.56 0.1661 0.1119

Venus -122108-03-04 08:54 J -42878461.30 -42878461.13 -42878460.95 0.1684 0.0124

Mercury -122108-05-03 01:56 J -42878401.53 -42878401.42 -42878401.31 0.1655 0.0568

Venus -122106-01-01 18:58 J -42877792.85 -42877792.71 -42877792.56 0.1697 0.0987

Mercury -122102-12-12 10:06 J -42875987.19 -42875987.08 -42875986.97 0.1857 0.1321

Mercury -122101-10-18 06:58 J -42875676.26 -42875676.21 -42875676.17 0.1663 0.1541

Mercury -122099-09-23 12:44 J -42874971.09 -42874970.97 -42874970.85 0.1656 0.0168

Mercury -122092-05-03 05:18 J -42872557.44 -42872557.28 -42872557.12 0.1855 0.0250

Mercury -122089-02-13 23:18 J -42871540.64 -42871540.53 -42871540.41 0.1658 0.0243

Mercury -122087-01-19 04:20 J -42870835.38 -42870835.32 -42870835.26 0.1653 0.1406

Mercury -122083-09-23 01:13 J -42869127.59 -42869127.45 -42869127.30 0.1853 0.0780

Venus -122081-07-20 15:08 J -42868460.91 -42868460.87 -42868460.83 0.1842 0.1775

Mercury -122080-07-06 10:06 J -42868110.19 -42868110.08 -42868109.97 0.1660 0.0645

Venus -122079-05-18 12:01 J -42867794.18 -42867794.00 -42867793.83 0.1828 0.0130

Venus -122078-05-04 14:25 J -42867442.94 -42867442.90 -42867442.85 0.1668 0.1601

Mercury -122078-06-11 15:08 J -42867404.96 -42867404.87 -42867404.78 0.1654 0.1017

Venus -122077-03-15 17:03 J -42867126.90 -42867126.79 -42867126.68 0.1811 0.1377
 Moon -122077-12-30 23:03 J -42866836.69 -42866836.54 -42866836.40 0.1727 0.1218
 Earth -122077-12-31 04:20 J -42866836.48 -42866836.32 -42866836.16 0.1727 0.0918 *
 Venus -122076-03-03 07:27 J -42866774.35 -42866774.19 -42866774.03 0.1679 0.0618
 Venus -122075-12-31 19:56 J -42866105.84 -42866105.67 -42866105.50 0.1691 0.0448
 Mercury -122073-02-12 21:37 J -42865697.64 -42865697.60 -42865697.56 0.1851 0.1777
 Venus -122073-10-30 02:25 J -42865437.46 -42865437.40 -42865437.35 0.1705 0.1598
 Mercury -122071-11-26 20:25 J -42864679.74 -42864679.65 -42864679.55 0.1661 0.1063
 Mercury -122069-11-01 01:56 J -42863974.53 -42863974.42 -42863974.31 0.1655 0.0625
 Mercury -122062-06-12 10:49 J -42861560.15 -42861560.05 -42861559.95 0.1857 0.1424
 Mercury -122061-04-18 06:58 J -42861249.27 -42861249.21 -42861249.16 0.1663 0.1485
 Mercury -122059-03-24 12:44 J -42860544.09 -42860543.97 -42860543.85 0.1656 0.0221
 Mercury -122053-11-01 06:15 J -42858130.40 -42858130.24 -42858130.08 0.1855 0.0362
 Mercury -122050-08-14 23:18 J -42857113.64 -42857113.53 -42857113.41 0.1658 0.0192
 Mercury -122048-07-20 04:20 J -42856408.37 -42856408.32 -42856408.27 0.1653 0.1458
 Venus -122047-05-18 02:54 J -42856106.54 -42856106.38 -42856106.23 0.1834 0.0880
 Venus -122045-03-15 04:20 J -42855439.48 -42855439.32 -42855439.16 0.1818 0.0696
 Venus -122044-03-02 05:18 J -42855087.41 -42855087.28 -42855087.15 0.1674 0.1106
 Mercury -122043-03-24 01:56 J -42854700.57 -42854700.42 -42854700.27 0.1853 0.0679
 Venus -122043-12-30 19:42 J -42854418.86 -42854418.68 -42854418.51 0.1685 0.0077
 Venus -122041-10-29 04:49 J -42853750.44 -42853750.30 -42853750.16 0.1699 0.1040
 Mercury -122040-01-04 10:06 J -42853683.20 -42853683.08 -42853682.97 0.1660 0.0595
 Mercury -122039-12-10 15:08 J -42852977.96 -42852977.87 -42852977.78 0.1654 0.1068
 Mercury -122034-08-13 22:06 J -42851270.64 -42851270.58 -42851270.52 0.1851 0.1688
 Mercury -122031-05-27 20:25 J -42850252.74 -42850252.65 -42850252.55 0.1662 0.1009
 Mercury -122029-05-02 01:56 J -42849547.53 -42849547.42 -42849547.31 0.1655 0.0673
 Mercury -122023-12-11 11:18 J -42847133.12 -42847133.03 -42847132.93 0.1857 0.1522
 Mercury -122022-10-18 06:58 J -42846822.27 -42846822.21 -42846822.15 0.1663 0.1423
 Mercury -122020-09-22 12:44 J -42846117.09 -42846116.97 -42846116.85 0.1657 0.0277
 Venus -122015-05-17 20:10 J -42844418.73 -42844418.66 -42844418.59 0.1840 0.1671

Venus -122013-03-14 17:46 J -42843751.93 -42843751.76 -42843751.58 0.1826 0.0037

Mercury -122013-05-02 06:58 J -42843703.37 -42843703.21 -42843703.05 0.1855 0.0466

Venus -122012-03-01 01:56 J -42843400.47 -42843400.42 -42843400.37 0.1670 0.1573

Venus -122011-01-11 00:01 J -42843084.60 -42843084.50 -42843084.40 0.1808 0.1459

Venus -122011-12-29 18:44 J -42842731.88 -42842731.72 -42842731.55 0.1680 0.0589

Mercury -122010-02-12 23:32 J -42842686.64 -42842686.52 -42842686.40 0.1658 0.0134

Venus -122009-10-28 06:15 J -42842063.41 -42842063.24 -42842063.08 0.1693 0.0495

Mercury -122008-01-18 04:20 J -42841981.37 -42841981.32 -42841981.28 0.1653 0.1510

Venus -122007-08-27 11:32 J -42841395.06 -42841395.02 -42841394.98 0.1707 0.1658

Mercury -122004-09-22 02:54 J -42840273.54 -42840273.38 -42840273.23 0.1853 0.0572

Mercury -122001-07-05 10:06 J -42839256.20 -42839256.08 -42839255.97 0.1660 0.0540

122ND MILLENNIUM BCE

This is a list of transits visible from Mars in the 122nd millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -121999-06-10 15:08 J | -42838550.95 | -42838550.87 | -42838550.78 | 0.1654 | 0.1121 | | |
| Moon | -121997-01-03 14:39 J | -42837979.04 | -42837978.89 | -42837978.73 | 0.1724 | 0.1155 | | |
| Earth | -121997-01-03 15:51 J | -42837978.99 | -42837978.84 | -42837978.69 | 0.1724 | 0.1091 | * | |
| Mercury | -121994-02-11 22:49 J | -42836843.63 | -42836843.55 | -42836843.47 | 0.1851 | 0.1586 | | |
| Mercury | -121992-11-25 20:39 J | -42835825.74 | -42835825.64 | -42835825.55 | 0.1661 | 0.0954 | | |

Mercury -121990-11-01 01:56 J -42835120.52 -42835120.42 -42835120.31 0.1655 0.0728

Mercury -121983-06-11 12:15 J -42832706.07 -42832705.99 -42832705.91 0.1857 0.1626

Mercury -121982-04-18 06:58 J -42832395.28 -42832395.21 -42832395.15 0.1663 0.1371

Venus -121981-03-14 08:25 J -42832064.31 -42832064.15 -42832063.99 0.1832 0.0782

Mercury -121980-03-23 12:44 J -42831690.09 -42831689.97 -42831689.85 0.1657 0.0328

Venus -121979-01-10 11:32 J -42831397.18 -42831397.02 -42831396.87 0.1816 0.0776

Venus -121979-12-28 16:34 J -42831044.95 -42831044.81 -42831044.68 0.1675 0.1078

Venus -121977-10-27 06:15 J -42830376.41 -42830376.24 -42830376.06 0.1687 0.0049

Venus -121975-08-26 14:39 J -42829708.02 -42829707.89 -42829707.75 0.1701 0.1093

Mercury -121974-11-01 07:41 J -42829276.34 -42829276.18 -42829276.03 0.1855 0.0564

Mercury -121971-08-13 23:17 J -42828259.64 -42828259.53 -42828259.41 0.1658 0.0096

Mercury -121969-07-19 04:20 J -42827554.36 -42827554.32 -42827554.29 0.1653 0.1560

Mercury -121964-03-23 03:22 J -42825846.52 -42825846.36 -42825846.21 0.1853 0.0483

Mercury -121961-01-04 10:05 J -42824829.20 -42824829.08 -42824828.97 0.1660 0.0482

Mercury -121960-12-09 15:08 J -42824123.95 -42824123.87 -42824123.79 0.1654 0.1173

Mercury -121955-08-12 23:46 J -42822416.60 -42822416.51 -42822416.41 0.1851 0.1474

Mercury -121952-05-26 20:39 J -42821398.74 -42821398.64 -42821398.54 0.1661 0.0895

Mercury -121950-05-02 01:56 J -42820693.52 -42820693.42 -42820693.31 0.1655 0.0783

Venus -121949-03-14 00:44 J -42820376.56 -42820376.47 -42820376.38 0.1838 0.1565

Venus -121947-01-09 23:46 J -42819709.68 -42819709.51 -42819709.33 0.1823 0.0075

Venus -121947-12-27 13:27 J -42819358.01 -42819357.94 -42819357.88 0.1671 0.1548

Venus -121946-11-08 07:27 J -42819042.28 -42819042.19 -42819042.10 0.1806 0.1531

Venus -121945-10-26 05:17 J -42818689.44 -42818689.28 -42818689.11 0.1682 0.0549

Mercury -121944-12-10 13:13 J -42818279.00 -42818278.95 -42818278.90 0.1857 0.1739

Venus -121943-08-25 16:05 J -42818021.00 -42818020.83 -42818020.67 0.1695 0.0543

Mercury -121943-10-17 06:58 J -42817968.28 -42817968.21 -42817968.14 0.1663 0.1314

Mercury -121941-09-21 12:44 J -42817263.08 -42817262.97 -42817262.85 0.1656 0.0383

Mercury -121934-05-02 08:10 J -42814849.31 -42814849.16 -42814849.00 0.1855 0.0663

Mercury -121931-02-11 23:17 J -42813832.64 -42813832.53 -42813832.41 0.1658 0.0057

Mercury -121929-01-18 04:20 J -42813127.35 -42813127.32 -42813127.30 0.1653 0.1611

Earth -121925-06-21 15:37 J -42811510.98 -42811510.85 -42811510.71 0.1782 0.1267
 Moon -121925-06-21 18:15 J -42811510.90 -42811510.74 -42811510.58 0.1782 0.1143 *
 Mercury -121925-09-21 04:20 J -42811419.48 -42811419.32 -42811419.16 0.1853 0.0371
 Mercury -121922-07-05 10:05 J -42810402.20 -42810402.08 -42810401.97 0.1660 0.0428
 Mercury -121920-06-09 15:08 J -42809696.95 -42809696.87 -42809696.79 0.1654 0.1224
 Venus -121915-01-09 13:41 J -42808022.09 -42808021.93 -42808021.76 0.1830 0.0683
 Mercury -121915-02-11 00:01 J -42807989.60 -42807989.50 -42807989.39 0.1851 0.1391
 Venus -121914-11-07 18:01 J -42807354.90 -42807354.75 -42807354.60 0.1813 0.0861
 Venus -121913-10-25 03:22 J -42807002.49 -42807002.36 -42807002.22 0.1677 0.1045
 Mercury -121913-11-24 20:39 J -42806971.75 -42806971.64 -42806971.54 0.1662 0.0840
 Venus -121911-08-24 16:34 J -42806333.99 -42806333.81 -42806333.64 0.1689 0.0034
 Mercury -121911-10-31 01:56 J -42806266.52 -42806266.42 -42806266.32 0.1655 0.0834
 Venus -121909-06-23 00:15 J -42805665.62 -42805665.49 -42805665.37 0.1703 0.1149
 Mercury -121904-06-10 13:27 J -42803851.96 -42803851.94 -42803851.91 0.1857 0.1822
 Mercury -121903-04-17 06:58 J -42803541.29 -42803541.21 -42803541.13 0.1663 0.1258
 Mercury -121901-03-22 12:44 J -42802836.08 -42802835.97 -42802835.86 0.1657 0.0435
 Mercury -121895-10-31 09:22 J -42800422.26 -42800422.11 -42800421.96 0.1855 0.0778
 Mercury -121892-08-12 23:32 J -42799405.64 -42799405.52 -42799405.40 0.1658 0.0046
 Mercury -121885-03-22 04:49 J -42796992.46 -42796992.30 -42796992.14 0.1853 0.0272
 Venus -121883-01-09 06:29 J -42796334.34 -42796334.23 -42796334.13 0.1836 0.1466
 Mercury -121882-01-03 10:05 J -42795975.20 -42795975.08 -42795974.97 0.1660 0.0373
 Venus -121882-11-07 05:46 J -42795667.43 -42795667.26 -42795667.09 0.1821 0.0157
 Venus -121881-10-24 00:44 J -42795315.54 -42795315.47 -42795315.40 0.1672 0.1522
 Mercury -121881-12-08 15:08 J -42795269.94 -42795269.87 -42795269.79 0.1654 0.1278
 Venus -121880-09-04 14:25 J -42794999.97 -42794999.90 -42794999.82 0.1803 0.1609
 Venus -121879-08-23 16:05 J -42794647.00 -42794646.83 -42794646.66 0.1684 0.0512
 Venus -121877-06-22 01:56 J -42793978.58 -42793978.42 -42793978.25 0.1697 0.0593
 Mercury -121876-08-12 00:58 J -42793562.57 -42793562.46 -42793562.34 0.1851 0.1283
 Mercury -121873-05-25 20:39 J -42792544.75 -42792544.64 -42792544.54 0.1661 0.0788
 Mercury -121871-05-01 01:56 J -42791839.52 -42791839.42 -42791839.32 0.1655 0.0883

Mercury -121864-10-16 06:58 J -42789114.29 -42789114.21 -42789114.13 0.1664 0.1203
 Mercury -121862-09-21 12:44 J -42788409.08 -42788408.97 -42788408.86 0.1657 0.0489
 Mercury -121855-05-01 09:37 J -42785995.24 -42785995.10 -42785994.95 0.1855 0.0865
 Mercury -121854-03-08 17:17 J -42785683.80 -42785683.78 -42785683.75 0.1666 0.1625
 Mercury -121852-02-10 23:32 J -42784978.64 -42784978.52 -42784978.41 0.1658 0.0106
 Venus -121850-11-06 19:56 J -42783979.84 -42783979.67 -42783979.51 0.1828 0.0590
 Venus -121848-09-04 00:58 J -42783312.61 -42783312.46 -42783312.31 0.1811 0.0942
 Venus -121847-08-22 14:25 J -42782960.04 -42782959.90 -42782959.77 0.1678 0.1012
 Earth -121846-06-25 08:39 J -42782653.29 -42782653.14 -42782652.99 0.1785 0.1121
 Moon -121846-06-25 08:39 J -42782653.27 -42782653.14 -42782653.01 0.1785 0.1384 *
 Mercury -121846-09-21 05:32 J -42782565.43 -42782565.27 -42782565.10 0.1853 0.0173
 Venus -121845-06-21 03:08 J -42782291.55 -42782291.37 -42782291.20 0.1691 0.0051
 Venus -121843-04-20 09:37 J -42781623.22 -42781623.10 -42781622.98 0.1705 0.1205
 Mercury -121843-07-04 10:05 J -42781548.20 -42781548.08 -42781547.96 0.1660 0.0316
 Mercury -121841-06-08 15:08 J -42780842.94 -42780842.87 -42780842.80 0.1654 0.1327
 Mercury -121836-02-10 01:41 J -42779135.55 -42779135.43 -42779135.30 0.1851 0.1181
 Mercury -121834-11-24 20:39 J -42778117.75 -42778117.64 -42778117.53 0.1661 0.0730
 Mercury -121832-10-30 01:56 J -42777412.51 -42777412.42 -42777412.32 0.1655 0.0940
 Mercury -121824-04-16 06:58 J -42774687.29 -42774687.21 -42774687.12 0.1663 0.1148
 Mercury -121822-03-22 12:44 J -42773982.08 -42773981.97 -42773981.86 0.1657 0.0541
 Venus -121818-11-06 11:17 J -42772292.15 -42772292.03 -42772291.92 0.1834 0.1361
 Venus -121816-09-03 12:29 J -42771625.16 -42771624.98 -42771624.81 0.1818 0.0248
 Mercury -121816-10-30 10:34 J -42771568.19 -42771568.06 -42771567.92 0.1855 0.0976
 Venus -121815-08-21 11:46 J -42771273.08 -42771273.01 -42771272.93 0.1674 0.1492
 Mercury -121815-09-06 17:17 J -42771256.81 -42771256.78 -42771256.74 0.1666 0.1570
 Venus -121814-07-02 22:20 J -42770957.63 -42770957.57 -42770957.51 0.1801 0.1679
 Venus -121813-06-20 02:39 J -42770604.56 -42770604.39 -42770604.22 0.1685 0.0472
 Mercury -121813-08-11 23:32 J -42770551.64 -42770551.52 -42770551.41 0.1658 0.0149
 Venus -121811-04-19 11:46 J -42769936.17 -42769936.01 -42769935.85 0.1699 0.0645
 Mercury -121806-03-22 06:15 J -42768138.40 -42768138.24 -42768138.08 0.1853 0.0073

Mercury -121803-01-02 10:05 J -42767121.20 -42767121.08 -42767120.96 0.1660 0.0267
 Mercury -121802-12-08 15:08 J -42766415.93 -42766415.87 -42766415.81 0.1654 0.1378
 Mercury -121797-08-11 02:10 J -42764708.54 -42764708.41 -42764708.28 0.1851 0.1091
 Mercury -121794-05-25 20:39 J -42763690.75 -42763690.64 -42763690.53 0.1662 0.0675
 Earth -121793-12-31 19:27 J -42763104.86 -42763104.69 -42763104.52 0.1732 0.0761
 Moon -121793-12-31 19:56 J -42763104.82 -42763104.67 -42763104.52 0.1732 0.0915 *
 Mercury -121792-04-30 01:56 J -42762985.51 -42762985.42 -42762985.33 0.1655 0.0988
 Mercury -121785-10-15 07:13 J -42760260.29 -42760260.20 -42760260.11 0.1663 0.1089
 Venus -121784-09-03 01:41 J -42759937.60 -42759937.43 -42759937.26 0.1825 0.0493
 Mercury -121783-09-20 12:44 J -42759555.08 -42759554.97 -42759554.86 0.1657 0.0597
 Venus -121782-07-02 07:41 J -42759270.32 -42759270.18 -42759270.03 0.1809 0.1026
 Venus -121781-06-19 01:13 J -42758917.59 -42758917.45 -42758917.31 0.1680 0.0977
 Venus -121779-04-18 12:58 J -42758249.14 -42758248.96 -42758248.79 0.1693 0.0103
 Venus -121777-02-15 18:44 J -42757580.84 -42757580.72 -42757580.61 0.1707 0.1267
 Mercury -121776-04-30 11:32 J -42757141.16 -42757141.02 -42757140.89 0.1855 0.1079
 Mercury -121775-03-07 17:17 J -42756829.82 -42756829.78 -42756829.73 0.1666 0.1515
 Mercury -121773-02-10 23:32 J -42756124.64 -42756124.52 -42756124.41 0.1658 0.0200
 Mercury -121767-09-20 06:58 J -42753711.37 -42753711.21 -42753711.04 0.1853 0.0056
 Mercury -121764-07-03 10:05 J -42752694.20 -42752694.08 -42752693.96 0.1660 0.0210
 Mercury -121762-06-08 15:08 J -42751988.93 -42751988.87 -42751988.81 0.1654 0.1430
 Mercury -121757-02-10 03:08 J -42750281.51 -42750281.37 -42750281.24 0.1851 0.0985
 Mercury -121755-11-23 20:39 J -42749263.75 -42749263.64 -42749263.53 0.1662 0.0620
 Mercury -121753-10-29 01:56 J -42748558.51 -42748558.42 -42748558.33 0.1655 0.1042
 Venus -121752-09-02 16:49 J -42748249.92 -42748249.80 -42748249.67 0.1832 0.1263
 Venus -121750-07-01 18:29 J -42747582.90 -42747582.73 -42747582.56 0.1816 0.0336
 Venus -121749-06-17 23:17 J -42747230.61 -42747230.53 -42747230.45 0.1675 0.1464
 Venus -121748-04-29 05:46 J -42746915.29 -42746915.26 -42746915.23 0.1798 0.1756
 Venus -121747-04-17 12:58 J -42746562.13 -42746561.96 -42746561.79 0.1687 0.0430
 Venus -121745-02-14 21:22 J -42745893.77 -42745893.61 -42745893.46 0.1701 0.0702
 Mercury -121745-04-15 06:58 J -42745833.30 -42745833.21 -42745833.11 0.1664 0.1038

Mercury -121743-03-21 12:44 J -42745128.08 -42745127.97 -42745127.86 0.1657 0.0646

Mercury -121737-10-29 12:01 J -42742714.13 -42742714.00 -42742713.87 0.1855 0.1172

Mercury -121736-09-05 17:32 J -42742402.83 -42742402.77 -42742402.72 0.1666 0.1456

Mercury -121734-08-11 23:32 J -42741697.64 -42741697.52 -42741697.41 0.1658 0.0252

Mercury -121727-03-21 07:41 J -42739284.34 -42739284.18 -42739284.02 0.1853 0.0129

Mercury -121724-01-01 10:05 J -42738267.20 -42738267.08 -42738266.96 0.1660 0.0156

Mercury -121723-12-07 15:08 J -42737561.92 -42737561.87 -42737561.82 0.1654 0.1482

Venus -121718-07-01 07:56 J -42735895.34 -42735895.17 -42735895.00 0.1823 0.0402

Mercury -121718-08-11 03:51 J -42735854.48 -42735854.34 -42735854.19 0.1850 0.0879

Venus -121716-04-28 14:39 J -42735228.02 -42735227.89 -42735227.75 0.1806 0.1110

Venus -121715-04-16 12:01 J -42734875.15 -42734875.00 -42734874.86 0.1682 0.0940

Mercury -121715-05-24 20:39 J -42734836.75 -42734836.64 -42734836.53 0.1662 0.0565

Earth -121713-01-04 08:53 J -42734247.26 -42734247.13 -42734247.01 0.1729 0.1315

Moon -121713-01-04 12:44 J -42734247.11 -42734246.97 -42734246.84 0.1729 0.1145 *

Venus -121713-02-13 23:03 J -42734206.71 -42734206.54 -42734206.37 0.1695 0.0147

Mercury -121713-04-29 01:56 J -42734131.50 -42734131.42 -42734131.33 0.1655 0.1094

Venus -121712-12-13 04:05 J -42733538.44 -42733538.33 -42733538.22 0.1710 0.1324

Mercury -121706-10-15 06:58 J -42731406.30 -42731406.21 -42731406.11 0.1663 0.0983

Mercury -121704-09-19 12:44 J -42730701.08 -42730700.97 -42730700.86 0.1657 0.0699

Mercury -121697-04-29 12:44 J -42728287.09 -42728286.97 -42728286.85 0.1855 0.1273

Mercury -121696-03-06 17:32 J -42727975.84 -42727975.77 -42727975.71 0.1666 0.1403

Mercury -121694-02-09 23:32 J -42727270.64 -42727270.52 -42727270.41 0.1658 0.0305

Mercury -121688-09-19 08:39 J -42724857.31 -42724857.14 -42724856.98 0.1853 0.0240

Venus -121686-06-30 22:05 J -42724207.72 -42724207.58 -42724207.45 0.1830 0.1161

Mercury -121685-07-02 10:05 J -42723840.20 -42723840.08 -42723839.96 0.1660 0.0103

Venus -121684-04-28 01:27 J -42723540.61 -42723540.44 -42723540.27 0.1813 0.0422

Venus -121683-04-15 09:51 J -42723188.18 -42723188.09 -42723188.00 0.1677 0.1430

Mercury -121683-06-07 15:08 J -42723134.91 -42723134.87 -42723134.83 0.1654 0.1531

Venus -121681-02-12 23:03 J -42722519.71 -42722519.54 -42722519.37 0.1689 0.0388

Venus -121680-12-12 07:13 J -42721851.36 -42721851.20 -42721851.04 0.1703 0.0749

Mercury -121678-02-09 04:20 J -42721427.47 -42721427.32 -42721427.18 0.1850 0.0795

Mercury -121676-11-22 20:39 J -42720409.75 -42720409.64 -42720409.53 0.1662 0.0511

Mercury -121674-10-29 01:56 J -42719704.50 -42719704.42 -42719704.33 0.1655 0.1144

Mercury -121669-07-01 00:58 J -42717997.50 -42717997.46 -42717997.42 0.1848 0.1770

Mercury -121666-04-15 07:13 J -42716979.30 -42716979.20 -42716979.10 0.1664 0.0925

Mercury -121664-03-20 12:44 J -42716274.07 -42716273.97 -42716273.86 0.1657 0.0752

Mercury -121658-10-29 13:56 J -42713860.03 -42713859.92 -42713859.82 0.1855 0.1391

Mercury -121657-09-04 17:32 J -42713548.84 -42713548.77 -42713548.70 0.1666 0.1344

Mercury -121655-08-10 23:32 J -42712843.64 -42712843.52 -42712843.41 0.1658 0.0357

Venus -121652-04-27 13:41 J -42711853.10 -42711852.93 -42711852.76 0.1821 0.0303

Venus -121650-02-23 21:37 J -42711185.73 -42711185.60 -42711185.47 0.1803 0.1192

Venus -121649-02-11 22:20 J -42710832.71 -42710832.57 -42710832.42 0.1684 0.0901

Mercury -121648-03-20 09:08 J -42710430.28 -42710430.12 -42710429.96 0.1853 0.0331

Venus -121648-12-11 08:53 J -42710164.30 -42710164.13 -42710163.95 0.1697 0.0194

Venus -121646-10-10 13:13 J -42709496.05 -42709495.95 -42709495.85 0.1712 0.1383

Mercury -121645-01-01 10:05 J -42709413.20 -42709413.08 -42709412.96 0.1660 0.0050

Mercury -121644-12-06 15:08 J -42708707.90 -42708707.87 -42708707.84 0.1654 0.1582

Earth -121641-06-21 23:03 J -42707779.67 -42707779.54 -42707779.42 0.1776 0.1333

Moon -121641-06-22 06:44 J -42707779.34 -42707779.22 -42707779.09 0.1776 0.1313

Mercury -121639-08-10 05:17 J -42707000.43 -42707000.28 -42707000.13 0.1851 0.0688

Mercury -121636-05-23 20:39 J -42705982.76 -42705982.64 -42705982.53 0.1662 0.0458

Mercury -121634-04-29 01:56 J -42705277.50 -42705277.42 -42705277.34 0.1655 0.1194

Mercury -121630-12-31 01:41 J -42703570.50 -42703570.43 -42703570.37 0.1848 0.1675

Mercury -121627-10-14 07:13 J -42702552.30 -42702552.20 -42702552.10 0.1664 0.0871

Mercury -121625-09-18 12:44 J -42701847.07 -42701846.97 -42701846.87 0.1657 0.0805

Venus -121620-04-27 03:08 J -42700165.51 -42700165.37 -42700165.22 0.1828 0.1055

Venus -121618-02-23 07:41 J -42699498.35 -42699498.18 -42699498.01 0.1811 0.0512

Mercury -121618-04-29 14:10 J -42699433.01 -42699432.91 -42699432.81 0.1855 0.1472

Venus -121617-02-10 20:53 J -42699145.73 -42699145.63 -42699145.54 0.1679 0.1399

Mercury -121617-03-05 17:32 J -42699121.84 -42699121.77 -42699121.69 0.1666 0.1288

Venus -121616-12-10 09:22 J -42698477.28 -42698477.11 -42698476.93 0.1691 0.0348

Mercury -121615-02-08 23:32 J -42698416.64 -42698416.52 -42698416.41 0.1658 0.0409

Venus -121614-10-09 16:34 J -42697808.96 -42697808.81 -42697808.65 0.1705 0.0806

Mercury -121609-09-18 09:51 J -42696003.24 -42696003.09 -42696002.93 0.1853 0.0439

Mercury -121606-07-02 10:05 J -42694986.20 -42694986.08 -42694985.96 0.1660 0.0038

Mercury -121604-06-06 15:08 J -42694280.89 -42694280.87 -42694280.86 0.1654 0.1632

Mercury -121599-02-08 06:01 J -42692573.40 -42692573.25 -42692573.10 0.1850 0.0583

Mercury -121597-11-21 20:39 J -42691555.75 -42691555.64 -42691555.52 0.1662 0.0403

Mercury -121595-10-28 01:56 J -42690850.49 -42690850.42 -42690850.34 0.1655 0.1250

Mercury -121590-07-01 02:10 J -42689143.49 -42689143.41 -42689143.32 0.1848 0.1578

Mercury -121587-04-14 07:13 J -42688125.31 -42688125.20 -42688125.10 0.1664 0.0817

Venus -121586-02-22 19:56 J -42687810.84 -42687810.67 -42687810.50 0.1819 0.0212

Mercury -121585-03-19 12:44 J -42687420.07 -42687419.97 -42687419.87 0.1657 0.0856

Venus -121585-12-21 05:03 J -42687143.41 -42687143.29 -42687143.17 0.1801 0.1272

Venus -121584-12-09 09:22 J -42686790.26 -42686790.11 -42686789.96 0.1685 0.0868

Venus -121582-10-08 18:44 J -42686121.89 -42686121.72 -42686121.54 0.1699 0.0246

Venus -121580-08-06 22:05 J -42685453.67 -42685453.58 -42685453.49 0.1714 0.1448

Mercury -121579-10-28 15:08 J -42685005.95 -42685005.87 -42685005.79 0.1855 0.1583

Mercury -121578-09-04 17:32 J -42684694.85 -42684694.77 -42684694.69 0.1666 0.1234

Mercury -121576-08-09 23:32 J -42683989.64 -42683989.52 -42683989.41 0.1658 0.0461

Mercury -121569-03-19 10:34 J -42681576.22 -42681576.06 -42681575.90 0.1853 0.0531

Mercury -121568-01-25 03:51 J -42681264.35 -42681264.34 -42681264.33 0.1668 0.1659

Mercury -121567-12-31 10:05 J -42680559.20 -42680559.08 -42680558.96 0.1660 0.0061

Earth -121562-06-25 15:37 J -42678922.00 -42678921.85 -42678921.69 0.1780 0.1007

Moon -121562-06-25 23:46 J -42678921.68 -42678921.51 -42678921.34 0.1780 0.0873

Mercury -121560-08-09 06:29 J -42678146.39 -42678146.23 -42678146.07 0.1850 0.0493

Mercury -121557-05-22 20:39 J -42677128.75 -42677128.64 -42677128.52 0.1662 0.0348

Mercury -121555-04-28 01:56 J -42676423.49 -42676423.42 -42676423.35 0.1656 0.1297

Venus -121554-02-22 09:08 J -42676123.27 -42676123.12 -42676122.97 0.1825 0.0958

Venus -121553-12-20 15:22 J -42675456.02 -42675455.86 -42675455.70 0.1809 0.0591

Venus -121552-12-08 07:41 J -42675103.28 -42675103.18 -42675103.08 0.1680 0.1368

Mercury -121551-12-30 03:08 J -42674716.47 -42674716.37 -42674716.27 0.1848 0.1472

Venus -121550-10-07 19:56 J -42674434.85 -42674434.67 -42674434.50 0.1693 0.0306

Venus -121548-08-06 02:25 J -42673766.55 -42673766.40 -42673766.25 0.1707 0.0860

Mercury -121548-10-13 07:13 J -42673698.31 -42673698.20 -42673698.09 0.1664 0.0758

Mercury -121546-09-18 12:44 J -42672993.07 -42672992.97 -42672992.87 0.1657 0.0909

Mercury -121539-04-28 15:51 J -42670578.90 -42670578.84 -42670578.77 0.1855 0.1686

Mercury -121538-03-05 17:32 J -42670267.85 -42670267.77 -42670267.69 0.1666 0.1180

Mercury -121536-02-07 23:32 J -42669562.63 -42669562.52 -42669562.41 0.1658 0.0513

Mercury -121530-09-18 11:32 J -42667149.18 -42667149.02 -42667148.87 0.1853 0.0640

Mercury -121529-07-26 03:51 J -42666837.37 -42666837.34 -42666837.31 0.1668 0.1601

Mercury -121527-07-01 10:05 J -42666132.20 -42666132.08 -42666131.96 0.1660 0.0117

Venus -121522-02-22 00:15 J -42664435.54 -42664435.49 -42664435.43 0.1832 0.1737

Venus -121521-12-20 02:25 J -42663768.57 -42663768.40 -42663768.22 0.1816 0.0122

Mercury -121520-02-07 07:13 J -42663719.35 -42663719.20 -42663719.04 0.1850 0.0391

Venus -121519-10-18 12:44 J -42663101.08 -42663100.97 -42663100.85 0.1798 0.1346

Venus -121518-10-06 19:41 J -42662747.83 -42662747.68 -42662747.53 0.1687 0.0828

Mercury -121518-11-21 20:39 J -42662701.75 -42662701.64 -42662701.52 0.1662 0.0296

Venus -121516-08-05 04:34 J -42662079.48 -42662079.31 -42662079.14 0.1701 0.0292

Mercury -121516-10-27 01:56 J -42661996.49 -42661996.42 -42661996.35 0.1655 0.1349

Venus -121514-06-04 07:27 J -42661411.27 -42661411.19 -42661411.11 0.1716 0.1509

Mercury -121511-06-30 03:37 J -42660289.46 -42660289.35 -42660289.25 0.1848 0.1387

Moon -121508-01-01 02:25 J -42659373.57 -42659373.40 -42659373.22 0.1737 0.0611

Earth -121508-01-01 09:37 J -42659373.28 -42659373.10 -42659372.92 0.1737 0.0636 *

Mercury -121508-04-13 07:13 J -42659271.31 -42659271.20 -42659271.09 0.1664 0.0709

Mercury -121506-03-19 12:44 J -42658566.07 -42658565.97 -42658565.88 0.1657 0.0958

Mercury -121500-10-27 16:20 J -42656151.86 -42656151.82 -42656151.77 0.1855 0.1780

Mercury -121499-09-03 17:32 J -42655840.85 -42655840.77 -42655840.68 0.1666 0.1122

Mercury -121497-08-08 23:32 J -42655135.63 -42655135.52 -42655135.41 0.1658 0.0566

Mercury -121490-03-19 12:01 J -42652722.15 -42652722.00 -42652721.85 0.1853 0.0735

Mercury -121489-01-25 03:51 J -42652410.38 -42652410.34 -42652410.30 0.1668 0.1545

Venus -121489-12-19 15:08 J -42652081.02 -42652080.87 -42652080.72 0.1823 0.0859

Mercury -121488-12-30 10:05 J -42651705.19 -42651705.08 -42651704.96 0.1660 0.0178

Venus -121487-10-17 22:05 J -42651413.74 -42651413.58 -42651413.42 0.1806 0.0676

Venus -121486-10-05 18:29 J -42651060.83 -42651060.73 -42651060.63 0.1682 0.1335

Venus -121484-08-04 05:46 J -42650392.43 -42650392.26 -42650392.08 0.1695 0.0261

Venus -121482-06-03 11:32 J -42649724.17 -42649724.02 -42649723.87 0.1709 0.0920

Mercury -121481-08-08 08:10 J -42649292.32 -42649292.16 -42649292.00 0.1850 0.0285

Mercury -121478-05-22 20:39 J -42648274.76 -42648274.64 -42648274.52 0.1662 0.0242

Mercury -121476-04-27 01:56 J -42647569.48 -42647569.42 -42647569.36 0.1655 0.1400

Mercury -121472-12-29 04:20 J -42645862.43 -42645862.32 -42645862.21 0.1848 0.1283

Mercury -121469-10-12 07:13 J -42644844.31 -42644844.20 -42644844.09 0.1664 0.0651

Mercury -121467-09-17 12:44 J -42644139.06 -42644138.97 -42644138.88 0.1657 0.1011

Mercury -121459-03-04 17:32 J -42641413.86 -42641413.77 -42641413.68 0.1666 0.1069

Mercury -121457-02-07 23:32 J -42640708.63 -42640708.52 -42640708.41 0.1658 0.0618

Venus -121457-12-19 06:15 J -42640393.31 -42640393.24 -42640393.16 0.1830 0.1639

Venus -121455-10-17 08:39 J -42639726.31 -42639726.14 -42639725.96 0.1814 0.0034

Venus -121453-08-14 20:25 J -42639058.75 -42639058.65 -42639058.55 0.1796 0.1422

Venus -121452-08-03 06:15 J -42638705.39 -42638705.24 -42638705.08 0.1689 0.0792

Mercury -121451-09-17 12:58 J -42638295.11 -42638294.96 -42638294.82 0.1853 0.0838

Venus -121450-06-02 14:10 J -42638037.08 -42638036.91 -42638036.73 0.1703 0.0348

Mercury -121450-07-26 03:51 J -42637983.39 -42637983.34 -42637983.29 0.1668 0.1490

Venus -121448-03-31 15:51 J -42637368.90 -42637368.84 -42637368.77 0.1719 0.1580

Mercury -121448-06-30 10:05 J -42637278.20 -42637278.08 -42637277.96 0.1660 0.0220

Mercury -121441-02-07 08:25 J -42634865.31 -42634865.15 -42634864.99 0.1850 0.0203

Mercury -121439-11-20 20:39 J -42633847.76 -42633847.64 -42633847.52 0.1662 0.0192

Mercury -121437-10-26 01:56 J -42633142.47 -42633142.42 -42633142.36 0.1656 0.1450

Mercury -121432-06-29 05:03 J -42631435.41 -42631435.29 -42631435.16 0.1848 0.1182

Moon -121429-01-04 19:56 J -42630515.72 -42630515.67 -42630515.63 0.1734 0.1673

Earth -121429-01-05 00:29 J -42630515.58 -42630515.48 -42630515.39 0.1734 0.1497

Mercury -121429-04-12 07:13 J -42630417.31 -42630417.20 -42630417.09 0.1664 0.0596

Mercury -121427-03-18 12:44 J -42629712.06 -42629711.97 -42629711.88 0.1657 0.1064

Venus -121423-10-16 21:22 J -42628038.77 -42628038.61 -42628038.45 0.1821 0.0768

Venus -121421-08-14 05:32 J -42627371.42 -42627371.27 -42627371.11 0.1804 0.0757

Venus -121420-08-02 05:17 J -42627018.39 -42627018.28 -42627018.17 0.1683 0.1302

Mercury -121420-09-02 17:46 J -42626986.86 -42626986.76 -42626986.67 0.1666 0.1014

Venus -121418-06-01 16:20 J -42626350.00 -42626349.82 -42626349.65 0.1696 0.0217

Mercury -121418-08-08 23:32 J -42626281.63 -42626281.52 -42626281.41 0.1658 0.0671

Venus -121416-03-30 20:39 J -42625681.79 -42625681.64 -42625681.50 0.1712 0.0982

Mercury -121411-03-18 13:27 J -42623868.08 -42623867.94 -42623867.80 0.1853 0.0931

Mercury -121410-01-24 03:51 J -42623556.40 -42623556.34 -42623556.28 0.1668 0.1436

Mercury -121409-12-29 10:05 J -42622851.20 -42622851.08 -42622850.96 0.1660 0.0271

Mercury -121402-08-08 09:22 J -42620438.27 -42620438.11 -42620437.94 0.1850 0.0096

Mercury -121399-05-21 20:39 J -42619420.76 -42619420.64 -42619420.52 0.1662 0.0140

Mercury -121397-04-26 01:56 J -42618715.47 -42618715.42 -42618715.37 0.1656 0.1500

Mercury -121393-12-28 05:46 J -42617008.39 -42617008.26 -42617008.13 0.1848 0.1089

Venus -121391-10-16 11:32 J -42616351.11 -42616351.02 -42616350.93 0.1828 0.1535

Mercury -121390-10-12 07:13 J -42615990.31 -42615990.20 -42615990.09 0.1664 0.0543

Venus -121389-08-13 15:37 J -42615684.02 -42615683.85 -42615683.67 0.1811 0.0074

Mercury -121388-09-16 12:44 J -42615285.06 -42615284.97 -42615284.88 0.1657 0.1114

Venus -121387-06-12 04:20 J -42615016.41 -42615016.32 -42615016.22 0.1793 0.1491

Venus -121386-05-31 16:34 J -42614662.97 -42614662.81 -42614662.66 0.1691 0.0750

Venus -121384-03-29 23:32 J -42613994.69 -42613994.52 -42613994.35 0.1705 0.0402

Venus -121382-01-27 00:44 J -42613326.52 -42613326.47 -42613326.42 0.1721 0.1647

Mercury -121380-03-03 17:46 J -42612559.86 -42612559.76 -42612559.67 0.1666 0.0959

Mercury -121378-02-06 23:32 J -42611854.63 -42611854.52 -42611854.42 0.1659 0.0722

Mercury -121372-09-16 14:25 J -42609441.04 -42609440.90 -42609440.77 0.1853 0.1039

Mercury -121371-07-25 04:05 J -42609129.40 -42609129.33 -42609129.27 0.1668 0.1379

Mercury -121369-06-29 10:20 J -42608424.19 -42608424.07 -42608423.96 0.1660 0.0332

Mercury -121362-02-06 10:20 J -42606011.24 -42606011.07 -42606010.91 0.1850 0.0044

Mercury -121360-11-19 20:39 J -42604993.75 -42604993.64 -42604993.52 0.1662 0.0100

Mercury -121358-10-26 01:56 J -42604288.45 -42604288.42 -42604288.38 0.1655 0.1554

Earth -121357-06-22 08:10 J -42604048.28 -42604048.16 -42604048.04 0.1770 0.1350

Moon -121357-06-22 09:08 J -42604048.24 -42604048.12 -42604048.00 0.1770 0.1284 *

Venus -121357-08-13 03:37 J -42603996.51 -42603996.35 -42603996.19 0.1818 0.0674

Venus -121355-06-11 12:29 J -42603329.13 -42603328.98 -42603328.82 0.1801 0.0839

Venus -121354-05-30 15:51 J -42602975.95 -42602975.84 -42602975.73 0.1685 0.1265

Mercury -121353-06-28 06:15 J -42602581.37 -42602581.24 -42602581.10 0.1848 0.0994

Venus -121352-03-29 01:41 J -42602307.61 -42602307.43 -42602307.26 0.1699 0.0163

Venus -121350-01-26 05:17 J -42601639.41 -42601639.28 -42601639.14 0.1714 0.1046

Mercury -121350-04-12 07:13 J -42601563.31 -42601563.20 -42601563.08 0.1664 0.0490

Mercury -121348-03-17 12:44 J -42600858.05 -42600857.97 -42600857.89 0.1657 0.1164

Mercury -121341-09-01 17:46 J -42598132.86 -42598132.76 -42598132.66 0.1666 0.0905

Mercury -121339-08-07 23:32 J -42597427.63 -42597427.52 -42597427.42 0.1658 0.0773

Mercury -121332-03-17 14:53 J -42595014.01 -42595013.88 -42595013.75 0.1853 0.1133

Mercury -121331-01-23 04:05 J -42594702.41 -42594702.33 -42594702.26 0.1668 0.1324

Mercury -121330-12-29 10:05 J -42593997.19 -42593997.08 -42593996.96 0.1660 0.0378

Venus -121325-08-12 17:32 J -42592308.88 -42592308.77 -42592308.66 0.1826 0.1437

Venus -121323-06-10 22:05 J -42591641.75 -42591641.58 -42591641.41 0.1809 0.0151

Mercury -121323-08-07 10:34 J -42591584.22 -42591584.06 -42591583.89 0.1850 0.0112

Venus -121321-04-08 12:01 J -42590974.08 -42590974.00 -42590973.92 0.1790 0.1568

Venus -121320-03-28 02:25 J -42590620.56 -42590620.40 -42590620.24 0.1693 0.0706

Mercury -121320-05-20 20:39 J -42590566.75 -42590566.64 -42590566.52 0.1662 0.0071

Venus -121318-01-25 08:53 J -42589952.30 -42589952.13 -42589951.96 0.1707 0.0459

Mercury -121318-04-26 01:56 J -42589861.45 -42589861.42 -42589861.40 0.1656 0.1600

Venus -121317-11-23 09:08 J -42589284.13 -42589284.12 -42589284.11 0.1724 0.1717

Mercury -121314-12-28 07:13 J -42588154.34 -42588154.20 -42588154.06 0.1848 0.0886

Mercury -121311-10-11 07:13 J -42587136.31 -42587136.20 -42587136.08 0.1664 0.0436

Mercury -121309-09-15 12:44 J -42586431.05 -42586430.97 -42586430.89 0.1657 0.1217

Mercury -121301-03-02 17:46 J -42583705.87 -42583705.76 -42583705.66 0.1666 0.0851

Mercury -121299-02-05 23:32 J -42583000.62 -42583000.52 -42583000.42 0.1658 0.0826

Mercury -121293-09-15 15:51 J -42580586.96 -42580586.84 -42580586.72 0.1853 0.1237

Mercury -121292-07-24 04:05 J -42580275.41 -42580275.33 -42580275.26 0.1668 0.1267

Venus -121291-06-10 10:05 J -42579954.24 -42579954.08 -42579953.91 0.1816 0.0584

Mercury -121290-06-29 10:05 J -42579570.19 -42579570.08 -42579569.96 0.1660 0.0432

Venus -121289-04-07 19:56 J -42579286.82 -42579286.67 -42579286.53 0.1799 0.0922

Venus -121288-03-27 02:10 J -42578933.52 -42578933.41 -42578933.29 0.1687 0.1229

Venus -121286-01-24 11:46 J -42578265.19 -42578265.01 -42578264.84 0.1701 0.0116

Venus -121285-11-22 14:25 J -42577597.03 -42577596.90 -42577596.77 0.1717 0.1107

Mercury -121283-02-05 11:32 J -42577157.18 -42577157.02 -42577156.86 0.1850 0.0205

Mercury -121281-11-18 20:39 J -42576139.76 -42576139.64 -42576139.52 0.1662 0.0059

Mercury -121279-10-25 01:56 J -42575434.43 -42575434.42 -42575434.42 0.1656 0.1650

Earth -121278-06-25 23:17 J -42575190.69 -42575190.53 -42575190.36 0.1774 0.0906

Moon -121278-06-26 06:44 J -42575190.35 -42575190.22 -42575190.09 0.1774 0.1229

Mercury -121274-06-28 07:41 J -42573727.33 -42573727.18 -42573727.04 0.1847 0.0803

Mercury -121271-04-11 07:13 J -42572709.31 -42572709.20 -42572709.08 0.1664 0.0383

Mercury -121269-03-16 12:44 J -42572004.05 -42572003.97 -42572003.90 0.1657 0.1265

Mercury -121265-11-17 04:34 J -42570297.36 -42570297.31 -42570297.27 0.1845 0.1760

Mercury -121262-09-01 17:46 J -42569278.86 -42569278.76 -42569278.65 0.1666 0.0791

Mercury -121260-08-06 23:32 J -42568573.62 -42568573.52 -42568573.42 0.1658 0.0877

Venus -121259-06-09 23:03 J -42568266.66 -42568266.54 -42568266.42 0.1823 0.1335

Venus -121257-04-07 05:17 J -42567599.45 -42567599.28 -42567599.11 0.1806 0.0236

Venus -121255-02-03 20:10 J -42566931.73 -42566931.66 -42566931.59 0.1788 0.1640

Venus -121254-01-23 12:44 J -42566578.13 -42566577.97 -42566577.81 0.1695 0.0664

Mercury -121253-03-16 16:34 J -42566159.93 -42566159.81 -42566159.70 0.1853 0.1335

Venus -121253-11-21 18:44 J -42565909.89 -42565909.72 -42565909.55 0.1709 0.0512

Mercury -121252-01-22 04:05 J -42565848.41 -42565848.33 -42565848.25 0.1668 0.1213

Mercury -121251-12-28 10:05 J -42565143.19 -42565143.08 -42565142.96 0.1660 0.0487

Mercury -121244-08-06 12:15 J -42562730.15 -42562729.99 -42562729.83 0.1850 0.0309

Mercury -121243-06-14 14:10 J -42562417.93 -42562417.91 -42562417.89 0.1670 0.1638

Mercury -121241-05-19 20:39 J -42561712.75 -42561712.64 -42561712.52 0.1662 0.0096

Mercury -121235-12-27 08:25 J -42559300.30 -42559300.15 -42559300.00 0.1848 0.0697

Mercury -121232-10-10 07:13 J -42558282.31 -42558282.20 -42558282.08 0.1664 0.0331

Mercury -121230-09-15 12:44 J -42557577.04 -42557576.97 -42557576.90 0.1657 0.1317

Venus -121225-04-06 16:20 J -42555911.99 -42555911.82 -42555911.65 0.1814 0.0486

Mercury -121225-05-18 05:03 J -42555870.35 -42555870.29 -42555870.22 0.1845 0.1667

Moon -121224-01-01 16:20 J -42555642.00 -42555641.82 -42555641.64 0.1743 0.0474

Earth -121224-01-01 23:03 J -42555641.72 -42555641.54 -42555641.35 0.1743 0.0528 *

Venus -121223-02-03 03:22 J -42555244.50 -42555244.36 -42555244.22 0.1796 0.1002

Venus -121222-01-22 12:44 J -42554891.09 -42554890.97 -42554890.85 0.1689 0.1190

Mercury -121222-03-02 17:46 J -42554851.87 -42554851.76 -42554851.66 0.1666 0.0741

Venus -121221-11-20 21:08 J -42554222.79 -42554222.62 -42554222.44 0.1703 0.0078

Mercury -121220-02-04 23:32 J -42554146.62 -42554146.52 -42554146.43 0.1658 0.0927

Venus -121219-09-19 23:17 J -42553554.66 -42553554.53 -42553554.40 0.1719 0.1170

Mercury -121214-09-15 17:17 J -42551732.89 -42551732.78 -42551732.68 0.1853 0.1433

Mercury -121213-07-23 04:05 J -42551421.42 -42551421.33 -42551421.25 0.1668 0.1158

Mercury -121211-06-28 10:05 J -42550716.19 -42550716.08 -42550715.97 0.1660 0.0533

Mercury -121204-02-04 12:44 J -42548303.13 -42548302.97 -42548302.81 0.1850 0.0395

Mercury -121204-12-13 14:25 J -42547990.94 -42547990.90 -42547990.87 0.1670 0.1579

Mercury -121202-11-18 20:53 J -42547285.75 -42547285.63 -42547285.51 0.1662 0.0142

Mercury -121195-06-27 09:22 J -42544873.27 -42544873.11 -42544872.96 0.1848 0.0598

Venus -121193-04-06 04:34 J -42544224.44 -42544224.31 -42544224.18 0.1821 0.1232

Mercury -121192-04-10 07:27 J -42543855.31 -42543855.19 -42543855.08 0.1664 0.0279

Venus -121191-02-02 12:01 J -42543557.16 -42543557.00 -42543556.83 0.1803 0.0327

Mercury -121190-03-16 12:44 J -42543150.03 -42543149.97 -42543149.91 0.1657 0.1368

Venus -121190-12-02 04:20 J -42542889.36 -42542889.32 -42542889.27 0.1785 0.1712

Venus -121189-11-19 22:34 J -42542535.72 -42542535.56 -42542535.39 0.1697 0.0619

Venus -121187-09-19 03:37 J -42541867.51 -42541867.35 -42541867.18 0.1712 0.0572

Mercury -121186-11-17 05:46 J -42541443.34 -42541443.26 -42541443.17 0.1845 0.1567

Mercury -121183-08-31 17:46 J -42540424.87 -42540424.76 -42540424.65 0.1666 0.0686

Mercury -121181-08-05 23:32 J -42539719.62 -42539719.52 -42539719.43 0.1658 0.0979

Mercury -121174-03-16 17:46 J -42537305.85 -42537305.76 -42537305.67 0.1853 0.1527

Mercury -121173-01-22 04:05 J -42536994.42 -42536994.33 -42536994.24 0.1668 0.1104

Mercury -121172-12-27 10:05 J -42536289.19 -42536289.08 -42536288.97 0.1660 0.0586

Mercury -121165-08-05 13:41 J -42533876.09 -42533875.93 -42533875.77 0.1850 0.0502

Mercury -121164-06-13 14:25 J -42533563.95 -42533563.90 -42533563.86 0.1671 0.1526

Mercury -121162-05-19 20:53 J -42532858.75 -42532858.63 -42532858.52 0.1662 0.0196

Venus -121159-02-01 23:03 J -42531869.71 -42531869.54 -42531869.37 0.1811 0.0396

Venus -121158-12-01 11:03 J -42531202.18 -42531202.04 -42531201.91 0.1793 0.1082

Venus -121157-11-18 23:17 J -42530848.65 -42530848.53 -42530848.40 0.1691 0.1154

Mercury -121156-12-26 09:51 J -42530446.25 -42530446.09 -42530445.94 0.1847 0.0509

Venus -121155-09-18 06:44 J -42530180.39 -42530180.22 -42530180.04 0.1705 0.0020

Venus -121153-07-17 07:56 J -42529512.29 -42529512.17 -42529512.05 0.1721 0.1238

Mercury -121153-10-09 07:13 J -42529428.31 -42529428.20 -42529428.08 0.1664 0.0229

Mercury -121151-09-14 12:44 J -42528723.03 -42528722.97 -42528722.91 0.1657 0.1417

Mercury -121146-05-18 06:15 J -42527016.33 -42527016.24 -42527016.14 0.1845 0.1480

Earth -121145-01-05 14:10 J -42526783.97 -42526783.91 -42526783.84 0.1739 0.1637

Mercury -121143-03-01 17:46 J -42525997.87 -42525997.76 -42525997.65 0.1666 0.0630

Mercury -121141-02-04 23:32 J -42525292.61 -42525292.52 -42525292.43 0.1659 0.1030

Mercury -121135-09-14 18:44 J -42522878.79 -42522878.72 -42522878.64 0.1853 0.1638

Mercury -121134-07-23 04:05 J -42522567.42 -42522567.33 -42522567.24 0.1668 0.1047

Mercury -121132-06-27 10:20 J -42521862.18 -42521862.07 -42521861.97 0.1660 0.0642

Venus -121127-02-01 11:03 J -42520182.18 -42520182.04 -42520181.91 0.1819 0.1139

Venus -121126-11-30 19:56 J -42519514.84 -42519514.67 -42519514.50 0.1801 0.0402

Mercury -121125-02-04 14:25 J -42519449.05 -42519448.90 -42519448.74 0.1850 0.0603

Venus -121125-11-17 22:20 J -42519161.59 -42519161.57 -42519161.54 0.1685 0.1665

Mercury -121125-12-12 14:25 J -42519136.96 -42519136.90 -42519136.85 0.1670 0.1471

Venus -121124-09-28 12:29 J -42518846.98 -42518846.98 -42518846.98 0.1783 0.1782

Venus -121123-09-17 08:39 J -42518493.31 -42518493.14 -42518492.98 0.1699 0.0573

Mercury -121123-11-17 20:53 J -42518431.75 -42518431.63 -42518431.52 0.1662 0.0243

Venus -121121-07-16 13:13 J -42517825.12 -42517824.95 -42517824.79 0.1714 0.0629

Mercury -121116-06-26 10:20 J -42516019.22 -42516019.07 -42516018.91 0.1848 0.0413

Mercury -121113-04-09 07:13 J -42515001.32 -42515001.20 -42515001.08 0.1664 0.0175

Mercury -121111-03-15 12:44 J -42514296.02 -42514295.97 -42514295.92 0.1657 0.1466

Mercury -121107-11-16 07:13 J -42512589.31 -42512589.20 -42512589.09 0.1845 0.1375

Mercury -121104-08-30 17:46 J -42511570.87 -42511570.76 -42511570.65 0.1666 0.0577

Mercury -121102-08-05 23:32 J -42510865.61 -42510865.52 -42510865.43 0.1658 0.1081

Mercury -121095-03-15 19:13 J -42508451.75 -42508451.70 -42508451.64 0.1853 0.1726

Mercury -121094-01-21 04:05 J -42508140.42 -42508140.33 -42508140.23 0.1668 0.0993

Venus -121094-11-30 05:46 J -42507827.43 -42507827.26 -42507827.09 0.1809 0.0306

Mercury -121093-12-26 10:05 J -42507435.18 -42507435.08 -42507434.97 0.1660 0.0690

Venus -121092-09-27 18:58 J -42507159.84 -42507159.71 -42507159.58 0.1791 0.1155

Venus -121091-09-16 09:22 J -42506806.24 -42506806.11 -42506805.98 0.1693 0.1112

Venus -121089-07-15 16:20 J -42506138.00 -42506137.82 -42506137.65 0.1707 0.0042

Venus -121087-05-14 16:49 J -42505469.91 -42505469.80 -42505469.68 0.1723 0.1304

Mercury -121086-08-05 14:53 J -42505022.03 -42505021.88 -42505021.73 0.1850 0.0689

Mercury -121085-06-12 14:25 J -42504709.96 -42504709.90 -42504709.84 0.1670 0.1412

Mercury -121083-05-18 20:53 J -42504004.75 -42504004.63 -42504004.52 0.1662 0.0296

Mercury -121077-12-25 11:17 J -42501592.19 -42501592.03 -42501591.87 0.1848 0.0305

Mercury -121074-10-09 07:27 J -42500574.31 -42500574.19 -42500574.07 0.1664 0.0115

Earth -121073-06-22 18:01 J -42500316.87 -42500316.75 -42500316.63 0.1764 0.1347

Moon -121073-06-23 01:13 J -42500316.60 -42500316.45 -42500316.30 0.1764 0.1118

Mercury -121072-09-13 12:44 J -42499869.01 -42499868.97 -42499868.93 0.1657 0.1519

Mercury -121067-05-17 07:41 J -42498162.29 -42498162.18 -42498162.06 0.1844 0.1284

Mercury -121064-02-28 17:46 J -42497143.87 -42497143.76 -42497143.65 0.1666 0.0524

Mercury -121062-02-03 23:32 J -42496438.61 -42496438.52 -42496438.44 0.1658 0.1132

Venus -121062-11-29 17:03 J -42496139.93 -42496139.79 -42496139.64 0.1816 0.1042

Venus -121060-09-27 03:08 J -42495472.54 -42495472.37 -42495472.21 0.1799 0.0487

Venus -121059-09-15 08:53 J -42495119.17 -42495119.13 -42495119.09 0.1687 0.1630

Venus -121057-07-14 18:29 J -42494450.90 -42494450.73 -42494450.56 0.1701 0.0525

Mercury -121056-09-13 20:10 J -42494024.68 -42494024.66 -42494024.64 0.1853 0.1828

Venus -121055-05-13 22:05 J -42493782.74 -42493782.58 -42493782.42 0.1716 0.0691

Mercury -121055-07-22 04:05 J -42493713.43 -42493713.33 -42493713.23 0.1668 0.0939

Mercury -121053-06-26 10:05 J -42493008.18 -42493008.08 -42493007.97 0.1660 0.0740

Mercury -121046-02-03 15:51 J -42490594.99 -42490594.84 -42490594.70 0.1850 0.0795

Mercury -121046-12-12 14:25 J -42490282.97 -42490282.90 -42490282.83 0.1671 0.1361

Mercury -121044-11-16 20:53 J -42489577.75 -42489577.63 -42489577.52 0.1662 0.0346

Mercury -121037-06-25 11:46 J -42487165.17 -42487165.01 -42487164.85 0.1847 0.0220

Mercury -121034-04-09 07:27 J -42486147.31 -42486147.19 -42486147.08 0.1664 0.0089

Mercury -121032-03-14 12:44 J -42485442.01 -42485441.97 -42485441.94 0.1657 0.1567

Venus -121030-11-29 07:13 J -42484452.22 -42484452.20 -42484452.19 0.1823 0.1815

Venus -121028-09-26 12:29 J -42483785.15 -42483784.98 -42483784.81 0.1806 0.0214

Mercury -121028-11-15 08:39 J -42483735.27 -42483735.14 -42483735.02 0.1845 0.1186

Venus -121026-07-26 02:53 J -42483117.50 -42483117.38 -42483117.25 0.1788 0.1232

Venus -121025-07-13 19:41 J -42482763.81 -42482763.68 -42482763.54 0.1695 0.1075

Mercury -121025-08-29 17:46 J -42482716.87 -42482716.76 -42482716.64 0.1666 0.0470

Venus -121023-05-13 01:41 J -42482095.61 -42482095.43 -42482095.26 0.1709 0.0097

Mercury -121023-08-04 23:32 J -42482011.60 -42482011.52 -42482011.44 0.1659 0.1183

Venus -121021-03-11 00:58 J -42481427.57 -42481427.46 -42481427.36 0.1726 0.1379

Mercury -121015-01-20 04:05 J -42479286.43 -42479286.33 -42479286.23 0.1668 0.0886

Mercury -121014-12-26 10:05 J -42478581.18 -42478581.08 -42478580.97 0.1660 0.0796

Mercury -121007-08-04 16:34 J -42476167.95 -42476167.81 -42476167.67 0.1850 0.0896

Mercury -121006-06-12 14:25 J -42475855.97 -42475855.90 -42475855.82 0.1670 0.1305

Mercury -121004-05-17 20:53 J -42475150.75 -42475150.63 -42475150.52 0.1662 0.0398

121ST MILLENNIUM BCE

This is a list of transits visible from Mars in the 121st millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|---|--------------|--------------|--------------|--------|--------|---|
| Mercury | -120998-12-25 12:44 J | | -42472738.14 | -42472737.97 | -42472737.81 | 0.1848 | 0.0125 | |
| Venus | -120996-09-26 00:01 J | | -42472097.65 | -42472097.50 | -42472097.35 | 0.1814 | 0.0951 | |
| Mercury | -120995-10-08 07:27 J | | -42471720.31 | -42471720.19 | -42471720.07 | 0.1664 | 0.0034 | |
| Moon | -120994-06-26 08:25 J | | -42471459.32 | -42471459.15 | -42471458.98 | 0.1768 | 0.0984 | |
| Earth | -120994-06-26 09:08 J | | -42471459.29 | -42471459.12 | -42471458.95 | 0.1768 | 0.0870 | * |
| Venus | -120994-07-25 11:03 J | | -42471430.21 | -42471430.04 | -42471429.88 | 0.1796 | 0.0566 | |
| Venus | -120993-07-12 19:27 J | | -42471076.74 | -42471076.69 | -42471076.63 | 0.1689 | 0.1595 | |
| Mercury | -120993-09-12 12:44 J | | -42471014.99 | -42471014.97 | -42471014.95 | 0.1657 | 0.1617 | |
| Venus | -120991-05-12 04:34 J | | -42470408.48 | -42470408.31 | -42470408.14 | 0.1703 | 0.0480 | |
| Venus | -120989-03-10 06:44 J | | -42469740.38 | -42469740.22 | -42469740.07 | 0.1719 | 0.0757 | |
| Mercury | -120988-05-16 09:08 J | | -42469308.25 | -42469308.12 | -42469307.99 | 0.1844 | 0.1095 | |
| Mercury | -120985-02-28 17:46 J | | -42468289.88 | -42468289.76 | -42468289.64 | 0.1666 | 0.0418 | |
| Mercury | -120983-02-02 23:32 J | | -42467584.60 | -42467584.52 | -42467584.45 | 0.1659 | 0.1232 | |
| Mercury | -120976-07-21 04:20 J | | -42464859.43 | -42464859.32 | -42464859.22 | 0.1668 | 0.0832 | |
| Mercury | -120974-06-26 10:05 J | | -42464154.18 | -42464154.08 | -42464153.97 | 0.1660 | 0.0844 | |
| Mercury | -120967-02-02 17:03 J | | -42461740.93 | -42461740.79 | -42461740.65 | 0.1850 | 0.0986 | |
| Mercury | -120967-12-11 14:25 J | | -42461428.97 | -42461428.90 | -42461428.82 | 0.1670 | 0.1249 | |
| Mercury | -120965-11-15 20:53 J | | -42460723.75 | -42460723.63 | -42460723.52 | 0.1662 | 0.0449 | |
| Venus | -120964-09-25 12:44 J | | -42460410.02 | -42460409.97 | -42460409.91 | 0.1821 | 0.1713 | |
| Venus | -120962-07-24 19:41 J | | -42459742.85 | -42459742.68 | -42459742.50 | 0.1804 | 0.0136 | |
| Venus | -120960-05-22 11:17 J | | -42459075.15 | -42459075.03 | -42459074.91 | 0.1785 | 0.1302 | |
| Venus | -120959-05-11 05:32 J | | -42458721.41 | -42458721.27 | -42458721.13 | 0.1697 | 0.1030 | |

Mercury -120958-06-25 13:27 J -42458311.11 -42458310.94 -42458310.78 0.1848 0.0041

Venus -120957-03-09 10:34 J -42458053.23 -42458053.06 -42458052.88 0.1712 0.0159

Venus -120955-01-06 09:37 J -42457385.19 -42457385.10 -42457385.00 0.1728 0.1448

Mercury -120955-04-08 07:27 J -42457293.31 -42457293.19 -42457293.07 0.1664 0.0061

Mercury -120949-11-14 09:51 J -42454881.22 -42454881.09 -42454880.95 0.1845 0.0994

Mercury -120946-08-29 17:46 J -42453862.87 -42453862.76 -42453862.64 0.1666 0.0364

Mercury -120944-08-03 23:32 J -42453157.59 -42453157.52 -42453157.45 0.1658 0.1283

Earth -120940-01-02 10:34 J -42451910.25 -42451910.06 -42451909.87 0.1748 0.0467

Moon -120940-01-02 14:53 J -42451910.06 -42451909.88 -42451909.70 0.1748 0.0223 *

Mercury -120936-01-19 04:20 J -42450432.43 -42450432.32 -42450432.22 0.1668 0.0779

Mercury -120935-12-25 10:05 J -42449727.18 -42449727.08 -42449726.98 0.1660 0.0895

Venus -120930-07-24 06:29 J -42448055.39 -42448055.23 -42448055.08 0.1811 0.0857

Venus -120928-05-21 18:15 J -42447387.90 -42447387.74 -42447387.58 0.1793 0.0649

Mercury -120928-08-03 18:01 J -42447313.88 -42447313.75 -42447313.62 0.1850 0.1088

Venus -120927-05-10 05:32 J -42447034.33 -42447034.27 -42447034.20 0.1691 0.1557

Mercury -120927-06-11 14:25 J -42447001.98 -42447001.90 -42447001.81 0.1671 0.1196

Venus -120925-03-08 13:27 J -42446366.11 -42446365.94 -42446365.77 0.1705 0.0426

Mercury -120925-05-16 20:53 J -42446296.75 -42446296.63 -42446296.52 0.1662 0.0500

Venus -120923-01-05 15:22 J -42445698.02 -42445697.86 -42445697.71 0.1721 0.0822

Mercury -120919-12-24 13:56 J -42443884.09 -42443883.92 -42443883.76 0.1847 0.0082

Mercury -120918-11-02 00:44 J -42443571.50 -42443571.47 -42443571.45 0.1673 0.1620

Mercury -120916-10-07 07:27 J -42442866.31 -42442866.19 -42442866.07 0.1664 0.0106

Mercury -120909-05-15 10:20 J -42440454.21 -42440454.07 -42440453.93 0.1845 0.0905

Mercury -120906-02-27 17:46 J -42439435.87 -42439435.76 -42439435.64 0.1666 0.0315

Mercury -120904-02-01 23:32 J -42438730.59 -42438730.52 -42438730.45 0.1659 0.1334

Mercury -120900-10-05 07:41 J -42437024.19 -42437024.18 -42437024.17 0.1841 0.1836

Venus -120898-07-23 18:58 J -42436367.79 -42436367.71 -42436367.63 0.1819 0.1616

Mercury -120897-07-20 04:20 J -42436005.43 -42436005.32 -42436005.21 0.1668 0.0722

Venus -120896-05-21 02:25 J -42435700.57 -42435700.40 -42435700.22 0.1801 0.0043

Mercury -120895-06-25 10:20 J -42435300.17 -42435300.07 -42435299.98 0.1660 0.0948

Venus -120894-03-19 19:13 J -42435032.81 -42435032.70 -42435032.60 0.1783 0.1379

Venus -120893-03-07 15:08 J -42434679.01 -42434678.87 -42434678.72 0.1699 0.0985

Venus -120891-01-04 19:41 J -42434010.85 -42434010.68 -42434010.50 0.1714 0.0217

Venus -120890-11-03 17:32 J -42433342.85 -42433342.77 -42433342.68 0.1731 0.1525

Mercury -120888-02-01 18:44 J -42432886.85 -42432886.72 -42432886.60 0.1850 0.1187

Mercury -120888-12-10 14:25 J -42432574.98 -42432574.90 -42432574.81 0.1671 0.1142

Mercury -120886-11-15 20:53 J -42431869.75 -42431869.63 -42431869.52 0.1662 0.0552

Mercury -120879-06-24 14:39 J -42429457.06 -42429456.89 -42429456.73 0.1848 0.0175

Mercury -120878-05-03 00:44 J -42429144.51 -42429144.47 -42429144.43 0.1673 0.1567

Mercury -120876-04-07 07:27 J -42428439.31 -42428439.19 -42428439.07 0.1664 0.0155

Mercury -120870-11-14 11:17 J -42426027.18 -42426027.03 -42426026.89 0.1844 0.0802

Mercury -120867-08-28 17:46 J -42425008.87 -42425008.76 -42425008.64 0.1666 0.0262

Mercury -120865-08-02 23:32 J -42424303.59 -42424303.52 -42424303.46 0.1659 0.1383

Venus -120864-05-20 13:13 J -42424013.10 -42424012.95 -42424012.79 0.1809 0.0766

Venus -120862-03-19 01:41 J -42423345.58 -42423345.43 -42423345.27 0.1791 0.0734

Earth -120861-01-06 02:53 J -42423052.38 -42423052.38 -42423052.37 0.1744 0.1743

Venus -120861-03-06 15:51 J -42422991.91 -42422991.84 -42422991.76 0.1693 0.1518

Mercury -120860-04-05 07:56 J -42422597.21 -42422597.17 -42422597.13 0.1841 0.1760

Venus -120859-01-03 23:32 J -42422323.69 -42422323.52 -42422323.35 0.1707 0.0378

Venus -120858-11-03 00:01 J -42421655.65 -42421655.50 -42421655.35 0.1724 0.0890

Mercury -120857-01-19 04:20 J -42421578.43 -42421578.32 -42421578.21 0.1668 0.0669

Mercury -120856-12-24 10:05 J -42420873.17 -42420873.08 -42420872.98 0.1660 0.0995

Mercury -120849-08-02 19:13 J -42418459.82 -42418459.70 -42418459.58 0.1850 0.1276

Mercury -120848-06-10 14:39 J -42418147.98 -42418147.89 -42418147.80 0.1671 0.1084

Mercury -120846-05-16 20:53 J -42417442.74 -42417442.63 -42417442.52 0.1662 0.0603

Mercury -120840-12-23 15:37 J -42415030.01 -42415029.85 -42415029.69 0.1848 0.0281

Mercury -120839-11-01 00:44 J -42414717.52 -42414717.47 -42414717.42 0.1673 0.1510

Mercury -120837-10-06 07:27 J -42414012.31 -42414012.19 -42414012.07 0.1664 0.0204

Venus -120832-05-20 00:58 J -42412325.56 -42412325.46 -42412325.37 0.1816 0.1513

Venus -120830-03-18 10:05 J -42411658.25 -42411658.08 -42411657.91 0.1798 0.0052

Mercury -120830-05-15 11:46 J -42411600.16 -42411600.01 -42411599.86 0.1844 0.0712

Venus -120828-01-14 03:51 J -42410990.44 -42410990.34 -42410990.24 0.1780 0.1448

Venus -120827-01-03 01:13 J -42410636.59 -42410636.45 -42410636.30 0.1701 0.0942

Mercury -120827-02-26 17:46 J -42410581.88 -42410581.76 -42410581.64 0.1666 0.0210

Venus -120826-11-02 05:17 J -42409968.46 -42409968.28 -42409968.11 0.1716 0.0273

Mercury -120825-02-01 23:32 J -42409876.58 -42409876.52 -42409876.47 0.1659 0.1433

Venus -120824-08-31 01:56 J -42409300.48 -42409300.42 -42409300.35 0.1733 0.1598

Mercury -120821-10-04 08:53 J -42408170.20 -42408170.13 -42408170.06 0.1841 0.1656

Mercury -120818-07-20 04:20 J -42407151.43 -42407151.32 -42407151.21 0.1668 0.0616

Mercury -120816-06-24 10:05 J -42406446.17 -42406446.08 -42406445.99 0.1660 0.1045

Mercury -120809-02-01 20:10 J -42404032.77 -42404032.66 -42404032.56 0.1850 0.1381

Mercury -120809-12-09 14:39 J -42403720.99 -42403720.89 -42403720.80 0.1671 0.1033

Mercury -120807-11-14 20:53 J -42403015.74 -42403015.63 -42403015.52 0.1662 0.0654

Mercury -120800-06-23 15:51 J -42400603.00 -42400602.84 -42400602.68 0.1847 0.0359

Mercury -120799-05-02 00:44 J -42400290.53 -42400290.47 -42400290.41 0.1673 0.1453

Venus -120798-03-17 19:56 J -42399970.84 -42399970.67 -42399970.51 0.1806 0.0672

Mercury -120797-04-06 07:27 J -42399585.31 -42399585.19 -42399585.07 0.1664 0.0256

Venus -120796-01-13 09:51 J -42399303.24 -42399303.09 -42399302.94 0.1788 0.0810

Venus -120795-01-02 02:10 J -42398949.49 -42398949.41 -42398949.33 0.1695 0.1481

Venus -120794-11-01 08:53 J -42398281.31 -42398281.13 -42398280.96 0.1709 0.0325

Venus -120792-08-30 08:25 J -42397613.29 -42397613.15 -42397613.00 0.1726 0.0958

Mercury -120791-11-13 12:29 J -42397173.13 -42397172.98 -42397172.82 0.1845 0.0614

Moon -120789-06-23 02:39 J -42396585.54 -42396585.39 -42396585.25 0.1758 0.1216

Earth -120789-06-23 04:49 J -42396585.42 -42396585.30 -42396585.17 0.1758 0.1312 *

Mercury -120788-08-27 18:01 J -42396154.87 -42396154.75 -42396154.63 0.1666 0.0154

Mercury -120786-08-02 23:32 J -42395449.57 -42395449.52 -42395449.47 0.1659 0.1483

Mercury -120781-04-04 09:22 J -42393743.19 -42393743.11 -42393743.02 0.1841 0.1563

Mercury -120778-01-18 04:20 J -42392724.43 -42392724.32 -42392724.21 0.1668 0.0561

Mercury -120777-12-23 10:05 J -42392019.16 -42392019.08 -42392018.99 0.1660 0.1101

Mercury -120770-08-02 20:53 J -42389605.73 -42389605.63 -42389605.54 0.1850 0.1479

Mercury -120769-06-09 14:39 J -42389293.99 -42389293.89 -42389293.80 0.1671 0.0977

Mercury -120767-05-15 20:53 J -42388588.74 -42388588.63 -42388588.53 0.1662 0.0705

Venus -120766-03-17 06:44 J -42388283.32 -42388283.22 -42388283.11 0.1814 0.1413

Venus -120764-01-12 17:32 J -42387615.95 -42387615.77 -42387615.60 0.1796 0.0139

Venus -120763-11-11 12:15 J -42386948.08 -42386947.99 -42386947.91 0.1778 0.1520

Venus -120762-10-31 11:03 J -42386594.19 -42386594.04 -42386593.89 0.1703 0.0895

Mercury -120761-12-22 16:49 J -42386175.96 -42386175.80 -42386175.64 0.1848 0.0465

Venus -120760-08-29 13:56 J -42385926.09 -42385925.92 -42385925.75 0.1718 0.0336

Mercury -120760-10-31 00:44 J -42385863.53 -42385863.47 -42385863.40 0.1673 0.1401

Venus -120758-06-28 09:51 J -42385258.13 -42385258.09 -42385258.05 0.1736 0.1677

Mercury -120758-10-06 07:27 J -42385158.31 -42385158.19 -42385158.07 0.1664 0.0307

Mercury -120751-05-14 13:13 J -42382746.11 -42382745.95 -42382745.80 0.1844 0.0527

Mercury -120748-02-25 17:46 J -42381727.88 -42381727.76 -42381727.64 0.1666 0.0113

Mercury -120746-01-31 23:32 J -42381022.57 -42381022.52 -42381022.48 0.1659 0.1532

Mercury -120742-10-04 10:05 J -42379316.18 -42379316.08 -42379315.99 0.1842 0.1473

Mercury -120739-07-19 04:20 J -42378297.43 -42378297.32 -42378297.21 0.1668 0.0505

Mercury -120737-06-23 10:05 J -42377592.16 -42377592.08 -42377591.99 0.1660 0.1148

Venus -120732-01-12 03:08 J -42375928.54 -42375928.37 -42375928.21 0.1804 0.0583

Venus -120731-11-10 17:32 J -42375260.91 -42375260.77 -42375260.62 0.1786 0.0890

Mercury -120730-01-31 21:22 J -42375178.69 -42375178.61 -42375178.52 0.1850 0.1571

Venus -120730-10-30 12:29 J -42374907.06 -42374906.98 -42374906.89 0.1696 0.1444

Mercury -120730-12-09 14:39 J -42374866.99 -42374866.89 -42374866.79 0.1671 0.0921

Venus -120728-08-28 18:01 J -42374238.92 -42374238.75 -42374238.58 0.1712 0.0269

Mercury -120728-11-13 20:53 J -42374161.74 -42374161.63 -42374161.53 0.1662 0.0758

Venus -120726-06-27 16:49 J -42373570.94 -42373570.80 -42373570.66 0.1728 0.1030

Mercury -120721-06-22 17:32 J -42371748.93 -42371748.77 -42371748.62 0.1847 0.0563

Mercury -120720-05-01 00:44 J -42371436.54 -42371436.47 -42371436.40 0.1673 0.1347

Mercury -120718-04-06 07:27 J -42370731.31 -42370731.19 -42370731.08 0.1664 0.0359

Mercury -120712-11-12 13:56 J -42368319.08 -42368318.92 -42368318.76 0.1844 0.0421

Moon -120710-06-26 16:20 J -42367727.98 -42367727.82 -42367727.66 0.1762 0.0778

Earth -120710-06-26 19:56 J -42367727.84 -42367727.67 -42367727.51 0.1762 0.0867 *
 Mercury -120709-08-26 18:01 J -42367300.87 -42367300.75 -42367300.63 0.1666 0.0065
 Mercury -120707-08-01 23:32 J -42366595.56 -42366595.52 -42366595.49 0.1659 0.1582
 Mercury -120702-04-04 10:49 J -42364889.16 -42364889.05 -42364888.95 0.1841 0.1378
 Venus -120700-01-11 13:41 J -42364241.05 -42364240.93 -42364240.81 0.1811 0.1321
 Mercury -120699-01-17 04:20 J -42363870.44 -42363870.32 -42363870.20 0.1668 0.0454
 Venus -120699-11-10 01:27 J -42363573.61 -42363573.44 -42363573.27 0.1793 0.0214
 Mercury -120698-12-23 10:05 J -42363165.16 -42363165.08 -42363165.00 0.1660 0.1197
 Venus -120697-09-07 20:53 J -42362905.71 -42362905.63 -42362905.56 0.1775 0.1591
 Venus -120696-08-27 20:39 J -42362551.79 -42362551.64 -42362551.49 0.1705 0.0848
 Venus -120694-06-26 23:03 J -42361883.71 -42361883.54 -42361883.37 0.1721 0.0396
 Mercury -120691-08-01 22:05 J -42360751.64 -42360751.58 -42360751.51 0.1850 0.1670
 Mercury -120690-06-09 14:39 J -42360439.99 -42360439.89 -42360439.79 0.1671 0.0870
 Mercury -120688-05-14 20:53 J -42359734.74 -42359734.63 -42359734.53 0.1662 0.0806
 Mercury -120682-12-22 18:01 J -42357321.90 -42357321.75 -42357321.60 0.1847 0.0652
 Mercury -120681-10-30 00:58 J -42357009.54 -42357009.46 -42357009.39 0.1673 0.1289
 Mercury -120679-10-05 07:27 J -42356304.31 -42356304.19 -42356304.07 0.1664 0.0411
 Mercury -120672-05-13 14:39 J -42353892.05 -42353891.89 -42353891.73 0.1845 0.0330
 Mercury -120669-02-25 18:01 J -42352873.87 -42352873.75 -42352873.63 0.1666 0.0025
 Mercury -120667-01-30 23:32 J -42352168.54 -42352168.52 -42352168.51 0.1659 0.1632
 Venus -120667-11-09 10:05 J -42351886.25 -42351886.08 -42351885.92 0.1801 0.0494
 Venus -120665-09-07 02:10 J -42351218.56 -42351218.41 -42351218.27 0.1783 0.0962
 Venus -120664-08-26 22:20 J -42350864.67 -42350864.57 -42350864.48 0.1699 0.1401
 Mercury -120663-10-03 11:32 J -42350462.13 -42350462.02 -42350461.91 0.1841 0.1276
 Venus -120662-06-26 03:22 J -42350196.54 -42350196.36 -42350196.19 0.1714 0.0217
 Venus -120660-04-24 01:13 J -42349528.58 -42349528.45 -42349528.31 0.1731 0.1101
 Mercury -120660-07-18 04:20 J -42349443.44 -42349443.32 -42349443.20 0.1668 0.0400
 Mercury -120658-06-23 10:05 J -42348738.15 -42348738.08 -42348738.00 0.1660 0.1249
 Moon -120656-01-02 13:56 J -42348179.11 -42348178.92 -42348178.72 0.1754 0.0445
 Earth -120656-01-02 21:22 J -42348178.80 -42348178.61 -42348178.42 0.1754 0.0432 *

Mercury -120651-01-30 23:03 J -42346324.59 -42346324.54 -42346324.50 0.1850 0.1769

Mercury -120651-12-08 14:39 J -42346012.99 -42346012.89 -42346012.79 0.1671 0.0816

Mercury -120649-11-12 20:53 J -42345307.73 -42345307.63 -42345307.53 0.1662 0.0857

Mercury -120642-06-22 18:44 J -42342894.87 -42342894.72 -42342894.57 0.1847 0.0751

Mercury -120641-04-30 00:44 J -42342582.54 -42342582.47 -42342582.39 0.1673 0.1238

Mercury -120639-04-05 07:27 J -42341877.31 -42341877.19 -42341877.08 0.1664 0.0462

Venus -120635-11-08 20:10 J -42340198.79 -42340198.66 -42340198.54 0.1809 0.1224

Venus -120633-09-06 09:08 J -42339531.29 -42339531.12 -42339530.95 0.1791 0.0297

Mercury -120633-11-11 15:22 J -42339465.02 -42339464.86 -42339464.70 0.1844 0.0237

Mercury -120632-09-20 11:03 J -42339152.05 -42339152.04 -42339152.03 0.1676 0.1663

Venus -120631-07-06 05:32 J -42338863.33 -42338863.27 -42338863.21 0.1772 0.1659

Venus -120630-06-25 06:15 J -42338509.39 -42338509.24 -42338509.08 0.1707 0.0798

Mercury -120630-08-26 18:01 J -42338446.87 -42338446.75 -42338446.63 0.1666 0.0070

Venus -120628-04-23 07:27 J -42337841.36 -42337841.19 -42337841.02 0.1723 0.0464

Mercury -120623-04-03 11:46 J -42336035.13 -42336035.01 -42336034.89 0.1841 0.1199

Mercury -120620-01-16 04:20 J -42335016.44 -42335016.32 -42335016.20 0.1669 0.0348

Mercury -120619-12-22 10:05 J -42334311.15 -42334311.08 -42334311.01 0.1661 0.1296

Mercury -120611-06-08 14:39 J -42331585.99 -42331585.89 -42331585.78 0.1671 0.0760

Mercury -120609-05-13 20:53 J -42330880.73 -42330880.63 -42330880.53 0.1662 0.0909

Mercury -120603-12-21 19:41 J -42328467.82 -42328467.68 -42328467.53 0.1847 0.0858

Mercury -120602-10-30 00:58 J -42328155.55 -42328155.46 -42328155.38 0.1673 0.1181

Venus -120601-09-05 17:17 J -42327843.95 -42327843.78 -42327843.61 0.1799 0.0404

Mercury -120600-10-04 07:27 J -42327450.30 -42327450.19 -42327450.08 0.1664 0.0515

Venus -120599-07-05 10:20 J -42327176.21 -42327176.07 -42327175.93 0.1780 0.1038

Venus -120598-06-24 08:39 J -42326822.24 -42326822.14 -42326822.04 0.1701 0.1361

Venus -120596-04-22 12:15 J -42326154.17 -42326153.99 -42326153.82 0.1716 0.0157

Venus -120594-02-19 09:08 J -42325486.25 -42325486.12 -42325486.00 0.1733 0.1181

Mercury -120593-05-12 15:51 J -42325038.00 -42325037.84 -42325037.68 0.1844 0.0144

Mercury -120592-03-21 11:03 J -42324725.07 -42324725.04 -42324725.01 0.1676 0.1610

Mercury -120590-02-24 18:01 J -42324019.87 -42324019.75 -42324019.64 0.1666 0.0125

Mercury -120584-10-02 12:44 J -42321608.10 -42321607.97 -42321607.84 0.1841 0.1094

Mercury -120581-07-17 04:20 J -42320589.43 -42320589.32 -42320589.20 0.1668 0.0297

Mercury -120579-06-22 10:05 J -42319884.14 -42319884.08 -42319884.01 0.1660 0.1346

Mercury -120572-12-07 14:39 J -42317159.00 -42317158.89 -42317158.78 0.1671 0.0708

Mercury -120570-11-12 20:53 J -42316453.73 -42316453.63 -42316453.53 0.1662 0.0959

Venus -120569-09-05 03:22 J -42316156.49 -42316156.36 -42316156.22 0.1806 0.1138

Venus -120567-07-04 17:03 J -42315488.95 -42315488.79 -42315488.62 0.1788 0.0375

Venus -120565-05-02 14:10 J -42314820.94 -42314820.91 -42314820.88 0.1770 0.1730

Venus -120564-04-21 15:51 J -42314466.99 -42314466.84 -42314466.68 0.1709 0.0747

Mercury -120563-06-21 19:56 J -42314040.81 -42314040.67 -42314040.53 0.1847 0.0935

Venus -120562-02-18 15:51 J -42313799.01 -42313798.84 -42313798.67 0.1726 0.0533

Mercury -120562-04-30 00:58 J -42313728.55 -42313728.46 -42313728.37 0.1673 0.1126

Mercury -120560-04-04 07:27 J -42313023.30 -42313023.19 -42313023.08 0.1664 0.0564

Mercury -120554-11-11 16:49 J -42310610.97 -42310610.80 -42310610.64 0.1845 0.0055

Mercury -120553-09-19 11:03 J -42310298.08 -42310298.04 -42310298.00 0.1676 0.1553

Mercury -120551-08-25 18:01 J -42309592.87 -42309592.75 -42309592.63 0.1666 0.0167

Mercury -120544-04-02 13:27 J -42307181.08 -42307180.94 -42307180.81 0.1841 0.1000

Mercury -120541-01-16 04:20 J -42306162.44 -42306162.32 -42306162.20 0.1668 0.0244

Mercury -120540-12-21 10:05 J -42305457.14 -42305457.08 -42305457.01 0.1660 0.1399

Venus -120535-07-04 00:44 J -42303801.64 -42303801.47 -42303801.30 0.1796 0.0321

Venus -120533-05-01 18:58 J -42303133.84 -42303133.71 -42303133.58 0.1778 0.1110

Venus -120532-04-20 18:01 J -42302779.86 -42302779.75 -42302779.64 0.1703 0.1313

Mercury -120532-06-07 14:39 J -42302732.00 -42302731.89 -42302731.78 0.1671 0.0655

Venus -120530-02-17 20:53 J -42302111.80 -42302111.63 -42302111.45 0.1718 0.0093

Mercury -120530-05-13 20:53 J -42302026.73 -42302026.63 -42302026.54 0.1662 0.1008

Venus -120529-12-16 17:32 J -42301443.89 -42301443.77 -42301443.65 0.1736 0.1251

Mercury -120524-12-20 20:53 J -42299613.76 -42299613.63 -42299613.49 0.1847 0.1042

Mercury -120523-10-29 00:58 J -42299301.55 -42299301.46 -42299301.37 0.1673 0.1074

Mercury -120521-10-03 07:27 J -42298596.30 -42298596.19 -42298596.08 0.1664 0.0615

Mercury -120514-05-12 17:17 J -42296183.95 -42296183.78 -42296183.62 0.1844 0.0067

Mercury -120513-03-20 11:03 J -42295871.09 -42295871.04 -42295870.99 0.1676 0.1499

Mercury -120511-02-23 18:01 J -42295165.87 -42295165.75 -42295165.63 0.1666 0.0218

Moon -120505-06-23 16:05 J -42292853.98 -42292853.83 -42292853.67 0.1753 0.1095

Earth -120505-06-23 17:32 J -42292853.91 -42292853.77 -42292853.64 0.1753 0.1229 *

Mercury -120505-10-01 13:56 J -42292754.06 -42292753.92 -42292753.78 0.1842 0.0911

Venus -120503-07-03 10:05 J -42292114.22 -42292114.08 -42292113.94 0.1804 0.1045

Mercury -120502-07-17 04:34 J -42291735.43 -42291735.31 -42291735.20 0.1669 0.0196

Venus -120501-05-01 00:44 J -42291446.63 -42291446.47 -42291446.30 0.1786 0.0459

Mercury -120500-06-21 10:05 J -42291030.13 -42291030.08 -42291030.02 0.1661 0.1445

Venus -120498-02-17 00:58 J -42290424.62 -42290424.46 -42290424.30 0.1711 0.0691

Venus -120497-12-16 00:15 J -42289756.65 -42289756.49 -42289756.32 0.1728 0.0600

Mercury -120495-02-21 11:17 J -42289324.04 -42289324.03 -42289324.02 0.1838 0.1831

Mercury -120493-12-06 14:39 J -42288305.00 -42288304.89 -42288304.77 0.1671 0.0603

Mercury -120491-11-11 20:53 J -42287599.72 -42287599.63 -42287599.54 0.1662 0.1061

Mercury -120484-06-20 21:37 J -42285186.72 -42285186.60 -42285186.47 0.1847 0.1140

Mercury -120483-04-29 00:58 J -42284874.56 -42284874.46 -42284874.37 0.1673 0.1020

Mercury -120481-04-03 07:27 J -42284169.30 -42284169.19 -42284169.08 0.1664 0.0666

Mercury -120475-11-10 18:01 J -42281756.91 -42281756.75 -42281756.59 0.1844 0.0151

Mercury -120474-09-19 11:03 J -42281444.10 -42281444.04 -42281443.98 0.1676 0.1443

Mercury -120472-08-24 18:01 J -42280738.87 -42280738.75 -42280738.63 0.1666 0.0269

Venus -120471-07-02 21:22 J -42280426.63 -42280426.61 -42280426.59 0.1812 0.1799

Venus -120469-04-30 07:56 J -42279759.34 -42279759.17 -42279759.00 0.1793 0.0229

Venus -120467-02-27 03:08 J -42279091.50 -42279091.37 -42279091.24 0.1775 0.1186

Venus -120466-02-16 03:37 J -42278737.47 -42278737.35 -42278737.24 0.1705 0.1267

Mercury -120465-04-01 14:39 J -42278327.03 -42278326.89 -42278326.75 0.1841 0.0817

Venus -120465-12-15 05:46 J -42278069.44 -42278069.26 -42278069.08 0.1721 0.0031

Venus -120463-10-14 01:13 J -42277401.56 -42277401.45 -42277401.34 0.1738 0.1332

Mercury -120462-01-15 04:20 J -42277308.44 -42277308.32 -42277308.20 0.1669 0.0145

Mercury -120461-12-20 10:05 J -42276603.13 -42276603.08 -42276603.03 0.1660 0.1493

Mercury -120456-08-22 11:46 J -42274897.05 -42274897.01 -42274896.96 0.1838 0.1746

Mercury -120453-06-06 14:39 J -42273878.00 -42273877.89 -42273877.77 0.1671 0.0551
 Mercury -120451-05-12 20:53 J -42273172.72 -42273172.63 -42273172.55 0.1662 0.1108
 Mercury -120445-12-19 22:20 J -42270759.69 -42270759.57 -42270759.45 0.1847 0.1229
 Mercury -120444-10-28 00:58 J -42270447.55 -42270447.46 -42270447.36 0.1673 0.0963
 Mercury -120442-10-03 07:27 J -42269742.30 -42269742.19 -42269742.08 0.1664 0.0719
 Venus -120437-04-29 17:17 J -42268071.92 -42268071.78 -42268071.63 0.1801 0.0954
 Venus -120435-02-26 08:39 J -42267404.30 -42267404.14 -42267403.97 0.1783 0.0538
 Mercury -120435-05-11 18:44 J -42267329.88 -42267329.72 -42267329.56 0.1845 0.0242
 Mercury -120434-03-20 11:03 J -42267017.10 -42267017.04 -42267016.97 0.1676 0.1390
 Venus -120433-12-14 10:34 J -42266382.23 -42266382.06 -42266381.90 0.1714 0.0642
 Mercury -120432-02-22 18:01 J -42266311.87 -42266311.75 -42266311.63 0.1666 0.0322
 Venus -120431-10-13 08:39 J -42265714.31 -42265714.14 -42265713.98 0.1731 0.0672
 Earth -120426-06-27 06:58 J -42263996.38 -42263996.21 -42263996.05 0.1757 0.0874
 Moon -120426-06-27 06:15 J -42263996.37 -42263996.24 -42263996.10 0.1756 0.1101 *
 Mercury -120426-10-01 15:22 J -42263900.00 -42263899.86 -42263899.71 0.1841 0.0719
 Mercury -120423-07-16 04:20 J -42262881.43 -42262881.32 -42262881.20 0.1668 0.0106
 Mercury -120421-06-20 10:05 J -42262176.12 -42262176.08 -42262176.04 0.1660 0.1545
 Mercury -120416-02-20 12:29 J -42260470.05 -42260469.98 -42260469.91 0.1838 0.1651
 Mercury -120414-12-06 14:53 J -42259451.00 -42259450.88 -42259450.77 0.1671 0.0496
 Mercury -120412-11-10 20:53 J -42258745.71 -42258745.63 -42258745.55 0.1662 0.1160
 Venus -120405-04-29 03:37 J -42256384.40 -42256384.35 -42256384.29 0.1809 0.1698
 Mercury -120405-06-19 23:03 J -42256332.65 -42256332.54 -42256332.43 0.1847 0.1325
 Mercury -120404-04-28 00:58 J -42256020.56 -42256020.46 -42256020.36 0.1673 0.0912
 Venus -120403-02-25 15:51 J -42255717.02 -42255716.84 -42255716.67 0.1791 0.0153
 Mercury -120402-04-03 07:27 J -42255315.29 -42255315.19 -42255315.08 0.1664 0.0767
 Venus -120402-12-25 12:15 J -42255049.11 -42255048.99 -42255048.87 0.1772 0.1254
 Venus -120401-12-13 13:13 J -42254695.07 -42254694.95 -42254694.83 0.1707 0.1222
 Venus -120399-10-12 14:53 J -42254027.06 -42254026.88 -42254026.70 0.1723 0.0034
 Venus -120397-08-10 09:08 J -42253359.22 -42253359.12 -42253359.02 0.1741 0.1410
 Mercury -120396-11-09 19:27 J -42252902.85 -42252902.69 -42252902.53 0.1844 0.0338

Mercury -120395-09-18 11:03 J -42252590.11 -42252590.04 -42252589.96 0.1676 0.1335

Mercury -120393-08-23 18:01 J -42251884.87 -42251884.75 -42251884.63 0.1666 0.0371

Mercury -120386-04-01 15:51 J -42249472.99 -42249472.84 -42249472.69 0.1841 0.0635

Mercury -120383-01-14 04:34 J -42248454.43 -42248454.31 -42248454.19 0.1669 0.0052

Mercury -120382-12-20 10:05 J -42247749.11 -42247749.08 -42247749.05 0.1661 0.1593

Mercury -120377-08-21 13:27 J -42246043.02 -42246042.94 -42246042.86 0.1838 0.1550

Mercury -120374-06-06 14:53 J -42245024.00 -42245023.88 -42245023.77 0.1671 0.0440

Moon -120372-01-02 23:03 J -42244447.73 -42244447.54 -42244447.34 0.1760 0.0324

Earth -120372-01-03 07:13 J -42244447.39 -42244447.20 -42244447.01 0.1760 0.0416 *

Mercury -120372-05-11 20:53 J -42244318.71 -42244318.63 -42244318.55 0.1662 0.1210

Venus -120371-02-25 00:15 J -42244029.64 -42244029.49 -42244029.34 0.1799 0.0862

Venus -120370-12-24 17:17 J -42243361.94 -42243361.78 -42243361.62 0.1780 0.0615

Venus -120367-10-11 19:27 J -42242339.86 -42242339.69 -42242339.53 0.1716 0.0585

Mercury -120366-12-20 00:01 J -42241905.60 -42241905.50 -42241905.40 0.1847 0.1430

Venus -120365-08-09 16:49 J -42241671.96 -42241671.80 -42241671.64 0.1733 0.0743

Mercury -120365-10-27 00:58 J -42241593.56 -42241593.46 -42241593.35 0.1673 0.0859

Mercury -120363-10-02 07:27 J -42240888.29 -42240888.19 -42240888.09 0.1664 0.0819

Mercury -120356-05-10 19:56 J -42238475.83 -42238475.67 -42238475.51 0.1844 0.0426

Mercury -120355-03-19 11:03 J -42238163.11 -42238163.04 -42238162.96 0.1676 0.1283

Mercury -120353-02-22 18:01 J -42237457.87 -42237457.75 -42237457.64 0.1666 0.0422

Mercury -120347-09-30 16:49 J -42235045.95 -42235045.80 -42235045.64 0.1841 0.0530

Mercury -120344-07-15 04:34 J -42234027.43 -42234027.31 -42234027.19 0.1669 0.0047

Mercury -120342-06-20 10:05 J -42233322.09 -42233322.08 -42233322.06 0.1661 0.1641

Venus -120339-02-24 10:05 J -42232342.15 -42232342.08 -42232342.00 0.1807 0.1600

Venus -120338-12-23 23:46 J -42231674.69 -42231674.51 -42231674.34 0.1788 0.0070

Mercury -120337-02-20 13:41 J -42231616.02 -42231615.93 -42231615.84 0.1838 0.1473

Venus -120336-10-21 20:53 J -42231006.74 -42231006.63 -42231006.52 0.1770 0.1326

Venus -120335-10-10 22:34 J -42230652.68 -42230652.56 -42230652.43 0.1709 0.1174

Mercury -120335-12-05 14:53 J -42230597.00 -42230596.88 -42230596.77 0.1671 0.0390

Venus -120333-08-08 23:17 J -42229984.71 -42229984.53 -42229984.35 0.1726 0.0097

Mercury -120333-11-09 20:53 J -42229891.71 -42229891.63 -42229891.56 0.1662 0.1258

Venus -120331-06-07 16:49 J -42229316.89 -42229316.80 -42229316.71 0.1743 0.1493

Mercury -120326-06-20 00:15 J -42227478.58 -42227478.49 -42227478.40 0.1847 0.1508

Mercury -120325-04-27 01:13 J -42227166.56 -42227166.45 -42227166.35 0.1673 0.0804

Mercury -120323-04-02 07:27 J -42226461.29 -42226461.19 -42226461.09 0.1664 0.0868

Mercury -120317-11-08 20:53 J -42224048.78 -42224048.63 -42224048.47 0.1845 0.0533

Mercury -120316-09-17 11:17 J -42223736.11 -42223736.03 -42223735.95 0.1676 0.1224

Mercury -120314-08-23 18:01 J -42223030.86 -42223030.75 -42223030.63 0.1666 0.0480

Mercury -120307-03-31 17:17 J -42220618.93 -42220618.78 -42220618.62 0.1841 0.0443

Mercury -120306-02-07 21:08 J -42220305.63 -42220305.62 -42220305.60 0.1679 0.1655

Venus -120306-12-23 08:10 J -42219987.32 -42219987.16 -42219987.01 0.1796 0.0775

Mercury -120304-01-13 04:34 J -42219600.43 -42219600.31 -42219600.19 0.1669 0.0083

Venus -120304-10-21 01:13 J -42219319.60 -42219319.45 -42219319.29 0.1778 0.0695

Venus -120301-08-08 04:34 J -42218297.48 -42218297.31 -42218297.14 0.1718 0.0529

Venus -120299-06-07 00:58 J -42217629.61 -42217629.46 -42217629.30 0.1736 0.0819

Mercury -120298-08-21 14:25 J -42217189.00 -42217188.90 -42217188.79 0.1838 0.1375

Mercury -120295-06-05 14:53 J -42216170.00 -42216169.88 -42216169.77 0.1671 0.0338

Mercury -120293-05-10 20:53 J -42215464.70 -42215464.63 -42215464.56 0.1662 0.1307

Mercury -120287-12-19 01:13 J -42213051.52 -42213051.45 -42213051.37 0.1847 0.1617

Mercury -120286-10-27 01:13 J -42212739.56 -42212739.45 -42212739.35 0.1674 0.0752

Mercury -120284-10-01 07:27 J -42212034.29 -42212034.19 -42212034.09 0.1664 0.0920

Mercury -120277-05-09 21:22 J -42209621.76 -42209621.61 -42209621.46 0.1844 0.0614

Mercury -120276-03-18 11:17 J -42209309.12 -42209309.03 -42209308.95 0.1676 0.1171

Mercury -120274-02-21 18:01 J -42208603.86 -42208603.75 -42208603.64 0.1667 0.0525

Venus -120274-12-22 17:32 J -42208299.86 -42208299.77 -42208299.68 0.1804 0.1509

Venus -120272-10-20 07:56 J -42207632.34 -42207632.17 -42207632.00 0.1786 0.0027

Venus -120270-08-19 06:01 J -42206964.35 -42206964.25 -42206964.15 0.1767 0.1394

Venus -120269-08-07 08:10 J -42206610.29 -42206610.16 -42206610.03 0.1711 0.1125

Mercury -120268-09-29 18:01 J -42206191.91 -42206191.75 -42206191.59 0.1842 0.0349

Venus -120267-06-06 08:25 J -42205942.33 -42205942.15 -42205941.98 0.1728 0.0161

Mercury -120267-08-08 21:22 J -42205878.64 -42205878.61 -42205878.58 0.1679 0.1596

Venus -120265-04-04 00:01 J -42205274.57 -42205274.50 -42205274.42 0.1746 0.1581

Mercury -120265-07-14 04:34 J -42205173.43 -42205173.31 -42205173.19 0.1669 0.0128

Mercury -120258-02-19 15:08 J -42202761.98 -42202761.87 -42202761.75 0.1838 0.1280

Mercury -120256-12-04 14:53 J -42201743.00 -42201742.88 -42201742.76 0.1671 0.0282

Mercury -120254-11-09 20:53 J -42201037.69 -42201037.63 -42201037.56 0.1662 0.1360

Mercury -120247-06-19 01:56 J -42198624.47 -42198624.42 -42198624.36 0.1847 0.1713

Mercury -120246-04-27 01:13 J -42198312.56 -42198312.45 -42198312.34 0.1673 0.0698

Mercury -120244-04-01 07:27 J -42197607.28 -42197607.19 -42197607.09 0.1664 0.0970

Venus -120240-10-19 15:22 J -42195945.02 -42195944.86 -42195944.70 0.1794 0.0686

Venus -120238-08-18 10:20 J -42195277.23 -42195277.07 -42195276.92 0.1775 0.0765

Mercury -120238-11-08 22:05 J -42195194.73 -42195194.58 -42195194.43 0.1844 0.0718

Venus -120237-08-06 10:34 J -42194923.07 -42194923.06 -42194923.04 0.1705 0.1694

Mercury -120237-09-16 11:17 J -42194882.12 -42194882.03 -42194881.94 0.1676 0.1116

Venus -120235-06-05 13:27 J -42194255.11 -42194254.94 -42194254.77 0.1721 0.0470

Mercury -120235-08-22 18:01 J -42194176.86 -42194176.75 -42194176.64 0.1666 0.0577

Venus -120233-04-03 08:53 J -42193587.28 -42193587.13 -42193586.98 0.1738 0.0896

Mercury -120228-03-30 18:44 J -42191764.88 -42191764.72 -42191764.56 0.1841 0.0258

Mercury -120227-02-06 21:22 J -42191451.66 -42191451.61 -42191451.57 0.1679 0.1547

Mercury -120225-01-13 04:34 J -42190746.43 -42190746.31 -42190746.19 0.1669 0.0180

Moon -120221-06-24 02:10 J -42189122.54 -42189122.41 -42189122.28 0.1747 0.1298

Earth -120221-06-24 07:13 J -42189122.34 -42189122.20 -42189122.05 0.1748 0.1109 *

Mercury -120219-08-20 15:37 J -42188334.97 -42188334.85 -42188334.72 0.1838 0.1196

Mercury -120216-06-04 14:53 J -42187316.00 -42187315.88 -42187315.76 0.1671 0.0230

Mercury -120214-05-10 20:53 J -42186610.69 -42186610.63 -42186610.57 0.1663 0.1406

Venus -120208-10-19 00:01 J -42184257.60 -42184257.50 -42184257.39 0.1801 0.1414

Mercury -120208-12-18 02:39 J -42184197.42 -42184197.39 -42184197.36 0.1847 0.1800

Mercury -120207-10-26 01:13 J -42183885.56 -42183885.45 -42183885.34 0.1673 0.0640

Venus -120206-08-17 16:05 J -42183590.01 -42183589.83 -42183589.66 0.1783 0.0106

Mercury -120205-09-30 07:27 J -42183180.28 -42183180.19 -42183180.09 0.1664 0.1022

Venus -120204-06-15 14:53 J -42182921.97 -42182921.88 -42182921.79 0.1764 0.1462
 Venus -120203-06-04 17:32 J -42182567.91 -42182567.77 -42182567.63 0.1714 0.1073
 Venus -120201-04-02 16:05 J -42181900.00 -42181899.83 -42181899.65 0.1730 0.0238
 Venus -120199-01-30 07:13 J -42181232.25 -42181232.20 -42181232.15 0.1749 0.1671
 Mercury -120198-05-09 22:49 J -42180767.69 -42180767.55 -42180767.40 0.1845 0.0810
 Mercury -120197-03-17 11:17 J -42180455.12 -42180455.03 -42180454.94 0.1676 0.1064
 Mercury -120195-02-20 18:01 J -42179749.86 -42179749.75 -42179749.64 0.1666 0.0629
 Mercury -120189-09-28 19:27 J -42177337.85 -42177337.69 -42177337.53 0.1841 0.0160
 Mercury -120188-08-07 21:22 J -42177024.66 -42177024.61 -42177024.56 0.1679 0.1488
 Mercury -120186-07-14 04:34 J -42176319.43 -42176319.31 -42176319.19 0.1669 0.0229
 Mercury -120179-02-18 16:34 J -42173907.94 -42173907.81 -42173907.69 0.1838 0.1099
 Mercury -120177-12-03 14:53 J -42172889.00 -42172888.88 -42172888.76 0.1671 0.0178
 Mercury -120175-11-08 20:53 J -42172183.68 -42172183.63 -42172183.58 0.1662 0.1456
 Venus -120174-08-16 23:03 J -42171902.70 -42171902.54 -42171902.38 0.1791 0.0599
 Venus -120172-06-14 18:29 J -42171234.88 -42171234.73 -42171234.58 0.1772 0.0840
 Venus -120171-06-03 20:39 J -42170880.68 -42170880.64 -42170880.60 0.1707 0.1652
 Venus -120169-04-01 21:51 J -42170212.76 -42170212.59 -42170212.42 0.1723 0.0406
 Venus -120167-01-29 16:20 J -42169544.96 -42169544.82 -42169544.67 0.1741 0.0981
 Mercury -120167-04-26 01:13 J -42169458.56 -42169458.45 -42169458.34 0.1674 0.0592
 Mercury -120165-03-31 07:27 J -42168753.28 -42168753.19 -42168753.10 0.1664 0.1068
 Mercury -120159-11-07 23:32 J -42166340.66 -42166340.52 -42166340.38 0.1844 0.0901
 Mercury -120158-09-16 11:17 J -42166028.12 -42166028.03 -42166027.93 0.1676 0.1009
 Mercury -120156-08-21 18:01 J -42165322.86 -42165322.75 -42165322.64 0.1667 0.0679
 Mercury -120149-03-29 19:56 J -42162910.83 -42162910.67 -42162910.51 0.1841 0.0083
 Mercury -120148-02-05 21:22 J -42162597.67 -42162597.61 -42162597.55 0.1679 0.1433
 Mercury -120146-01-12 04:34 J -42161892.43 -42161892.31 -42161892.19 0.1669 0.0282
 Earth -120142-06-27 19:56 J -42160264.83 -42160264.67 -42160264.51 0.1751 0.0934
 Moon -120142-06-27 23:03 J -42160264.68 -42160264.54 -42160264.41 0.1751 0.1138 *
 Venus -120142-08-16 07:56 J -42160215.28 -42160215.17 -42160215.05 0.1799 0.1328
 Venus -120140-06-14 00:15 J -42159547.66 -42159547.49 -42159547.31 0.1781 0.0179

Mercury -120140-08-19 17:17 J -42159480.91 -42159480.78 -42159480.65 0.1838 0.1000

Venus -120138-04-12 23:46 J -42158879.59 -42158879.51 -42158879.43 0.1762 0.1535

Venus -120137-04-01 02:39 J -42158525.53 -42158525.39 -42158525.25 0.1716 0.1020

Mercury -120137-06-03 14:53 J -42158462.00 -42158461.88 -42158461.76 0.1671 0.0129

Venus -120135-01-29 00:29 J -42157857.66 -42157857.48 -42157857.31 0.1733 0.0306

Mercury -120135-05-09 20:53 J -42157756.68 -42157756.63 -42157756.58 0.1662 0.1505

Mercury -120128-10-25 01:13 J -42155031.56 -42155031.45 -42155031.34 0.1673 0.0537

Mercury -120126-09-30 07:27 J -42154326.27 -42154326.19 -42154326.10 0.1664 0.1120

Mercury -120119-05-09 00:15 J -42151913.63 -42151913.49 -42151913.36 0.1844 0.0995

Mercury -120118-03-17 11:17 J -42151601.12 -42151601.03 -42151600.93 0.1676 0.0957

Mercury -120116-02-19 18:01 J -42150895.85 -42150895.75 -42150895.64 0.1666 0.0729

Mercury -120110-09-28 20:53 J -42148483.79 -42148483.63 -42148483.47 0.1841 0.0030

Mercury -120109-08-06 21:22 J -42148170.67 -42148170.61 -42148170.54 0.1679 0.1380

Venus -120108-06-13 06:58 J -42147860.38 -42147860.21 -42147860.05 0.1788 0.0518

Mercury -120107-07-13 04:34 J -42147465.43 -42147465.31 -42147465.19 0.1669 0.0332

Venus -120106-04-12 03:37 J -42147192.49 -42147192.35 -42147192.20 0.1770 0.0911

Venus -120105-03-31 05:46 J -42146838.32 -42146838.26 -42146838.20 0.1709 0.1603

Venus -120103-01-28 06:44 J -42146170.40 -42146170.22 -42146170.05 0.1725 0.0343

Venus -120102-11-27 00:44 J -42145502.61 -42145502.47 -42145502.33 0.1743 0.1056

Mercury -120100-02-17 17:32 J -42145053.91 -42145053.77 -42145053.63 0.1838 0.0923

Mercury -120098-12-03 14:53 J -42144035.00 -42144034.88 -42144034.76 0.1671 0.0078

Mercury -120096-11-07 20:53 J -42143329.67 -42143329.63 -42143329.59 0.1663 0.1553

Mercury -120091-07-10 15:22 J -42141623.88 -42141623.86 -42141623.85 0.1835 0.1821

Moon -120088-01-03 09:08 J -42140716.30 -42140716.12 -42140715.94 0.1766 0.0573

Earth -120088-01-03 15:22 J -42140716.05 -42140715.86 -42140715.67 0.1765 0.0443 *

Mercury -120088-04-25 01:13 J -42140604.56 -42140604.45 -42140604.33 0.1674 0.0484

Mercury -120086-03-31 07:27 J -42139899.27 -42139899.19 -42139899.10 0.1665 0.1170

Mercury -120080-11-07 01:13 J -42137486.58 -42137486.45 -42137486.32 0.1845 0.1101

Mercury -120079-09-15 11:32 J -42137174.12 -42137174.02 -42137173.92 0.1676 0.0901

Mercury -120077-08-20 18:15 J -42136468.85 -42136468.74 -42136468.64 0.1666 0.0783

Venus -120076-06-12 14:53 J -42136173.00 -42136172.88 -42136172.75 0.1796 0.1238

Venus -120074-04-11 08:25 J -42135505.32 -42135505.15 -42135504.98 0.1778 0.0257

Venus -120072-02-07 09:08 J -42134837.19 -42134837.12 -42134837.05 0.1759 0.1601

Venus -120071-01-27 11:32 J -42134483.16 -42134483.02 -42134482.87 0.1718 0.0962

Mercury -120070-03-29 21:22 J -42134056.77 -42134056.61 -42134056.45 0.1841 0.0123

Venus -120070-11-26 08:39 J -42133815.32 -42133815.14 -42133814.97 0.1736 0.0378

Mercury -120069-02-05 21:22 J -42133743.68 -42133743.61 -42133743.53 0.1679 0.1327

Mercury -120067-01-11 04:34 J -42133038.43 -42133038.31 -42133038.19 0.1669 0.0382

Mercury -120061-08-18 18:29 J -42130626.87 -42130626.73 -42130626.59 0.1838 0.0822

Mercury -120058-06-03 14:53 J -42129608.00 -42129607.88 -42129607.76 0.1671 0.0049

Mercury -120056-05-08 20:53 J -42128902.66 -42128902.63 -42128902.60 0.1662 0.1601

Mercury -120051-01-08 15:51 J -42127196.89 -42127196.84 -42127196.79 0.1834 0.1731

Mercury -120049-10-24 01:13 J -42126177.56 -42126177.45 -42126177.33 0.1674 0.0432

Mercury -120047-09-29 07:27 J -42125472.27 -42125472.19 -42125472.11 0.1664 0.1220

Venus -120042-04-10 14:10 J -42123818.07 -42123817.91 -42123817.74 0.1786 0.0427

Venus -120040-02-06 12:15 J -42123150.13 -42123149.99 -42123149.85 0.1767 0.0986

Mercury -120040-05-08 01:27 J -42123059.56 -42123059.44 -42123059.31 0.1844 0.1178

Venus -120039-01-26 15:08 J -42122795.94 -42122795.87 -42122795.80 0.1711 0.1557

Mercury -120039-03-16 11:32 J -42122747.13 -42122747.02 -42122746.92 0.1676 0.0848

Venus -120038-11-25 15:08 J -42122128.04 -42122127.87 -42122127.69 0.1728 0.0277

Mercury -120037-02-19 18:01 J -42122041.85 -42122041.75 -42122041.64 0.1667 0.0829

Venus -120036-09-23 07:56 J -42121460.30 -42121460.17 -42121460.04 0.1746 0.1141

Mercury -120031-09-27 22:05 J -42119629.74 -42119629.58 -42119629.42 0.1842 0.0215

Mercury -120030-08-06 21:37 J -42119316.68 -42119316.60 -42119316.52 0.1679 0.1269

Mercury -120028-07-12 04:34 J -42118611.42 -42118611.31 -42118611.19 0.1669 0.0438

Mercury -120021-02-17 19:13 J -42116199.85 -42116199.70 -42116199.55 0.1838 0.0726

Mercury -120019-12-02 15:08 J -42115180.99 -42115180.87 -42115180.75 0.1671 0.0066

Mercury -120017-11-06 20:53 J -42114475.64 -42114475.63 -42114475.62 0.1662 0.1653

Mercury -120012-07-09 16:34 J -42112769.88 -42112769.81 -42112769.75 0.1834 0.1643

Venus -120010-04-09 22:34 J -42112130.69 -42112130.56 -42112130.43 0.1794 0.1148

Mercury -120009-04-24 01:13 J -42111750.56 -42111750.45 -42111750.33 0.1674 0.0381

Venus -120008-02-05 16:49 J -42111462.97 -42111462.80 -42111462.63 0.1775 0.0337

Mercury -120007-03-30 07:27 J -42111045.26 -42111045.19 -42111045.11 0.1664 0.1268

Venus -120007-12-05 18:29 J -42110794.78 -42110794.73 -42110794.68 0.1756 0.1669

Venus -120006-11-24 20:53 J -42110440.78 -42110440.63 -42110440.48 0.1721 0.0909

Venus -120004-09-22 16:34 J -42109772.99 -42109772.81 -42109772.64 0.1738 0.0455

Mercury -120001-11-06 02:25 J -42108632.52 -42108632.40 -42108632.28 0.1844 0.1281

120TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 120th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -120000-09-14 11:32 J | -42108320.13 | -42108320.02 | -42108319.92 | 0.1676 | 0.0795 | | |
| Mercury | -119998-08-20 18:01 J | -42107614.85 | -42107614.75 | -42107614.65 | 0.1666 | 0.0881 | | |
| Mercury | -119991-03-28 22:49 J | -42105202.71 | -42105202.55 | -42105202.39 | 0.1841 | 0.0303 | | |
| Mercury | -119990-02-04 21:37 J | -42104889.68 | -42104889.60 | -42104889.52 | 0.1679 | 0.1219 | | |
| Mercury | -119988-01-10 04:34 J | -42104184.42 | -42104184.31 | -42104184.19 | 0.1669 | 0.0485 | | |
| Mercury | -119982-08-18 19:41 J | -42101772.83 | -42101772.68 | -42101772.53 | 0.1838 | 0.0644 | | |
| Mercury | -119981-06-27 07:41 J | -42101459.21 | -42101459.18 | -42101459.16 | 0.1682 | 0.1643 | | |
| Mercury | -119979-06-02 15:08 J | -42100753.99 | -42100753.87 | -42100753.75 | 0.1671 | 0.0103 | | |
| Venus | -119976-02-04 22:34 J | -42099775.73 | -42099775.56 | -42099775.39 | 0.1783 | 0.0347 | | |
| Venus | -119975-12-04 21:37 J | -42099107.73 | -42099107.60 | -42099107.46 | 0.1765 | 0.1055 | | |

Venus -119974-11-24 00:29 J -42098753.55 -42098753.48 -42098753.39 0.1714 0.1509
 Mercury -119972-01-07 17:17 J -42098342.86 -42098342.78 -42098342.70 0.1835 0.1548
 Venus -119972-09-21 23:46 J -42098085.68 -42098085.51 -42098085.33 0.1730 0.0214
 Venus -119970-07-21 15:37 J -42097417.97 -42097417.85 -42097417.72 0.1749 0.1224
 Mercury -119970-10-24 01:27 J -42097323.56 -42097323.44 -42097323.32 0.1674 0.0325
 Mercury -119968-09-28 07:27 J -42096618.26 -42096618.19 -42096618.12 0.1665 0.1319
 Mercury -119961-05-07 03:08 J -42094205.48 -42094205.37 -42094205.26 0.1845 0.1376
 Mercury -119960-03-15 11:32 J -42093893.13 -42093893.02 -42093892.91 0.1676 0.0742
 Mercury -119958-02-18 18:15 J -42093187.84 -42093187.74 -42093187.65 0.1666 0.0932
 Mercury -119952-09-26 23:32 J -42090775.67 -42090775.52 -42090775.36 0.1841 0.0408
 Mercury -119951-08-05 21:37 J -42090462.68 -42090462.60 -42090462.51 0.1679 0.1161
 Mercury -119949-07-11 04:34 J -42089757.42 -42089757.31 -42089757.19 0.1669 0.0538
 Venus -119944-02-04 06:01 J -42088088.39 -42088088.25 -42088088.11 0.1791 0.1059
 Venus -119943-12-04 01:27 J -42087420.60 -42087420.44 -42087420.27 0.1772 0.0415
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 Mercury -119942-12-27 07:27 J -42087032.22 -42087032.19 -42087032.15 0.1682 0.1594
 Venus -119941-10-02 04:05 J -42086752.35 -42086752.33 -42086752.30 0.1754 0.1731
 Venus -119940-09-21 05:32 J -42086398.42 -42086398.27 -42086398.12 0.1723 0.0849
 Mercury -119940-12-01 15:08 J -42086326.99 -42086326.87 -42086326.75 0.1671 0.0143
 Venus -119938-07-21 00:29 J -42085730.65 -42085730.48 -42085730.31 0.1741 0.0528
 Moon -119937-06-24 15:22 J -42085390.98 -42085390.86 -42085390.74 0.1742 0.1331
 Earth -119937-06-24 22:49 J -42085390.71 -42085390.55 -42085390.39 0.1742 0.0951
 Mercury -119933-07-08 17:46 J -42083915.86 -42083915.76 -42083915.67 0.1834 0.1465
 Mercury -119930-04-24 01:13 J -42082896.56 -42082896.45 -42082896.33 0.1674 0.0280
 Mercury -119928-03-29 07:27 J -42082191.25 -42082191.19 -42082191.12 0.1665 0.1365
 Mercury -119922-11-06 03:51 J -42079778.44 -42079778.34 -42079778.25 0.1844 0.1466
 Mercury -119921-09-13 11:32 J -42079466.13 -42079466.02 -42079465.91 0.1676 0.0686
 Mercury -119919-08-19 18:15 J -42078760.84 -42078760.74 -42078760.65 0.1667 0.0982
 Venus -119912-02-03 14:39 J -42076400.90 -42076400.89 -42076400.88 0.1799 0.1794
 Mercury -119912-03-28 00:15 J -42076348.65 -42076348.49 -42076348.34 0.1842 0.0490

Mercury -119911-02-03 21:37 J -42076035.69 -42076035.60 -42076035.51 0.1679 0.1108

Venus -119911-12-03 06:44 J -42075733.39 -42075733.22 -42075733.05 0.1780 0.0267

Mercury -119909-01-10 04:34 J -42075330.42 -42075330.31 -42075330.19 0.1669 0.0592

Venus -119909-10-01 06:29 J -42075065.36 -42075065.23 -42075065.10 0.1762 0.1127

Venus -119908-09-20 09:37 J -42074711.19 -42074711.10 -42074711.00 0.1716 0.1457

Venus -119906-07-20 08:10 J -42074043.34 -42074043.16 -42074042.99 0.1733 0.0148

Venus -119904-05-17 22:49 J -42073375.66 -42073375.55 -42073375.43 0.1751 0.1312

Mercury -119903-08-17 21:08 J -42072918.77 -42072918.62 -42072918.46 0.1838 0.0453

Mercury -119902-06-27 07:41 J -42072605.23 -42072605.18 -42072605.14 0.1682 0.1537

Mercury -119900-06-01 15:08 J -42071899.99 -42071899.87 -42071899.75 0.1671 0.0192

Mercury -119893-01-07 18:29 J -42069488.84 -42069488.73 -42069488.63 0.1834 0.1370

Mercury -119891-10-23 01:27 J -42068469.56 -42068469.44 -42068469.32 0.1674 0.0222

Mercury -119889-09-27 07:27 J -42067764.25 -42067764.19 -42067764.13 0.1664 0.1417

Mercury -119882-05-07 04:20 J -42065351.40 -42065351.32 -42065351.23 0.1844 0.1559

Mercury -119881-03-14 11:32 J -42065039.13 -42065039.02 -42065038.91 0.1676 0.0635

Mercury -119879-02-17 18:15 J -42064333.84 -42064333.74 -42064333.65 0.1667 0.1031

Venus -119879-12-02 14:10 J -42064046.06 -42064045.91 -42064045.77 0.1789 0.0975

Venus -119877-09-30 09:51 J -42063378.25 -42063378.09 -42063377.92 0.1770 0.0494

Venus -119874-07-19 14:25 J -42062356.06 -42062355.90 -42062355.74 0.1726 0.0791

Mercury -119873-09-26 00:58 J -42061921.61 -42061921.46 -42061921.31 0.1841 0.0586

Venus -119872-05-17 08:10 J -42061688.32 -42061688.16 -42061687.99 0.1743 0.0609

Mercury -119872-08-04 21:37 J -42061608.69 -42061608.60 -42061608.50 0.1679 0.1056

Mercury -119870-07-11 04:34 J -42060903.42 -42060903.31 -42060903.20 0.1669 0.0638

Mercury -119863-02-15 21:37 J -42058491.76 -42058491.60 -42058491.44 0.1838 0.0372

Mercury -119863-12-26 07:41 J -42058178.23 -42058178.18 -42058178.12 0.1682 0.1480

Mercury -119861-11-30 15:08 J -42057472.99 -42057472.87 -42057472.75 0.1671 0.0239

Earth -119858-06-28 10:05 J -42056533.23 -42056533.08 -42056532.93 0.1745 0.1031

Moon -119858-06-28 17:03 J -42056532.93 -42056532.79 -42056532.64 0.1746 0.1097 *

Mercury -119854-07-08 19:13 J -42055061.81 -42055061.70 -42055061.59 0.1835 0.1277

Mercury -119851-04-23 01:27 J -42054042.56 -42054042.44 -42054042.32 0.1674 0.0166

Mercury -119849-03-28 07:27 J -42053337.24 -42053337.19 -42053337.13 0.1665 0.1466

Venus -119847-12-01 22:20 J -42052358.62 -42052358.57 -42052358.52 0.1796 0.1705

Venus -119845-09-29 15:22 J -42051691.03 -42051690.86 -42051690.69 0.1778 0.0188

Venus -119843-07-29 16:05 J -42051022.95 -42051022.83 -42051022.70 0.1760 0.1194

Mercury -119843-11-05 05:32 J -42050924.34 -42050924.27 -42050924.21 0.1845 0.1664

Venus -119842-07-18 18:58 J -42050668.80 -42050668.71 -42050668.61 0.1718 0.1407

Mercury -119842-09-13 11:32 J -42050612.13 -42050612.02 -42050611.90 0.1676 0.0583

Venus -119840-05-16 16:49 J -42050000.98 -42050000.80 -42050000.62 0.1735 0.0078

Mercury -119840-08-18 18:15 J -42049906.83 -42049906.74 -42049906.65 0.1666 0.1081

Venus -119838-03-15 05:46 J -42049333.36 -42049333.26 -42049333.15 0.1754 0.1405

Mercury -119833-03-27 01:27 J -42047494.59 -42047494.44 -42047494.29 0.1841 0.0677

Mercury -119832-02-02 21:37 J -42047181.69 -42047181.60 -42047181.50 0.1679 0.1003

Mercury -119830-01-09 04:34 J -42046476.41 -42046476.31 -42046476.20 0.1669 0.0688

Mercury -119824-08-16 22:34 J -42044064.72 -42044064.56 -42044064.40 0.1838 0.0271

Mercury -119823-06-26 07:41 J -42043751.24 -42043751.18 -42043751.12 0.1682 0.1427

Mercury -119821-05-31 15:08 J -42043045.99 -42043045.87 -42043045.75 0.1671 0.0290

Mercury -119814-01-06 19:41 J -42040634.80 -42040634.68 -42040634.56 0.1834 0.1191

Venus -119813-09-28 21:51 J -42040003.74 -42040003.59 -42040003.44 0.1786 0.0887

Mercury -119812-10-22 01:27 J -42039615.56 -42039615.44 -42039615.32 0.1674 0.0116

Venus -119811-07-28 19:13 J -42039335.86 -42039335.70 -42039335.53 0.1767 0.0564

Mercury -119810-09-27 07:27 J -42038910.23 -42038910.19 -42038910.14 0.1665 0.1514

Venus -119808-05-15 23:03 J -42038313.70 -42038313.54 -42038313.38 0.1728 0.0729

Venus -119806-03-14 15:51 J -42037646.01 -42037645.84 -42037645.68 0.1746 0.0691

Earth -119804-01-03 22:34 J -42036984.75 -42036984.56 -42036984.38 0.1771 0.0512

Moon -119804-01-04 00:01 J -42036984.67 -42036984.50 -42036984.33 0.1771 0.0666 *

Mercury -119803-05-06 05:46 J -42036497.31 -42036497.26 -42036497.21 0.1844 0.1739

Mercury -119802-03-14 11:32 J -42036185.13 -42036185.02 -42036184.90 0.1676 0.0532

Mercury -119800-02-16 18:01 J -42035479.83 -42035479.75 -42035479.66 0.1667 0.1129

Mercury -119794-09-26 02:25 J -42033067.55 -42033067.40 -42033067.25 0.1842 0.0773

Mercury -119793-08-03 21:51 J -42032754.69 -42032754.59 -42032754.49 0.1679 0.0945

Mercury -119791-07-10 04:49 J -42032049.41 -42032049.30 -42032049.20 0.1669 0.0742

Mercury -119784-02-14 23:17 J -42029637.69 -42029637.53 -42029637.37 0.1838 0.0177

Mercury -119784-12-25 07:41 J -42029324.25 -42029324.18 -42029324.11 0.1682 0.1374

Mercury -119782-11-30 15:08 J -42028618.99 -42028618.87 -42028618.75 0.1671 0.0341

Venus -119781-09-28 05:32 J -42028316.35 -42028316.27 -42028316.20 0.1794 0.1611

Venus -119779-07-28 00:01 J -42027648.67 -42027648.50 -42027648.33 0.1775 0.0110

Venus -119777-05-26 01:27 J -42026980.56 -42026980.44 -42026980.33 0.1757 0.1262

Venus -119776-05-15 04:05 J -42026626.44 -42026626.33 -42026626.23 0.1720 0.1351

Mercury -119775-07-07 20:25 J -42026207.78 -42026207.65 -42026207.53 0.1834 0.1104

Venus -119774-03-14 00:15 J -42025958.67 -42025958.49 -42025958.31 0.1738 0.0014

Venus -119772-01-09 12:44 J -42025291.06 -42025290.97 -42025290.88 0.1757 0.1499

Mercury -119772-04-22 01:27 J -42025188.56 -42025188.44 -42025188.32 0.1674 0.0069

Mercury -119770-03-28 07:27 J -42024483.23 -42024483.19 -42024483.15 0.1665 0.1560

Mercury -119764-11-04 06:44 J -42022070.22 -42022070.22 -42022070.22 0.1844 0.1843

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Mercury -119761-08-17 18:15 J -42021052.83 -42021052.74 -42021052.66 0.1667 0.1178

Mercury -119754-03-27 02:53 J -42018640.52 -42018640.38 -42018640.23 0.1841 0.0863

Mercury -119753-02-02 21:51 J -42018327.69 -42018327.59 -42018327.49 0.1679 0.0895

Mercury -119751-01-08 04:34 J -42017622.41 -42017622.31 -42017622.20 0.1669 0.0791

Venus -119747-07-27 05:46 J -42015961.41 -42015961.26 -42015961.10 0.1783 0.0802

Venus -119745-05-25 04:05 J -42015293.49 -42015293.33 -42015293.18 0.1764 0.0639

Mercury -119745-08-15 23:32 J -42015210.68 -42015210.52 -42015210.35 0.1838 0.0110

Mercury -119744-06-25 07:56 J -42014897.25 -42014897.17 -42014897.10 0.1682 0.1316

Venus -119742-03-13 06:58 J -42014271.37 -42014271.21 -42014271.05 0.1730 0.0661

Mercury -119742-05-31 15:08 J -42014191.99 -42014191.87 -42014191.75 0.1671 0.0391

Venus -119740-01-08 23:03 J -42013603.70 -42013603.54 -42013603.38 0.1749 0.0778

Mercury -119735-01-05 21:08 J -42011780.75 -42011780.62 -42011780.49 0.1835 0.1005

Mercury -119733-10-21 01:27 J -42010761.56 -42010761.44 -42010761.32 0.1674 0.0045

Mercury -119731-09-26 07:41 J -42010056.21 -42010056.18 -42010056.16 0.1665 0.1611

Mercury -119723-03-13 11:46 J -42007331.13 -42007331.01 -42007330.90 0.1676 0.0426

Mercury -119721-02-16 18:15 J -42006625.82 -42006625.74 -42006625.66 0.1667 0.1228

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Mercury -119715-09-25 03:51 J -42004213.48 -42004213.34 -42004213.21 0.1841 0.0959

Mercury -119714-08-03 21:51 J -42003900.69 -42003900.59 -42003900.49 0.1679 0.0840

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Mercury -119712-07-09 04:49 J -42003195.41 -42003195.30 -42003195.20 0.1669 0.0840

Venus -119711-03-23 10:20 J -42002938.17 -42002938.07 -42002937.96 0.1754 0.1335

Venus -119710-03-12 12:44 J -42002584.08 -42002583.97 -42002583.85 0.1723 0.1296

Venus -119708-01-08 08:25 J -42001916.33 -42001916.15 -42001915.98 0.1741 0.0081

Venus -119707-11-06 19:27 J -42001248.76 -42001248.69 -42001248.62 0.1760 0.1596

Mercury -119705-02-15 00:29 J -42000783.64 -42000783.48 -42000783.32 0.1838 0.0018

Mercury -119705-12-24 07:41 J -42000470.25 -42000470.18 -42000470.10 0.1682 0.1268

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Mercury -119693-04-21 01:27 J -41996334.56 -41996334.44 -41996334.32 0.1674 0.0040

Mercury -119691-03-27 07:27 J -41995629.19 -41995629.19 -41995629.18 0.1665 0.1657

Mercury -119687-11-26 19:27 J -41993923.71 -41993923.69 -41993923.67 0.1831 0.1807

Mercury -119684-09-11 11:46 J -41992904.13 -41992904.01 -41992903.89 0.1676 0.0368

Mercury -119682-08-17 18:15 J -41992198.82 -41992198.74 -41992198.67 0.1667 0.1276

Venus -119681-05-23 13:56 J -41991919.08 -41991918.92 -41991918.76 0.1781 0.0717

Venus -119679-03-22 13:13 J -41991251.11 -41991250.95 -41991250.80 0.1762 0.0709

Venus -119676-01-07 15:37 J -41990229.02 -41990228.85 -41990228.69 0.1733 0.0597

Mercury -119675-03-26 04:20 J -41989786.45 -41989786.32 -41989786.19 0.1842 0.1046

Venus -119675-11-06 06:58 J -41989561.36 -41989561.21 -41989561.06 0.1751 0.0860

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Mercury -119672-01-07 04:49 J -41988768.40 -41988768.30 -41988768.20 0.1669 0.0890

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Mercury -119663-05-30 15:08 J -41985337.98 -41985337.87 -41985337.75 0.1671 0.0493

Mercury -119656-01-04 22:20 J -41982926.71 -41982926.57 -41982926.43 0.1834 0.0829

Mercury -119656-11-14 17:46 J -41982612.78 -41982612.76 -41982612.74 0.1685 0.1642
 Mercury -119654-10-21 01:27 J -41981907.56 -41981907.44 -41981907.32 0.1674 0.0103
 Earth -119653-06-25 15:22 J -41981659.03 -41981658.86 -41981658.69 0.1737 0.0760
 Moon -119653-06-25 18:29 J -41981658.88 -41981658.73 -41981658.58 0.1737 0.0939 *
 Venus -119649-05-22 20:53 J -41980231.73 -41980231.63 -41980231.53 0.1788 0.1434
 Venus -119647-03-21 16:49 J -41979563.97 -41979563.80 -41979563.62 0.1770 0.0070
 Mercury -119647-05-27 19:56 J -41979496.72 -41979496.67 -41979496.61 0.1831 0.1720
 Venus -119645-01-18 20:10 J -41978895.76 -41978895.66 -41978895.56 0.1751 0.1399
 Venus -119644-01-06 21:37 J -41978541.72 -41978541.60 -41978541.48 0.1725 0.1238
 Mercury -119644-03-12 11:46 J -41978477.13 -41978477.01 -41978476.89 0.1676 0.0320
 Venus -119643-11-05 16:05 J -41977874.01 -41977873.83 -41977873.65 0.1743 0.0153
 Mercury -119642-02-15 18:15 J -41977771.81 -41977771.74 -41977771.67 0.1667 0.1324
 Venus -119641-09-03 02:25 J -41977206.45 -41977206.40 -41977206.35 0.1762 0.1691
 Mercury -119636-09-24 05:03 J -41975359.41 -41975359.29 -41975359.16 0.1841 0.1142
 Mercury -119635-08-02 21:51 J -41975046.70 -41975046.59 -41975046.48 0.1679 0.0735
 Mercury -119633-07-08 04:49 J -41974341.40 -41974341.30 -41974341.21 0.1669 0.0938
 Mercury -119626-02-14 01:41 J -41971929.59 -41971929.43 -41971929.27 0.1838 0.0179
 Mercury -119626-12-24 07:56 J -41971616.25 -41971616.17 -41971616.08 0.1682 0.1155
 Mercury -119624-11-28 15:08 J -41970910.98 -41970910.87 -41970910.75 0.1671 0.0547
 Mercury -119617-07-05 23:03 J -41968499.68 -41968499.54 -41968499.39 0.1835 0.0737
 Mercury -119616-05-15 17:46 J -41968185.80 -41968185.76 -41968185.72 0.1685 0.1588
 Venus -119615-03-20 21:37 J -41967876.76 -41967876.60 -41967876.44 0.1778 0.0628
 Mercury -119614-04-21 01:41 J -41967480.55 -41967480.43 -41967480.32 0.1674 0.0156
 Venus -119613-01-17 22:20 J -41967208.72 -41967208.57 -41967208.42 0.1759 0.0781
 Venus -119611-11-04 23:46 J -41966186.68 -41966186.51 -41966186.34 0.1735 0.0527
 Venus -119609-09-02 13:56 J -41965519.07 -41965518.92 -41965518.77 0.1754 0.0952
 Mercury -119608-11-25 20:39 J -41965069.71 -41965069.64 -41965069.57 0.1830 0.1627
 Mercury -119605-09-10 11:46 J -41964050.13 -41964050.01 -41964049.89 0.1676 0.0267
 Mercury -119603-08-16 18:15 J -41963344.81 -41963344.74 -41963344.68 0.1666 0.1374
 Mercury -119596-03-25 05:46 J -41960932.38 -41960932.26 -41960932.14 0.1841 0.1231

Mercury -119595-01-31 21:51 J -41960619.70 -41960619.59 -41960619.48 0.1679 0.0684
 Mercury -119593-01-07 04:49 J -41959914.40 -41959914.30 -41959914.21 0.1669 0.0987
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 Mercury -119586-06-24 07:56 J -41957189.26 -41957189.17 -41957189.08 0.1682 0.1103
 Mercury -119584-05-29 15:08 J -41956483.98 -41956483.87 -41956483.76 0.1671 0.0595
 Venus -119583-03-20 04:49 J -41956189.41 -41956189.30 -41956189.19 0.1786 0.1347
 Venus -119581-01-17 01:56 J -41955521.59 -41955521.42 -41955521.25 0.1768 0.0134
 Venus -119580-11-15 05:46 J -41954853.35 -41954853.26 -41954853.17 0.1749 0.1467
 Venus -119579-11-04 06:44 J -41954499.35 -41954499.22 -41954499.09 0.1728 0.1181
 Mercury -119577-01-04 23:32 J -41954072.67 -41954072.52 -41954072.37 0.1834 0.0654
 Venus -119577-09-01 23:32 J -41953831.69 -41953831.52 -41953831.34 0.1746 0.0235
 Mercury -119577-11-13 17:46 J -41953758.80 -41953758.76 -41953758.71 0.1685 0.1534
 Mercury -119575-10-20 01:27 J -41953053.56 -41953053.44 -41953053.32 0.1674 0.0199
 Moon -119574-06-28 20:39 J -41952801.76 -41952801.64 -41952801.52 0.1740 0.1286
 Earth -119574-06-29 01:13 J -41952801.59 -41952801.45 -41952801.30 0.1740 0.1145 *
 Mercury -119568-05-26 21:08 J -41950642.70 -41950642.62 -41950642.54 0.1831 0.1548
 Mercury -119565-03-11 11:46 J -41949623.13 -41949623.01 -41949622.89 0.1676 0.0217
 Mercury -119563-02-14 18:15 J -41948917.80 -41948917.74 -41948917.68 0.1667 0.1421
 Mercury -119557-09-23 06:44 J -41946505.33 -41946505.22 -41946505.11 0.1842 0.1330
 Mercury -119556-08-01 22:05 J -41946192.69 -41946192.58 -41946192.47 0.1679 0.0628
 Mercury -119554-07-08 04:49 J -41945487.39 -41945487.30 -41945487.21 0.1669 0.1039
 Venus -119549-01-16 06:44 J -41943834.39 -41943834.22 -41943834.06 0.1775 0.0553
 Venus -119548-11-14 07:56 J -41943166.32 -41943166.17 -41943166.02 0.1757 0.0849
 Mercury -119547-02-13 03:08 J -41943075.52 -41943075.37 -41943075.21 0.1838 0.0375
 Mercury -119547-12-23 07:56 J -41942762.26 -41942762.17 -41942762.07 0.1682 0.1051
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Mercury -119535-04-20 01:27 J -41938626.55 -41938626.44 -41938626.32 0.1674 0.0249

Mercury -119529-11-24 22:05 J -41936215.68 -41936215.58 -41936215.49 0.1831 0.1449

Mercury -119526-09-10 11:46 J -41935196.13 -41935196.01 -41935195.89 0.1676 0.0170

Mercury -119524-08-15 18:15 J -41934490.79 -41934490.74 -41934490.69 0.1667 0.1470

Moon -119520-01-04 00:01 J -41933253.67 -41933253.50 -41933253.33 0.1777 0.0679

Earth -119520-01-04 04:20 J -41933253.51 -41933253.32 -41933253.14 0.1777 0.0628 *

Venus -119517-01-15 12:44 J -41932147.09 -41932146.97 -41932146.84 0.1783 0.1263

Mercury -119517-03-24 07:13 J -41932078.30 -41932078.20 -41932078.10 0.1841 0.1414

Mercury -119516-01-30 22:05 J -41931765.70 -41931765.58 -41931765.47 0.1679 0.0579

Venus -119516-11-13 10:49 J -41931479.22 -41931479.05 -41931478.88 0.1765 0.0206

Mercury -119514-01-06 04:49 J -41931060.39 -41931060.30 -41931060.21 0.1669 0.1085

Venus -119514-09-12 15:51 J -41930810.92 -41930810.84 -41930810.76 0.1746 0.1528

Venus -119513-08-31 14:53 J -41930457.02 -41930456.88 -41930456.75 0.1730 0.1118

Venus -119511-06-30 07:13 J -41929789.37 -41929789.20 -41929789.02 0.1748 0.0316

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Mercury -119498-11-13 18:01 J -41924904.81 -41924904.75 -41924904.69 0.1685 0.1425

Mercury -119496-10-19 01:41 J -41924199.55 -41924199.43 -41924199.31 0.1674 0.0298

Mercury -119489-05-25 22:34 J -41921788.66 -41921788.56 -41921788.46 0.1830 0.1365

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Venus -119484-11-12 14:53 J -41919792.04 -41919791.88 -41919791.71 0.1773 0.0469

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Venus -119479-06-29 16:05 J -41918102.00 -41918101.83 -41918101.66 0.1740 0.0385

Mercury -119478-09-23 07:56 J -41917651.26 -41917651.17 -41917651.08 0.1841 0.1509

Venus -119477-04-27 04:05 J -41917434.47 -41917434.33 -41917434.20 0.1759 0.1133

Mercury -119477-07-31 22:05 J -41917338.70 -41917338.58 -41917338.47 0.1679 0.0524

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Mercury -119468-02-12 04:34 J -41914221.47 -41914221.31 -41914221.16 0.1838 0.0549
 Mercury -119468-12-22 07:56 J -41913908.26 -41913908.17 -41913908.07 0.1682 0.0948
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 Venus -119450-09-10 19:41 J -41907436.85 -41907436.68 -41907436.52 0.1762 0.0286
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 Venus -119447-06-28 23:32 J -41906414.66 -41906414.52 -41906414.38 0.1733 0.1056
 Mercury -119447-09-09 12:01 J -41906342.12 -41906342.00 -41906341.88 0.1676 0.0066
 Venus -119445-04-26 14:39 J -41905747.07 -41905746.89 -41905746.72 0.1751 0.0403
 Mercury -119445-08-14 18:15 J -41905636.78 -41905636.74 -41905636.70 0.1667 0.1566
 Moon -119441-01-07 15:37 J -41904395.89 -41904395.85 -41904395.81 0.1773 0.1732
 Mercury -119438-03-24 08:39 J -41903224.22 -41903224.14 -41903224.06 0.1842 0.1599
 Mercury -119437-01-30 22:05 J -41902911.70 -41902911.58 -41902911.47 0.1679 0.0472
 Mercury -119435-01-05 04:49 J -41902206.38 -41902206.30 -41902206.22 0.1669 0.1185
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 Mercury -119428-06-22 08:10 J -41899481.26 -41899481.16 -41899481.06 0.1682 0.0890
 Mercury -119426-05-28 15:22 J -41898775.97 -41898775.86 -41898775.76 0.1671 0.0795
 Mercury -119419-01-03 02:25 J -41896364.56 -41896364.40 -41896364.25 0.1834 0.0295
 Mercury -119419-11-12 18:01 J -41896050.82 -41896050.75 -41896050.67 0.1685 0.1317
 Venus -119418-09-10 00:01 J -41895749.67 -41895749.50 -41895749.33 0.1770 0.0394
 Mercury -119417-10-18 01:41 J -41895345.55 -41895345.43 -41895345.32 0.1674 0.0397
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 Venus -119415-06-28 05:17 J -41894727.31 -41894727.28 -41894727.25 0.1725 0.1692
 Venus -119413-04-26 00:15 J -41894059.66 -41894059.49 -41894059.32 0.1743 0.0312
 Venus -119411-02-22 10:34 J -41893392.19 -41893392.06 -41893391.94 0.1762 0.1235
 Mercury -119410-05-25 23:46 J -41892934.63 -41892934.51 -41892934.39 0.1830 0.1192

Mercury -119407-03-10 11:46 J -41891915.13 -41891915.01 -41891914.89 0.1676 0.0061
 Mercury -119405-02-13 18:15 J -41891209.77 -41891209.74 -41891209.72 0.1667 0.1613
 Mercury -119399-09-22 09:22 J -41888797.17 -41888797.11 -41888797.05 0.1841 0.1692
 Mercury -119398-07-31 22:05 J -41888484.70 -41888484.58 -41888484.46 0.1679 0.0419
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 Mercury -119389-02-12 05:46 J -41885367.41 -41885367.26 -41885367.11 0.1838 0.0725
 Mercury -119389-12-21 08:10 J -41885054.26 -41885054.16 -41885054.05 0.1682 0.0835
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 Venus -119386-09-09 05:17 J -41884062.42 -41884062.28 -41884062.15 0.1778 0.1093
 Venus -119384-07-08 05:03 J -41883394.45 -41883394.29 -41883394.12 0.1759 0.0354
 Venus -119382-05-07 12:01 J -41882726.05 -41882726.00 -41882725.95 0.1741 0.1654
 Venus -119381-04-25 07:41 J -41882372.33 -41882372.18 -41882372.04 0.1735 0.0989
 Mercury -119380-07-04 02:53 J -41881937.53 -41881937.38 -41881937.22 0.1834 0.0207
 Venus -119379-02-21 21:51 J -41881704.77 -41881704.59 -41881704.42 0.1754 0.0491
 Mercury -119379-05-13 18:01 J -41881623.83 -41881623.75 -41881623.67 0.1685 0.1265
 Mercury -119377-04-18 01:41 J -41880918.55 -41880918.43 -41880918.32 0.1674 0.0447
 Mercury -119371-11-24 00:29 J -41878507.60 -41878507.48 -41878507.35 0.1830 0.1098
 Earth -119369-06-26 08:25 J -41877927.33 -41877927.15 -41877926.97 0.1732 0.0565
 Moon -119369-06-26 10:05 J -41877927.26 -41877927.08 -41877926.89 0.1732 0.0706 *
 Mercury -119368-09-08 12:01 J -41877488.12 -41877488.00 -41877487.88 0.1676 0.0053
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 Mercury -119359-03-23 10:05 J -41874370.12 -41874370.08 -41874370.05 0.1841 0.1782
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 Mercury -119356-01-04 04:49 J -41873352.37 -41873352.30 -41873352.23 0.1669 0.1280
 Venus -119352-07-07 08:39 J -41871707.31 -41871707.14 -41871706.97 0.1767 0.0315
 Venus -119350-05-06 12:29 J -41871039.11 -41871038.98 -41871038.84 0.1749 0.1058
 Mercury -119350-08-13 06:29 J -41870940.37 -41870940.23 -41870940.08 0.1838 0.0822
 Venus -119349-04-24 13:41 J -41870684.99 -41870684.93 -41870684.88 0.1728 0.1632
 Mercury -119349-06-21 08:10 J -41870627.27 -41870627.16 -41870627.05 0.1682 0.0785
 Venus -119347-02-21 07:27 J -41870017.37 -41870017.19 -41870017.02 0.1746 0.0230

Mercury -119347-05-27 15:22 J -41869921.96 -41869921.86 -41869921.76 0.1671 0.0893

Venus -119346-12-20 17:03 J -41869349.90 -41869349.79 -41869349.67 0.1765 0.1331

Mercury -119340-01-02 03:37 J -41867510.51 -41867510.35 -41867510.19 0.1834 0.0125

Mercury -119340-11-11 18:15 J -41867196.83 -41867196.74 -41867196.66 0.1685 0.1211

Mercury -119338-10-18 01:41 J -41866491.54 -41866491.43 -41866491.32 0.1674 0.0496

Mercury -119331-05-25 00:58 J -41864080.59 -41864080.46 -41864080.33 0.1831 0.1017

Mercury -119330-04-04 03:51 J -41863766.36 -41863766.34 -41863766.31 0.1688 0.1643

Mercury -119328-03-09 12:01 J -41863061.12 -41863061.00 -41863060.88 0.1677 0.0096

Venus -119320-07-06 13:27 J -41860020.08 -41860019.94 -41860019.80 0.1776 0.1008

Mercury -119319-07-30 22:05 J -41859630.69 -41859630.58 -41859630.46 0.1679 0.0320

Venus -119318-05-05 14:10 J -41859352.08 -41859351.91 -41859351.75 0.1757 0.0433

Mercury -119317-07-05 04:49 J -41858925.37 -41858925.30 -41858925.23 0.1669 0.1331

Venus -119316-03-03 21:37 J -41858683.62 -41858683.60 -41858683.58 0.1739 0.1721

Venus -119315-02-20 15:22 J -41858330.01 -41858329.86 -41858329.71 0.1738 0.0917

Venus -119314-12-20 04:49 J -41857662.47 -41857662.30 -41857662.14 0.1756 0.0579

Mercury -119310-02-11 07:13 J -41856513.34 -41856513.20 -41856513.06 0.1838 0.0914

Mercury -119310-12-21 08:10 J -41856200.27 -41856200.16 -41856200.05 0.1682 0.0733

Mercury -119308-11-25 15:22 J -41855494.96 -41855494.86 -41855494.77 0.1671 0.0942

Mercury -119301-07-03 04:05 J -41853083.49 -41853083.33 -41853083.17 0.1834 0.0055

Mercury -119300-05-12 18:15 J -41852769.83 -41852769.74 -41852769.66 0.1685 0.1158

Mercury -119298-04-18 01:41 J -41852064.54 -41852064.43 -41852064.32 0.1674 0.0546

Mercury -119292-11-23 01:56 J -41849653.56 -41849653.42 -41849653.29 0.1831 0.0922

Mercury -119291-10-03 04:05 J -41849339.37 -41849339.33 -41849339.30 0.1688 0.1589

Earth -119290-06-29 17:32 J -41849069.89 -41849069.77 -41849069.64 0.1735 0.1292

Moon -119290-06-30 00:58 J -41849069.55 -41849069.46 -41849069.37 0.1735 0.1525

Mercury -119289-09-07 12:01 J -41848634.12 -41848634.00 -41848633.88 0.1676 0.0145

Venus -119288-07-05 19:56 J -41848332.71 -41848332.67 -41848332.63 0.1783 0.1730

Venus -119286-05-04 17:32 J -41847664.94 -41847664.77 -41847664.60 0.1765 0.0238

Venus -119284-03-02 21:51 J -41846996.72 -41846996.59 -41846996.46 0.1747 0.1131

Venus -119283-02-19 22:20 J -41846642.64 -41846642.57 -41846642.50 0.1730 0.1573

Mercury -119282-04-14 23:32 J -41846223.54 -41846223.52 -41846223.50 0.1827 0.1800
 Venus -119282-12-19 15:08 J -41845975.05 -41845974.87 -41845974.69 0.1748 0.0154
 Venus -119280-10-16 23:32 J -41845307.62 -41845307.52 -41845307.42 0.1768 0.1435
 Mercury -119279-01-28 22:05 J -41845203.70 -41845203.58 -41845203.46 0.1679 0.0268
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 Mercury -119270-06-21 08:25 J -41841773.26 -41841773.15 -41841773.04 0.1682 0.0678
 Mercury -119268-05-26 15:22 J -41841067.96 -41841067.86 -41841067.77 0.1671 0.0991
 Mercury -119261-01-02 05:03 J -41838656.45 -41838656.29 -41838656.13 0.1834 0.0083
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 Venus -119254-05-03 21:51 J -41835977.74 -41835977.59 -41835977.45 0.1773 0.0923
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 Mercury -119252-05-24 02:25 J -41835226.54 -41835226.40 -41835226.26 0.1830 0.0840
 Mercury -119251-04-03 04:05 J -41834912.38 -41834912.33 -41834912.29 0.1688 0.1536
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 Earth -119236-01-04 07:13 J -41829522.38 -41829522.20 -41829522.03 0.1783 0.0826
 Moon -119236-01-04 13:41 J -41829522.11 -41829521.93 -41829521.75 0.1782 0.0891 *
 Mercury -119231-02-10 08:39 J -41827659.27 -41827659.14 -41827659.01 0.1838 0.1093
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 Venus -119222-05-03 03:37 J -41824290.41 -41824290.35 -41824290.29 0.1781 0.1637
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Mercury -119219-04-17 01:41 J -41823210.54 -41823210.43 -41823210.32 0.1674 0.0645

Venus -119219-12-29 07:56 J -41822954.29 -41822954.17 -41822954.05 0.1744 0.1195

Venus -119218-12-18 06:29 J -41822600.31 -41822600.23 -41822600.14 0.1732 0.1514

Venus -119216-10-15 22:34 J -41821932.74 -41821932.56 -41821932.38 0.1751 0.0072

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Mercury -119213-11-22 03:08 J -41820799.52 -41820799.37 -41820799.23 0.1831 0.0749

Mercury -119212-10-02 04:05 J -41820485.38 -41820485.33 -41820485.27 0.1688 0.1479

Mercury -119210-09-07 12:01 J -41819780.12 -41819780.00 -41819779.88 0.1676 0.0252

Mercury -119203-04-14 00:58 J -41817369.53 -41817369.46 -41817369.39 0.1827 0.1617

Mercury -119200-01-27 22:20 J -41816349.69 -41816349.57 -41816349.45 0.1679 0.0165

Mercury -119198-01-03 04:49 J -41815644.35 -41815644.30 -41815644.24 0.1669 0.1476

Mercury -119192-08-11 09:22 J -41813232.23 -41813232.11 -41813231.99 0.1838 0.1185

Mercury -119191-06-20 08:25 J -41812919.27 -41812919.15 -41812919.04 0.1682 0.0576

Mercury -119189-05-25 15:22 J -41812213.95 -41812213.86 -41812213.77 0.1671 0.1087

Venus -119188-02-28 06:01 J -41811935.40 -41811935.25 -41811935.10 0.1770 0.0836

Venus -119187-12-28 09:08 J -41811267.28 -41811267.12 -41811266.96 0.1752 0.0573

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Mercury -119182-01-01 06:15 J -41809802.40 -41809802.24 -41809802.08 0.1834 0.0245

Venus -119182-08-13 18:44 J -41809577.88 -41809577.72 -41809577.56 0.1762 0.0763

Mercury -119182-11-10 18:15 J -41809488.83 -41809488.74 -41809488.64 0.1685 0.0998

Mercury -119180-10-16 01:41 J -41808783.54 -41808783.43 -41808783.32 0.1674 0.0696

Mercury -119173-05-23 03:37 J -41806372.50 -41806372.35 -41806372.20 0.1830 0.0664

Mercury -119172-04-02 04:05 J -41806058.39 -41806058.33 -41806058.27 0.1688 0.1429

Mercury -119170-03-08 12:01 J -41805353.12 -41805353.00 -41805352.88 0.1677 0.0296

Mercury -119164-10-13 01:27 J -41802942.52 -41802942.44 -41802942.35 0.1827 0.1536

Mercury -119161-07-28 22:20 J -41801922.69 -41801922.57 -41801922.45 0.1679 0.0110

Mercury -119159-07-04 04:49 J -41801217.34 -41801217.30 -41801217.25 0.1669 0.1520

Earth -119157-01-08 05:03 J -41800664.35 -41800664.29 -41800664.23 0.1779 0.1684

Venus -119156-02-27 12:01 J -41800248.08 -41800248.00 -41800247.92 0.1778 0.1553

Venus -119155-12-27 11:32 J -41799580.19 -41799580.02 -41799579.85 0.1760 0.0086

Venus -119153-10-25 17:32 J -41798911.88 -41798911.77 -41798911.65 0.1741 0.1264

Mercury -119152-02-09 09:51 J -41798805.21 -41798805.09 -41798804.97 0.1838 0.1266

Venus -119152-10-14 15:22 J -41798557.95 -41798557.86 -41798557.77 0.1735 0.1454

Mercury -119152-12-19 08:25 J -41798492.26 -41798492.15 -41798492.04 0.1682 0.0521

Venus -119150-08-13 05:46 J -41797890.44 -41797890.26 -41797890.08 0.1754 0.0032

Mercury -119150-11-24 15:22 J -41797786.95 -41797786.86 -41797786.77 0.1671 0.1137

Venus -119148-06-10 12:15 J -41797223.05 -41797222.99 -41797222.92 0.1773 0.1645

Mercury -119143-07-02 06:58 J -41795375.37 -41795375.21 -41795375.05 0.1834 0.0336

Mercury -119142-05-11 18:15 J -41795061.84 -41795061.74 -41795061.64 0.1685 0.0946

Mercury -119140-04-16 01:41 J -41794356.53 -41794356.43 -41794356.32 0.1674 0.0747

Mercury -119134-11-22 04:20 J -41791945.47 -41791945.32 -41791945.17 0.1831 0.0571

Mercury -119133-10-01 04:05 J -41791631.39 -41791631.33 -41791631.26 0.1688 0.1374

Mercury -119131-09-06 12:01 J -41790926.11 -41790926.00 -41790925.88 0.1676 0.0351

Mercury -119124-04-13 02:10 J -41788515.50 -41788515.41 -41788515.32 0.1827 0.1449

Venus -119123-12-26 15:22 J -41787893.02 -41787892.86 -41787892.71 0.1767 0.0760

Mercury -119121-01-27 22:20 J -41787495.69 -41787495.57 -41787495.45 0.1679 0.0063

Venus -119121-10-24 18:58 J -41787224.87 -41787224.71 -41787224.56 0.1749 0.0643

Mercury -119119-01-02 04:49 J -41786790.34 -41786790.30 -41786790.26 0.1669 0.1567

Venus -119118-08-12 15:22 J -41786203.02 -41786202.86 -41786202.70 0.1745 0.0704

Venus -119116-06-10 01:56 J -41785535.57 -41785535.42 -41785535.26 0.1764 0.0857

Mercury -119113-08-10 10:34 J -41784378.16 -41784378.06 -41784377.95 0.1838 0.1361

Mercury -119112-06-19 08:25 J -41784065.27 -41784065.15 -41784065.04 0.1682 0.0473

Mercury -119110-05-25 15:22 J -41783359.94 -41783359.86 -41783359.78 0.1671 0.1184

Mercury -119104-12-31 07:27 J -41780948.35 -41780948.19 -41780948.03 0.1834 0.0419

Mercury -119103-11-09 18:29 J -41780634.83 -41780634.73 -41780634.63 0.1685 0.0890

Mercury -119101-10-15 01:41 J -41779929.53 -41779929.43 -41779929.32 0.1674 0.0797

Mercury -119094-05-23 04:49 J -41777518.45 -41777518.30 -41777518.14 0.1831 0.0490

Mercury -119093-04-01 04:20 J -41777204.40 -41777204.32 -41777204.25 0.1688 0.1321

Mercury -119091-03-07 12:15 J -41776499.11 -41776498.99 -41776498.88 0.1677 0.0403

Venus -119091-12-25 20:25 J -41776205.75 -41776205.65 -41776205.56 0.1776 0.1468

Venus -119089-10-23 20:39 J -41775537.81 -41775537.64 -41775537.47 0.1757 0.0009

Venus -119087-08-23 04:05 J -41774869.44 -41774869.33 -41774869.22 0.1739 0.1324

Venus -119086-08-11 23:17 J -41774515.64 -41774515.53 -41774515.43 0.1738 0.1388

Moon -119085-06-26 20:53 J -41774195.80 -41774195.63 -41774195.45 0.1727 0.0485

Earth -119085-06-27 02:25 J -41774195.58 -41774195.40 -41774195.21 0.1727 0.0353 *

Mercury -119085-10-12 02:53 J -41774088.48 -41774088.38 -41774088.27 0.1827 0.1356

Venus -119084-06-09 13:13 J -41773848.13 -41773847.95 -41773847.77 0.1756 0.0105

Venus -119082-04-07 18:44 J -41773180.75 -41773180.72 -41773180.70 0.1775 0.1751

Mercury -119082-07-28 22:20 J -41773068.69 -41773068.57 -41773068.45 0.1679 0.0008

Mercury -119080-07-03 04:49 J -41772363.32 -41772363.30 -41772363.27 0.1669 0.1617

Mercury -119073-02-09 11:17 J -41769951.12 -41769951.03 -41769950.93 0.1838 0.1454

Mercury -119073-12-18 08:25 J -41769638.27 -41769638.15 -41769638.03 0.1682 0.0420

Mercury -119071-11-23 15:22 J -41768932.94 -41768932.86 -41768932.78 0.1671 0.1233

Mercury -119064-07-01 08:10 J -41766521.31 -41766521.16 -41766521.00 0.1834 0.0509

Mercury -119063-05-10 18:29 J -41766207.84 -41766207.73 -41766207.63 0.1685 0.0841

Mercury -119061-04-15 01:41 J -41765502.53 -41765502.43 -41765502.32 0.1674 0.0844

Venus -119057-10-22 23:46 J -41763850.67 -41763850.51 -41763850.35 0.1765 0.0677

Venus -119055-08-22 04:34 J -41763182.47 -41763182.31 -41763182.16 0.1747 0.0712

Mercury -119055-11-21 05:32 J -41763091.42 -41763091.27 -41763091.11 0.1831 0.0400

Mercury -119054-10-01 04:20 J -41762777.40 -41762777.32 -41762777.24 0.1688 0.1267

Venus -119052-06-08 23:03 J -41762160.71 -41762160.54 -41762160.38 0.1748 0.0626

Mercury -119052-09-05 12:01 J -41762072.11 -41762072.00 -41762071.88 0.1677 0.0451

Venus -119050-04-07 07:56 J -41761493.31 -41761493.17 -41761493.01 0.1767 0.0962

Mercury -119045-04-12 03:08 J -41759661.48 -41759661.37 -41759661.26 0.1827 0.1285

Mercury -119042-01-26 22:20 J -41758641.69 -41758641.57 -41758641.45 0.1679 0.0043

Mercury -119040-01-01 04:49 J -41757936.31 -41757936.30 -41757936.29 0.1669 0.1661

Mercury -119034-08-10 12:01 J -41755524.09 -41755524.00 -41755523.92 0.1838 0.1537

Mercury -119033-06-18 08:25 J -41755211.26 -41755211.15 -41755211.03 0.1682 0.0370

Mercury -119031-05-24 15:22 J -41754505.93 -41754505.86 -41754505.78 0.1672 0.1282

Venus -119025-10-22 04:49 J -41752163.41 -41752163.30 -41752163.20 0.1773 0.1384

Mercury -119025-12-30 09:08 J -41752094.27 -41752094.12 -41752093.97 0.1834 0.0607

Mercury -119024-11-08 18:29 J -41751780.84 -41751780.73 -41751780.62 0.1685 0.0787

Venus -119023-08-21 05:46 J -41751495.43 -41751495.26 -41751495.08 0.1754 0.0088

Mercury -119022-10-15 01:56 J -41751075.52 -41751075.42 -41751075.32 0.1674 0.0895

Venus -119021-06-19 14:10 J -41750827.01 -41750826.91 -41750826.81 0.1736 0.1388

Venus -119020-06-08 07:27 J -41750473.30 -41750473.19 -41750473.07 0.1740 0.1324

Venus -119018-04-06 19:41 J -41749805.86 -41749805.68 -41749805.50 0.1759 0.0196

Mercury -119015-05-22 06:01 J -41748664.40 -41748664.25 -41748664.09 0.1830 0.0320

Mercury -119014-04-01 04:20 J -41748350.41 -41748350.32 -41748350.24 0.1688 0.1216

Mercury -119012-03-06 12:01 J -41747645.11 -41747645.00 -41747644.88 0.1677 0.0498

Moon -119006-06-30 04:34 J -41745338.44 -41745338.31 -41745338.19 0.1730 0.1301

Earth -119006-06-30 11:03 J -41745338.14 -41745338.04 -41745337.94 0.1730 0.1461

Mercury -119006-10-12 04:05 J -41745234.45 -41745234.33 -41745234.21 0.1827 0.1186

Mercury -119005-08-21 13:56 J -41744919.94 -41744919.92 -41744919.89 0.1692 0.1649

Mercury -119003-07-27 22:20 J -41744214.69 -41744214.57 -41744214.45 0.1679 0.0102

119TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 119th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -118994-02-08 12:44 J | -41741097.04 | -41741096.97 | -41741096.90 | 0.1838 | 0.1630 | | |
| Mercury | -118994-12-18 08:25 J | -41740784.27 | -41740784.15 | -41740784.03 | 0.1682 | 0.0319 | | |

Mercury -118992-11-22 15:22 J -41740078.93 -41740078.86 -41740078.79 0.1671 0.1329
 Venus -118991-08-20 09:08 J -41739808.28 -41739808.12 -41739807.96 0.1762 0.0603
 Venus -118989-06-18 14:25 J -41739140.05 -41739139.90 -41739139.75 0.1744 0.0778
 Venus -118986-04-06 06:44 J -41738118.39 -41738118.22 -41738118.06 0.1751 0.0548
 Mercury -118985-06-30 09:22 J -41737667.26 -41737667.11 -41737666.96 0.1834 0.0679
 Venus -118984-02-01 14:10 J -41737451.05 -41737450.91 -41737450.77 0.1770 0.1068
 Mercury -118984-05-09 18:29 J -41737353.84 -41737353.73 -41737353.62 0.1685 0.0734
 Mercury -118982-04-15 01:41 J -41736648.52 -41736648.43 -41736648.33 0.1674 0.0940
 Mercury -118976-11-20 06:58 J -41734237.37 -41734237.21 -41734237.05 0.1831 0.0221
 Mercury -118975-09-30 04:20 J -41733923.40 -41733923.32 -41733923.23 0.1688 0.1160
 Mercury -118973-09-04 12:15 J -41733218.10 -41733217.99 -41733217.88 0.1677 0.0550
 Mercury -118966-04-12 04:49 J -41730807.43 -41730807.30 -41730807.18 0.1827 0.1101
 Mercury -118965-02-20 14:10 J -41730492.95 -41730492.91 -41730492.88 0.1692 0.1595
 Mercury -118963-01-25 22:20 J -41729787.69 -41729787.57 -41729787.45 0.1679 0.0149
 Venus -118959-08-19 13:13 J -41728121.06 -41728120.95 -41728120.83 0.1770 0.1301
 Venus -118957-06-17 15:37 J -41727453.02 -41727452.85 -41727452.68 0.1752 0.0142
 Venus -118955-04-17 00:29 J -41726784.57 -41726784.48 -41726784.39 0.1734 0.1451
 Mercury -118955-08-09 13:27 J -41726669.99 -41726669.94 -41726669.89 0.1838 0.1719
 Venus -118954-04-05 15:08 J -41726430.99 -41726430.87 -41726430.75 0.1743 0.1249
 Mercury -118954-06-18 08:25 J -41726357.26 -41726357.15 -41726357.03 0.1682 0.0272
 Moon -118952-01-04 00:29 J -41725791.59 -41725791.48 -41725791.37 0.1789 0.1501
 Earth -118952-01-04 08:25 J -41725791.31 -41725791.15 -41725790.99 0.1789 0.1083
 Venus -118952-02-01 02:39 J -41725763.57 -41725763.39 -41725763.21 0.1762 0.0289
 Mercury -118952-05-23 15:22 J -41725651.93 -41725651.86 -41725651.80 0.1671 0.1375
 Mercury -118946-12-30 10:20 J -41723240.22 -41723240.07 -41723239.93 0.1834 0.0778
 Mercury -118945-11-07 18:29 J -41722926.84 -41722926.73 -41722926.62 0.1685 0.0683
 Mercury -118943-10-14 01:56 J -41722221.52 -41722221.42 -41722221.33 0.1674 0.0991
 Mercury -118936-05-21 07:27 J -41719810.35 -41719810.19 -41719810.03 0.1830 0.0139
 Mercury -118935-03-31 04:20 J -41719496.41 -41719496.32 -41719496.23 0.1689 0.1109
 Mercury -118933-03-05 12:15 J -41718791.11 -41718790.99 -41718790.88 0.1677 0.0598

Mercury -118927-10-11 05:17 J -41716380.41 -41716380.28 -41716380.15 0.1827 0.1021

Mercury -118926-08-21 14:10 J -41716065.96 -41716065.91 -41716065.86 0.1692 0.1537

Venus -118925-06-16 18:01 J -41715765.91 -41715765.75 -41715765.58 0.1760 0.0527

Mercury -118924-07-26 22:20 J -41715360.68 -41715360.57 -41715360.45 0.1679 0.0207

Venus -118923-04-16 00:01 J -41715097.64 -41715097.50 -41715097.35 0.1741 0.0851

Venus -118920-01-31 13:27 J -41714076.11 -41714075.94 -41714075.76 0.1753 0.0461

Venus -118919-11-29 20:25 J -41713408.78 -41713408.65 -41713408.52 0.1773 0.1171

Mercury -118915-02-07 13:56 J -41712242.94 -41712242.92 -41712242.89 0.1838 0.1805

Mercury -118915-12-17 08:39 J -41711930.26 -41711930.14 -41711930.02 0.1682 0.0216

Mercury -118913-11-21 15:22 J -41711224.92 -41711224.86 -41711224.80 0.1672 0.1426

Mercury -118906-06-30 11:03 J -41708813.18 -41708813.04 -41708812.90 0.1834 0.0869

Mercury -118905-05-08 18:29 J -41708499.84 -41708499.73 -41708499.61 0.1685 0.0632

Mercury -118903-04-14 01:56 J -41707794.52 -41707794.42 -41707794.33 0.1674 0.1040

Mercury -118897-11-19 08:10 J -41705383.32 -41705383.16 -41705383.00 0.1831 0.0052

Mercury -118896-09-29 04:34 J -41705069.41 -41705069.31 -41705069.22 0.1688 0.1056

Mercury -118894-09-04 12:15 J -41704364.10 -41704363.99 -41704363.88 0.1677 0.0646

Venus -118893-06-15 21:51 J -41704078.71 -41704078.59 -41704078.47 0.1768 0.1218

Venus -118891-04-15 00:44 J -41703410.64 -41703410.47 -41703410.30 0.1749 0.0220

Venus -118889-02-12 10:34 J -41702742.14 -41702742.06 -41702741.98 0.1731 0.1517

Venus -118888-01-30 22:34 J -41702388.69 -41702388.56 -41702388.43 0.1746 0.1175

Mercury -118887-04-11 05:46 J -41701953.39 -41701953.26 -41701953.12 0.1827 0.0935

Venus -118887-11-29 09:22 J -41701721.29 -41701721.11 -41701720.94 0.1764 0.0387

Mercury -118886-02-19 14:10 J -41701638.97 -41701638.91 -41701638.86 0.1692 0.1489

Mercury -118884-01-24 22:20 J -41700933.69 -41700933.57 -41700933.45 0.1679 0.0247

Mercury -118878-09-01 04:05 J -41698523.36 -41698523.33 -41698523.30 0.1822 0.1782

Mercury -118875-06-17 08:39 J -41697503.26 -41697503.14 -41697503.02 0.1682 0.0168

Earth -118873-01-08 07:27 J -41696933.29 -41696933.19 -41696933.08 0.1785 0.1502

Moon -118873-01-08 08:25 J -41696933.17 -41696933.15 -41696933.12 0.1785 0.1767 *

Mercury -118873-05-22 15:22 J -41696797.91 -41696797.86 -41696797.81 0.1672 0.1471

Mercury -118867-12-29 11:32 J -41694386.16 -41694386.02 -41694385.89 0.1834 0.0950

Mercury -118866-11-07 18:44 J -41694072.84 -41694072.72 -41694072.61 0.1685 0.0577

Mercury -118864-10-13 01:56 J -41693367.51 -41693367.42 -41693367.33 0.1674 0.1088

Venus -118859-04-14 03:22 J -41691723.53 -41691723.36 -41691723.20 0.1757 0.0449

Venus -118857-02-11 09:51 J -41691055.23 -41691055.09 -41691054.95 0.1739 0.0921

Mercury -118857-05-20 08:53 J -41690956.29 -41690956.13 -41690955.97 0.1831 0.0062

Mercury -118856-03-30 04:34 J -41690642.41 -41690642.31 -41690642.22 0.1688 0.1004

Venus -118855-11-28 20:53 J -41690033.80 -41690033.63 -41690033.45 0.1756 0.0381

Mercury -118854-03-05 12:15 J -41689937.10 -41689936.99 -41689936.88 0.1677 0.0696

Venus -118853-09-26 02:25 J -41689366.53 -41689366.40 -41689366.28 0.1776 0.1281

Mercury -118848-10-10 06:44 J -41687526.36 -41687526.22 -41687526.08 0.1827 0.0841

Mercury -118847-08-20 14:10 J -41687211.97 -41687211.91 -41687211.84 0.1692 0.1434

Mercury -118845-07-25 22:34 J -41686506.68 -41686506.56 -41686506.45 0.1679 0.0301

Mercury -118838-03-02 04:49 J -41684096.36 -41684096.30 -41684096.25 0.1823 0.1696

Mercury -118836-12-16 08:39 J -41683076.26 -41683076.14 -41683076.02 0.1682 0.0113

Mercury -118834-11-21 15:22 J -41682370.91 -41682370.86 -41682370.81 0.1671 0.1519

Venus -118827-04-13 06:29 J -41680036.36 -41680036.23 -41680036.10 0.1765 0.1133

Mercury -118827-06-29 12:15 J -41679959.13 -41679958.99 -41679958.86 0.1834 0.1039

Mercury -118826-05-08 18:44 J -41679645.84 -41679645.72 -41679645.61 0.1685 0.0532

Venus -118825-02-10 10:34 J -41679368.23 -41679368.06 -41679367.89 0.1747 0.0290

Mercury -118824-04-13 01:56 J -41678940.51 -41678940.42 -41678940.34 0.1674 0.1135

Venus -118824-12-09 21:22 J -41678699.68 -41678699.61 -41678699.55 0.1729 0.1579

Venus -118823-11-28 06:29 J -41678346.37 -41678346.23 -41678346.09 0.1748 0.1102

Venus -118821-09-25 16:20 J -41677678.99 -41677678.82 -41677678.65 0.1767 0.0478

Mercury -118818-11-19 09:22 J -41676529.27 -41676529.11 -41676528.95 0.1830 0.0131

Mercury -118817-09-28 04:34 J -41676215.41 -41676215.31 -41676215.21 0.1689 0.0950

Mercury -118815-09-03 12:15 J -41675510.10 -41675509.99 -41675509.88 0.1677 0.0743

Mercury -118808-04-10 06:58 J -41673099.35 -41673099.21 -41673099.07 0.1827 0.0767

Mercury -118807-02-18 14:25 J -41672784.97 -41672784.90 -41672784.83 0.1692 0.1379

Mercury -118805-01-24 22:34 J -41672079.68 -41672079.56 -41672079.45 0.1680 0.0348

Earth -118801-06-27 21:22 J -41670463.80 -41670463.61 -41670463.43 0.1722 0.0128

Moon -118801-06-28 03:22 J -41670463.54 -41670463.36 -41670463.18 0.1722 0.0034 *
 Mercury -118799-08-31 05:32 J -41669669.34 -41669669.27 -41669669.20 0.1823 0.1604
 Mercury -118796-06-16 08:39 J -41668649.26 -41668649.14 -41668649.02 0.1682 0.0063
 Mercury -118794-05-22 15:22 J -41667943.90 -41667943.86 -41667943.82 0.1672 0.1567
 Venus -118793-02-09 12:15 J -41667681.15 -41667680.99 -41667680.82 0.1754 0.0369
 Venus -118792-12-08 20:10 J -41667012.80 -41667012.66 -41667012.52 0.1736 0.0987
 Venus -118789-09-25 03:51 J -41665991.52 -41665991.34 -41665991.16 0.1759 0.0290
 Mercury -118788-12-28 12:58 J -41665532.08 -41665531.96 -41665531.83 0.1834 0.1135
 Venus -118787-07-24 08:25 J -41665324.26 -41665324.15 -41665324.04 0.1778 0.1389
 Mercury -118787-11-06 18:44 J -41665218.84 -41665218.72 -41665218.61 0.1685 0.0477
 Mercury -118785-10-12 01:56 J -41664513.50 -41664513.42 -41664513.34 0.1674 0.1183
 Mercury -118778-05-20 10:05 J -41662102.24 -41662102.08 -41662101.92 0.1830 0.0212
 Mercury -118777-03-29 04:34 J -41661788.41 -41661788.31 -41661788.21 0.1688 0.0899
 Mercury -118775-03-04 12:15 J -41661083.10 -41661082.99 -41661082.89 0.1677 0.0792
 Mercury -118769-10-09 07:56 J -41658672.32 -41658672.17 -41658672.02 0.1827 0.0670
 Mercury -118768-08-19 14:25 J -41658357.98 -41658357.90 -41658357.83 0.1692 0.1327
 Mercury -118766-07-25 22:34 J -41657652.68 -41657652.56 -41657652.45 0.1679 0.0397
 Venus -118761-02-08 14:53 J -41655994.01 -41655993.88 -41655993.74 0.1762 0.1049
 Venus -118760-12-07 20:25 J -41655325.82 -41655325.65 -41655325.48 0.1744 0.0361
 Mercury -118759-03-01 05:46 J -41655242.34 -41655242.26 -41655242.18 0.1822 0.1533
 Venus -118758-10-07 07:27 J -41654657.23 -41654657.19 -41654657.14 0.1727 0.1642
 Venus -118757-09-24 13:56 J -41654304.07 -41654303.92 -41654303.78 0.1751 0.1024
 Mercury -118757-12-15 08:39 J -41654222.26 -41654222.14 -41654222.02 0.1682 0.0012
 Venus -118755-07-23 22:20 J -41653636.73 -41653636.57 -41653636.40 0.1770 0.0582
 Mercury -118755-11-20 15:22 J -41653516.89 -41653516.86 -41653516.83 0.1672 0.1612
 Mercury -118748-06-28 13:13 J -41651105.07 -41651104.95 -41651104.83 0.1834 0.1208
 Mercury -118747-05-07 18:44 J -41650791.84 -41650791.72 -41650791.60 0.1685 0.0423
 Mercury -118745-04-12 01:56 J -41650086.50 -41650086.42 -41650086.34 0.1674 0.1230
 Mercury -118739-11-18 10:49 J -41647675.20 -41647675.05 -41647674.89 0.1831 0.0310
 Mercury -118738-09-28 04:34 J -41647361.41 -41647361.31 -41647361.20 0.1688 0.0845

Mercury -118736-09-02 12:15 J -41646656.09 -41646655.99 -41646655.88 0.1677 0.0846

Venus -118729-02-07 19:56 J -41644306.68 -41644306.67 -41644306.66 0.1770 0.1763

Mercury -118729-04-09 08:25 J -41644245.30 -41644245.15 -41644245.00 0.1827 0.0588

Mercury -118728-02-17 14:25 J -41643930.98 -41643930.90 -41643930.82 0.1692 0.1275

Venus -118728-12-06 21:51 J -41643638.76 -41643638.59 -41643638.42 0.1752 0.0295

Mercury -118726-01-23 22:34 J -41643225.68 -41643225.56 -41643225.45 0.1679 0.0445

Venus -118726-10-06 06:01 J -41642970.38 -41642970.25 -41642970.11 0.1734 0.1056

Venus -118725-09-23 23:03 J -41642616.56 -41642616.54 -41642616.52 0.1743 0.1726

Venus -118723-07-23 10:34 J -41641949.23 -41641949.06 -41641948.88 0.1762 0.0204

Moon -118722-07-01 03:51 J -41641606.40 -41641606.34 -41641606.28 0.1725 0.1607

Earth -118722-07-01 05:03 J -41641606.35 -41641606.29 -41641606.24 0.1725 0.1638 *

Venus -118721-05-20 14:25 J -41641282.00 -41641281.90 -41641281.81 0.1781 0.1505

Mercury -118720-08-30 06:29 J -41640815.32 -41640815.23 -41640815.13 0.1823 0.1444

Mercury -118717-06-15 08:39 J -41639795.26 -41639795.14 -41639795.02 0.1682 0.0042

Mercury -118715-05-21 15:22 J -41639089.87 -41639089.86 -41639089.85 0.1672 0.1658

Mercury -118709-12-27 14:25 J -41636678.02 -41636677.90 -41636677.79 0.1834 0.1309

Mercury -118708-11-05 18:44 J -41636364.84 -41636364.72 -41636364.60 0.1685 0.0373

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Mercury -118699-05-19 11:17 J -41633248.19 -41633248.03 -41633247.87 0.1830 0.0381

Mercury -118698-03-29 04:34 J -41632934.41 -41632934.31 -41632934.20 0.1689 0.0794

Mercury -118696-03-03 12:15 J -41632229.09 -41632228.99 -41632228.89 0.1677 0.0889

Venus -118696-12-06 00:29 J -41631951.62 -41631951.48 -41631951.34 0.1760 0.0974

Venus -118694-10-05 06:29 J -41631283.40 -41631283.23 -41631283.07 0.1742 0.0430

Venus -118692-08-03 18:15 J -41630614.76 -41630614.74 -41630614.71 0.1725 0.1704

Venus -118691-07-22 21:37 J -41630261.75 -41630261.60 -41630261.45 0.1753 0.0947

Mercury -118690-10-09 08:53 J -41629818.28 -41629818.13 -41629817.97 0.1827 0.0508

Venus -118689-05-20 05:17 J -41629594.44 -41629594.28 -41629594.11 0.1773 0.0680

Mercury -118689-08-18 14:25 J -41629503.98 -41629503.90 -41629503.81 0.1692 0.1220

Mercury -118687-07-24 22:34 J -41628798.67 -41628798.56 -41628798.45 0.1679 0.0495

Mercury -118680-02-28 07:13 J -41626388.30 -41626388.20 -41626388.09 0.1823 0.1356

Mercury -118679-01-09 00:01 J -41626073.52 -41626073.50 -41626073.48 0.1695 0.1659

Mercury -118678-12-15 08:39 J -41625368.26 -41625368.14 -41625368.01 0.1682 0.0113

Mercury -118669-06-27 14:53 J -41622250.98 -41622250.88 -41622250.77 0.1834 0.1396

Earth -118668-01-04 08:10 J -41622060.29 -41622060.16 -41622060.03 0.1795 0.1387

Moon -118668-01-04 11:17 J -41622060.10 -41622060.03 -41622059.95 0.1795 0.1627 *

Mercury -118668-05-06 18:44 J -41621937.84 -41621937.72 -41621937.60 0.1685 0.0322

Mercury -118666-04-12 01:56 J -41621232.49 -41621232.42 -41621232.35 0.1674 0.1326

Venus -118664-12-05 04:34 J -41620264.36 -41620264.31 -41620264.26 0.1768 0.1680

Venus -118662-10-04 07:13 J -41619596.36 -41619596.20 -41619596.03 0.1749 0.0222

Venus -118660-08-02 16:49 J -41618927.92 -41618927.80 -41618927.67 0.1732 0.1117

Mercury -118660-11-17 12:01 J -41618821.15 -41618821.00 -41618820.84 0.1831 0.0475

Venus -118659-07-22 06:44 J -41618574.27 -41618574.22 -41618574.17 0.1745 0.1657

Mercury -118659-09-27 04:49 J -41618507.41 -41618507.30 -41618507.20 0.1688 0.0744

Venus -118657-05-19 17:46 J -41617906.94 -41617906.76 -41617906.58 0.1764 0.0111

Mercury -118657-09-01 12:15 J -41617802.09 -41617801.99 -41617801.89 0.1677 0.0938

Venus -118655-03-17 20:10 J -41617239.73 -41617239.66 -41617239.59 0.1784 0.1619

Mercury -118650-04-09 09:37 J -41615391.25 -41615391.10 -41615390.94 0.1827 0.0420

Mercury -118649-02-17 14:25 J -41615076.99 -41615076.90 -41615076.81 0.1692 0.1171

Mercury -118647-01-22 22:34 J -41614371.67 -41614371.56 -41614371.45 0.1679 0.0542

Mercury -118641-08-29 07:41 J -41611961.29 -41611961.18 -41611961.07 0.1822 0.1277

Mercury -118640-07-10 00:15 J -41611646.53 -41611646.49 -41611646.45 0.1695 0.1601

Mercury -118638-06-15 08:39 J -41610941.26 -41610941.14 -41610941.02 0.1682 0.0151

Venus -118630-10-03 09:22 J -41607909.26 -41607909.11 -41607908.96 0.1757 0.0892

Mercury -118630-12-27 15:22 J -41607823.95 -41607823.86 -41607823.76 0.1834 0.1476

Mercury -118629-11-04 18:58 J -41607510.83 -41607510.71 -41607510.60 0.1685 0.0274

Venus -118628-08-01 16:34 J -41607240.98 -41607240.81 -41607240.65 0.1739 0.0500

Mercury -118627-10-11 01:56 J -41606805.49 -41606805.42 -41606805.35 0.1674 0.1373

Venus -118625-05-19 04:49 J -41606219.45 -41606219.30 -41606219.15 0.1756 0.0865

Venus -118623-03-17 11:03 J -41605552.20 -41605552.04 -41605551.88 0.1775 0.0792

Mercury -118620-05-18 12:44 J -41604394.12 -41604393.97 -41604393.82 0.1831 0.0560

Mercury -118619-03-28 04:34 J -41604080.42 -41604080.31 -41604080.19 0.1688 0.0694

Mercury -118617-03-02 12:15 J -41603375.08 -41603374.99 -41603374.89 0.1677 0.0989

Mercury -118611-10-08 10:20 J -41600964.22 -41600964.07 -41600963.91 0.1827 0.0331

Mercury -118610-08-18 14:39 J -41600649.98 -41600649.89 -41600649.80 0.1692 0.1116

Mercury -118608-07-23 22:34 J -41599944.67 -41599944.56 -41599944.45 0.1679 0.0594

Mercury -118601-02-28 08:25 J -41597534.27 -41597534.15 -41597534.03 0.1823 0.1192

Mercury -118600-01-08 00:15 J -41597219.54 -41597219.49 -41597219.45 0.1695 0.1552

Mercury -118599-12-14 08:53 J -41596514.25 -41596514.13 -41596514.02 0.1682 0.0200

Venus -118598-10-02 13:27 J -41596222.01 -41596221.94 -41596221.87 0.1765 0.1598

Moon -118596-06-26 02:53 J -41595589.43 -41595589.38 -41595589.32 0.1714 0.1632

Earth -118596-06-26 08:53 J -41595589.19 -41595589.13 -41595589.07 0.1714 0.1612

Venus -118596-07-31 16:49 J -41595553.97 -41595553.80 -41595553.63 0.1747 0.0148

Venus -118594-05-31 03:08 J -41594885.49 -41594885.37 -41594885.25 0.1729 0.1179

Venus -118593-05-18 14:39 J -41594531.96 -41594531.89 -41594531.82 0.1748 0.1588

Venus -118591-03-16 23:46 J -41593864.68 -41593864.51 -41593864.33 0.1767 0.0040

Mercury -118590-06-27 16:05 J -41593396.91 -41593396.83 -41593396.74 0.1834 0.1566

Moon -118589-01-08 01:27 J -41593202.55 -41593202.44 -41593202.32 0.1791 0.1417

Earth -118589-01-08 08:39 J -41593202.28 -41593202.14 -41593202.00 0.1791 0.1262

Venus -118589-01-13 01:13 J -41593197.48 -41593197.45 -41593197.41 0.1786 0.1746

Mercury -118589-05-05 18:44 J -41593083.84 -41593083.72 -41593083.60 0.1685 0.0224

Mercury -118587-04-11 01:56 J -41592378.48 -41592378.42 -41592378.36 0.1674 0.1419

Mercury -118581-11-16 13:27 J -41589967.09 -41589966.94 -41589966.79 0.1830 0.0647

Mercury -118580-09-26 04:49 J -41589653.41 -41589653.30 -41589653.19 0.1689 0.0637

Mercury -118578-09-01 12:15 J -41588948.08 -41588947.99 -41588947.89 0.1677 0.1036

Mercury -118571-04-08 10:49 J -41586537.21 -41586537.05 -41586536.89 0.1827 0.0252

Mercury -118570-02-16 14:39 J -41586222.98 -41586222.89 -41586222.80 0.1692 0.1061

Mercury -118568-01-21 22:34 J -41585517.67 -41585517.56 -41585517.45 0.1680 0.0644

Venus -118564-07-30 19:12 J -41583866.85 -41583866.70 -41583866.55 0.1755 0.0819

Venus -118562-05-30 02:39 J -41583198.55 -41583198.39 -41583198.23 0.1737 0.0565

Mercury -118562-08-29 09:08 J -41583107.24 -41583107.12 -41583106.99 0.1823 0.1101

Mercury -118561-07-09 00:15 J -41582792.54 -41582792.49 -41582792.43 0.1695 0.1497
 Venus -118559-03-16 12:00 J -41582177.16 -41582177.00 -41582176.84 0.1759 0.0780
 Mercury -118559-06-14 08:53 J -41582087.25 -41582087.13 -41582087.01 0.1682 0.0244
 Venus -118557-01-12 16:48 J -41581509.96 -41581509.80 -41581509.65 0.1778 0.0904
 Mercury -118551-12-26 17:03 J -41578969.85 -41578969.79 -41578969.72 0.1834 0.1662
 Mercury -118550-11-04 18:58 J -41578656.83 -41578656.71 -41578656.59 0.1685 0.0179
 Mercury -118548-10-10 01:56 J -41577951.47 -41577951.42 -41577951.36 0.1674 0.1468
 Mercury -118541-05-17 13:56 J -41575540.06 -41575539.92 -41575539.77 0.1831 0.0731
 Mercury -118540-03-27 04:48 J -41575226.41 -41575226.30 -41575226.19 0.1689 0.0587
 Mercury -118538-03-02 12:15 J -41574521.08 -41574520.99 -41574520.90 0.1677 0.1083
 Venus -118532-07-29 22:05 J -41572179.66 -41572179.58 -41572179.49 0.1762 0.1515
 Mercury -118532-10-07 11:46 J -41572110.17 -41572110.01 -41572109.85 0.1827 0.0162
 Mercury -118531-08-17 14:39 J -41571795.99 -41571795.89 -41571795.79 0.1692 0.1011
 Venus -118530-05-29 02:53 J -41571511.55 -41571511.38 -41571511.21 0.1744 0.0075
 Mercury -118529-07-22 22:34 J -41571090.67 -41571090.56 -41571090.45 0.1679 0.0691
 Venus -118528-03-27 13:41 J -41570843.05 -41570842.93 -41570842.82 0.1727 0.1244
 Venus -118527-03-15 21:36 J -41570489.68 -41570489.60 -41570489.51 0.1750 0.1510
 Venus -118525-01-12 06:29 J -41569822.41 -41569822.23 -41569822.05 0.1770 0.0091
 Mercury -118522-02-27 09:22 J -41568680.24 -41568680.11 -41568679.98 0.1822 0.1030
 Mercury -118521-01-08 00:15 J -41568365.55 -41568365.49 -41568365.43 0.1695 0.1444
 Mercury -118520-12-13 08:53 J -41567660.25 -41567660.13 -41567660.02 0.1683 0.0293
 Earth -118517-06-28 16:20 J -41566732.00 -41566731.82 -41566731.63 0.1717 0.0119
 Moon -118517-06-28 19:12 J -41566731.90 -41566731.70 -41566731.50 0.1717 0.0074 *
 Mercury -118511-06-26 17:32 J -41564542.82 -41564542.77 -41564542.73 0.1834 0.1735
 Mercury -118510-05-05 18:58 J -41564229.83 -41564229.71 -41564229.59 0.1685 0.0117
 Mercury -118508-04-10 01:56 J -41563524.47 -41563524.42 -41563524.37 0.1674 0.1514
 Mercury -118502-11-16 14:53 J -41561113.02 -41561112.88 -41561112.74 0.1831 0.0827
 Mercury -118501-09-25 04:48 J -41560799.41 -41560799.30 -41560799.18 0.1688 0.0534
 Mercury -118499-08-31 12:29 J -41560094.07 -41560093.98 -41560093.90 0.1677 0.1134
 Venus -118498-05-28 04:20 J -41559824.47 -41559824.32 -41559824.16 0.1752 0.0741

Venus -118496-03-26 12:29 J -41559156.14 -41559155.98 -41559155.82 0.1734 0.0638

Venus -118493-01-11 18:44 J -41558134.89 -41558134.72 -41558134.56 0.1761 0.0691

Mercury -118492-04-07 12:15 J -41557683.15 -41557682.99 -41557682.83 0.1827 0.0081

Venus -118492-11-08 22:34 J -41557467.70 -41557467.56 -41557467.41 0.1781 0.1016

Mercury -118491-02-15 14:39 J -41557368.99 -41557368.89 -41557368.79 0.1692 0.0960

Mercury -118489-01-21 22:34 J -41556663.67 -41556663.56 -41556663.45 0.1680 0.0738

Mercury -118483-08-28 10:20 J -41554253.21 -41554253.07 -41554252.94 0.1823 0.0938

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Mercury -118469-10-09 01:56 J -41549097.46 -41549097.42 -41549097.38 0.1674 0.1562

Venus -118466-05-27 06:58 J -41548137.30 -41548137.21 -41548137.11 0.1760 0.1432

Venus -118464-03-25 12:15 J -41547469.16 -41547468.99 -41547468.82 0.1741 0.0042

Venus -118462-01-23 00:00 J -41546800.60 -41546800.50 -41546800.39 0.1724 0.1309

Mercury -118462-05-17 15:08 J -41546686.01 -41546685.87 -41546685.73 0.1830 0.0900

Venus -118461-01-11 05:03 J -41546447.39 -41546447.29 -41546447.19 0.1753 0.1434

Mercury -118461-03-26 04:48 J -41546372.41 -41546372.30 -41546372.18 0.1689 0.0485

Venus -118460-11-08 12:44 J -41545780.14 -41545779.97 -41545779.79 0.1772 0.0197

Mercury -118459-03-01 12:15 J -41545667.07 -41545666.99 -41545666.90 0.1677 0.1177

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Mercury -118450-07-22 22:48 J -41542236.66 -41542236.55 -41542236.45 0.1680 0.0791

Mercury -118443-02-26 11:03 J -41539826.18 -41539826.04 -41539825.90 0.1823 0.0850

Mercury -118442-01-07 00:29 J -41539511.56 -41539511.48 -41539511.41 0.1695 0.1339

Mercury -118441-12-12 08:53 J -41538806.25 -41538806.13 -41538806.01 0.1682 0.0391

Mercury -118434-07-19 09:22 J -41536396.17 -41536396.11 -41536396.06 0.1818 0.1688

Venus -118432-03-24 13:41 J -41535782.08 -41535781.93 -41535781.77 0.1749 0.0664

Mercury -118431-05-04 18:58 J -41535375.83 -41535375.71 -41535375.59 0.1685 0.0026

Venus -118430-01-21 22:34 J -41535113.71 -41535113.56 -41535113.40 0.1732 0.0707
 Mercury -118429-04-09 01:56 J -41534670.45 -41534670.42 -41534670.39 0.1674 0.1606
 Venus -118428-11-08 01:56 J -41534092.59 -41534092.42 -41534092.26 0.1764 0.0604
 Venus -118426-09-06 04:05 J -41533425.47 -41533425.33 -41533425.19 0.1784 0.1134
 Mercury -118423-11-15 16:05 J -41532258.97 -41532258.83 -41532258.70 0.1831 0.0994
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 Mercury -118420-08-30 12:15 J -41531240.06 -41531239.99 -41531239.91 0.1677 0.1227
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 Mercury -118401-06-12 08:53 J -41524379.25 -41524379.13 -41524379.01 0.1683 0.0438
 Venus -118400-03-23 15:51 J -41524094.94 -41524094.84 -41524094.73 0.1757 0.1349
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 Mercury -118394-01-17 09:51 J -41521969.16 -41521969.09 -41521969.02 0.1819 0.1604
 Venus -118394-09-05 19:27 J -41521737.87 -41521737.69 -41521737.51 0.1775 0.0294
 Mercury -118392-11-02 18:58 J -41520948.83 -41520948.71 -41520948.59 0.1685 0.0051
 Mercury -118390-10-09 01:56 J -41520243.43 -41520243.42 -41520243.40 0.1674 0.1655
 Earth -118384-01-04 06:00 J -41518329.29 -41518329.25 -41518329.21 0.1801 0.1755
 Mercury -118383-05-16 16:48 J -41517831.93 -41517831.80 -41517831.67 0.1831 0.1082
 Mercury -118382-03-26 05:03 J -41517518.41 -41517518.29 -41517518.18 0.1689 0.0386
 Mercury -118380-02-28 12:29 J -41516813.06 -41516812.98 -41516812.91 0.1677 0.1275
 Mercury -118374-10-06 14:10 J -41514402.06 -41514401.91 -41514401.75 0.1827 0.0192
 Mercury -118373-08-15 14:53 J -41514087.99 -41514087.88 -41514087.78 0.1692 0.0802
 Mercury -118371-07-21 22:48 J -41513382.65 -41513382.55 -41513382.45 0.1679 0.0886
 Venus -118366-01-19 23:17 J -41511739.69 -41511739.53 -41511739.37 0.1747 0.0588
 Venus -118365-11-18 09:08 J -41511071.27 -41511071.12 -41511070.97 0.1729 0.0772

Mercury -118364-02-25 12:00 J -41510972.15 -41510972.00 -41510971.85 0.1823 0.0689

Mercury -118363-01-06 00:29 J -41510657.56 -41510657.48 -41510657.40 0.1695 0.1234

Venus -118362-09-05 08:24 J -41510050.33 -41510050.15 -41510049.98 0.1767 0.0510

Mercury -118362-12-12 08:53 J -41509952.24 -41509952.13 -41509952.01 0.1682 0.0488

Venus -118360-07-03 10:05 J -41509383.21 -41509383.08 -41509382.96 0.1786 0.1249

Mercury -118355-07-18 10:34 J -41507542.15 -41507542.06 -41507541.98 0.1818 0.1524

Mercury -118354-05-29 10:05 J -41507227.10 -41507227.08 -41507227.06 0.1699 0.1671

Mercury -118352-05-03 18:58 J -41506521.83 -41506521.71 -41506521.59 0.1686 0.0081

Mercury -118344-11-14 17:17 J -41503404.90 -41503404.78 -41503404.65 0.1830 0.1166

Mercury -118343-09-24 05:03 J -41503091.41 -41503091.29 -41503091.17 0.1689 0.0328

Mercury -118341-08-29 12:29 J -41502386.06 -41502385.98 -41502385.91 0.1677 0.1322

Venus -118334-01-19 00:58 J -41500052.57 -41500052.46 -41500052.34 0.1755 0.1267

Mercury -118334-04-06 14:39 J -41499975.05 -41499974.89 -41499974.73 0.1827 0.0261

Mercury -118333-02-14 14:53 J -41499660.99 -41499660.88 -41499660.77 0.1692 0.0749

Venus -118333-11-17 08:24 J -41499384.32 -41499384.15 -41499383.98 0.1737 0.0147

Mercury -118331-01-19 22:48 J -41498955.65 -41498955.55 -41498955.45 0.1680 0.0934

Venus -118331-09-16 21:36 J -41498715.69 -41498715.60 -41498715.51 0.1720 0.1433

Venus -118330-09-04 19:27 J -41498362.81 -41498362.69 -41498362.56 0.1759 0.1273

Venus -118328-07-03 01:27 J -41497695.62 -41497695.44 -41497695.27 0.1778 0.0405

Mercury -118325-08-26 12:58 J -41496545.11 -41496544.96 -41496544.81 0.1823 0.0599

Mercury -118324-07-07 00:29 J -41496230.56 -41496230.48 -41496230.39 0.1695 0.1180

Mercury -118322-06-12 08:53 J -41495525.24 -41495525.13 -41495525.01 0.1682 0.0539

Mercury -118315-01-16 11:03 J -41493115.13 -41493115.04 -41493114.94 0.1818 0.1438

Mercury -118315-11-27 10:05 J -41492800.11 -41492800.08 -41492800.04 0.1699 0.1617

Mercury -118313-11-01 18:58 J -41492094.83 -41492094.71 -41492094.59 0.1685 0.0147

Moon -118312-06-27 05:17 J -41491857.39 -41491857.28 -41491857.16 0.1710 0.1252

Earth -118312-06-27 06:44 J -41491857.34 -41491857.22 -41491857.11 0.1710 0.1301 *

Earth -118305-01-08 08:24 J -41489471.32 -41489471.15 -41489470.98 0.1797 0.0982

Moon -118305-01-08 14:10 J -41489471.03 -41489470.91 -41489470.79 0.1797 0.1386 *

Mercury -118304-05-15 18:00 J -41488977.87 -41488977.75 -41488977.64 0.1831 0.1249

Mercury -118303-03-25 05:03 J -41488664.41 -41488664.29 -41488664.17 0.1689 0.0280

Mercury -118301-02-28 12:29 J -41487959.05 -41487958.98 -41487958.92 0.1677 0.1368

Venus -118301-11-16 09:08 J -41487697.28 -41487697.12 -41487696.96 0.1744 0.0514

Venus -118299-09-15 19:27 J -41487028.84 -41487028.69 -41487028.55 0.1727 0.0841

Venus -118296-07-02 14:53 J -41486008.05 -41486007.88 -41486007.71 0.1770 0.0413

Mercury -118295-10-05 15:36 J -41485548.01 -41485547.85 -41485547.70 0.1827 0.0356

Venus -118294-04-30 15:22 J -41485340.97 -41485340.86 -41485340.75 0.1789 0.1371

Mercury -118294-08-15 14:53 J -41485233.99 -41485233.88 -41485233.77 0.1692 0.0700

Mercury -118292-07-20 22:48 J -41484528.65 -41484528.55 -41484528.46 0.1680 0.0981

Mercury -118285-02-25 13:12 J -41482118.10 -41482117.95 -41482117.80 0.1823 0.0526

Mercury -118284-01-05 00:44 J -41481803.56 -41481803.47 -41481803.38 0.1695 0.1126

Mercury -118283-12-11 08:53 J -41481098.24 -41481098.13 -41481098.01 0.1683 0.0589

Mercury -118276-07-17 11:46 J -41478688.11 -41478688.01 -41478687.91 0.1819 0.1355

Mercury -118275-05-28 10:20 J -41478373.12 -41478373.07 -41478373.03 0.1699 0.1563

Mercury -118273-05-02 19:12 J -41477667.82 -41477667.70 -41477667.58 0.1685 0.0191

Venus -118269-11-15 10:34 J -41476010.18 -41476010.06 -41476009.93 0.1752 0.1194

Venus -118267-09-14 18:58 J -41475341.88 -41475341.71 -41475341.55 0.1734 0.0215

Venus -118265-07-14 08:39 J -41474673.22 -41474673.14 -41474673.06 0.1718 0.1495

Mercury -118265-11-13 18:58 J -41474550.82 -41474550.71 -41474550.61 0.1831 0.1346

Venus -118264-07-02 03:08 J -41474320.50 -41474320.37 -41474320.24 0.1761 0.1192

Mercury -118264-09-23 05:03 J -41474237.41 -41474237.29 -41474237.17 0.1689 0.0229

Venus -118262-04-30 07:41 J -41473653.35 -41473653.18 -41473653.01 0.1781 0.0509

Mercury -118262-08-29 12:29 J -41473532.04 -41473531.98 -41473531.92 0.1677 0.1416

Mercury -118255-04-05 16:05 J -41471120.99 -41471120.83 -41471120.68 0.1827 0.0436

Mercury -118254-02-13 14:53 J -41470806.99 -41470806.88 -41470806.77 0.1692 0.0649

Mercury -118252-01-18 22:48 J -41470101.65 -41470101.55 -41470101.46 0.1680 0.1028

Mercury -118246-08-26 13:56 J -41467691.07 -41467690.92 -41467690.76 0.1823 0.0435

Mercury -118245-07-06 00:44 J -41467376.56 -41467376.47 -41467376.38 0.1695 0.1074

Mercury -118243-06-11 08:53 J -41466671.24 -41466671.13 -41466671.01 0.1682 0.0639

Mercury -118236-01-15 12:15 J -41464261.10 -41464260.99 -41464260.88 0.1818 0.1274

Mercury -118236-11-26 10:20 J -41463946.13 -41463946.07 -41463946.02 0.1699 0.1511

Venus -118235-09-13 18:58 J -41463654.88 -41463654.71 -41463654.55 0.1742 0.0441

Mercury -118234-11-01 19:12 J -41463240.82 -41463240.70 -41463240.58 0.1686 0.0238

Moon -118233-06-29 06:58 J -41463000.38 -41463000.21 -41463000.03 0.1712 0.0348

Earth -118233-06-29 13:12 J -41463000.14 -41462999.95 -41462999.77 0.1713 0.0373 *

Venus -118233-07-13 06:29 J -41462986.38 -41462986.23 -41462986.09 0.1725 0.0902

Venus -118230-04-29 21:22 J -41461965.79 -41461965.61 -41461965.43 0.1772 0.0314

Venus -118228-02-24 20:53 J -41461298.73 -41461298.63 -41461298.54 0.1792 0.1495

Mercury -118225-05-14 19:12 J -41460123.80 -41460123.70 -41460123.60 0.1830 0.1416

Mercury -118224-03-24 05:03 J -41459810.41 -41459810.29 -41459810.17 0.1689 0.0181

Mercury -118222-02-27 12:29 J -41459105.04 -41459104.98 -41459104.93 0.1677 0.1461

Mercury -118216-10-04 16:48 J -41456693.96 -41456693.80 -41456693.65 0.1827 0.0524

Mercury -118215-08-14 15:08 J -41456379.99 -41456379.87 -41456379.76 0.1692 0.0593

Mercury -118213-07-19 22:48 J -41455674.64 -41455674.55 -41455674.46 0.1680 0.1080

Mercury -118206-02-24 14:39 J -41453264.04 -41453263.89 -41453263.73 0.1823 0.0347

Mercury -118205-01-05 00:44 J -41452949.57 -41452949.47 -41452949.37 0.1695 0.1023

Mercury -118204-12-10 09:08 J -41452244.23 -41452244.12 -41452244.01 0.1682 0.0685

Venus -118203-09-12 19:56 J -41451967.80 -41451967.67 -41451967.54 0.1749 0.1114

Venus -118201-07-12 05:03 J -41451299.45 -41451299.29 -41451299.12 0.1732 0.0281

Venus -118199-05-11 19:41 J -41450630.75 -41450630.68 -41450630.61 0.1715 0.1554

Venus -118198-04-29 09:51 J -41450278.23 -41450278.09 -41450277.96 0.1764 0.1102

Mercury -118197-07-16 12:44 J -41449834.08 -41449833.97 -41449833.85 0.1818 0.1195

Venus -118196-02-24 12:58 J -41449611.13 -41449610.96 -41449610.79 0.1783 0.0629

Mercury -118196-05-27 10:20 J -41449519.13 -41449519.07 -41449519.01 0.1699 0.1458

Mercury -118194-05-02 19:12 J -41448813.82 -41448813.70 -41448813.59 0.1686 0.0287

Mercury -118186-11-13 20:10 J -41445696.75 -41445696.66 -41445696.57 0.1831 0.1513

Mercury -118185-09-22 05:17 J -41445383.40 -41445383.28 -41445383.16 0.1689 0.0139

Mercury -118183-08-28 12:29 J -41444678.03 -41444677.98 -41444677.93 0.1677 0.1508

Mercury -118176-04-04 17:17 J -41442266.93 -41442266.78 -41442266.62 0.1827 0.0609

Mercury -118175-02-12 15:08 J -41441952.99 -41441952.87 -41441952.76 0.1692 0.0550

Mercury -118173-01-18 22:48 J -41441247.64 -41441247.55 -41441247.46 0.1680 0.1124

Venus -118169-07-11 04:34 J -41439612.47 -41439612.31 -41439612.14 0.1739 0.0368

Venus -118167-05-10 17:03 J -41438943.93 -41438943.79 -41438943.65 0.1722 0.0967

Mercury -118167-08-25 15:08 J -41438837.03 -41438836.87 -41438836.72 0.1823 0.0274

Mercury -118166-07-06 00:58 J -41438522.56 -41438522.46 -41438522.37 0.1695 0.0969

Venus -118164-02-24 03:08 J -41437923.55 -41437923.37 -41437923.19 0.1775 0.0206

Mercury -118164-06-10 09:08 J -41437817.23 -41437817.12 -41437817.02 0.1683 0.0733

Venus -118163-12-23 01:41 J -41437256.51 -41437256.43 -41437256.36 0.1794 0.1626

Mercury -118157-01-15 13:41 J -41435407.06 -41435406.93 -41435406.81 0.1819 0.1107

Mercury -118157-11-25 10:20 J -41435092.13 -41435092.07 -41435092.00 0.1699 0.1405

Mercury -118155-10-31 19:12 J -41434386.82 -41434386.70 -41434386.58 0.1685 0.0335

Mercury -118146-05-14 20:53 J -41431269.71 -41431269.63 -41431269.56 0.1831 0.1601

Mercury -118145-03-23 05:17 J -41430956.41 -41430956.28 -41430956.16 0.1689 0.0098

Mercury -118143-02-26 12:29 J -41430251.02 -41430250.98 -41430250.94 0.1677 0.1556

Venus -118137-07-10 06:00 J -41427925.39 -41427925.25 -41427925.12 0.1747 0.1042

Mercury -118137-10-03 18:00 J -41427839.89 -41427839.75 -41427839.60 0.1827 0.0697

Mercury -118136-08-13 15:08 J -41427525.99 -41427525.87 -41427525.75 0.1692 0.0493

Venus -118135-05-09 15:36 J -41427257.02 -41427256.85 -41427256.68 0.1730 0.0347

Mercury -118134-07-19 22:48 J -41426820.63 -41426820.55 -41426820.46 0.1680 0.1172

Venus -118133-03-08 06:15 J -41426588.29 -41426588.24 -41426588.19 0.1713 0.1621

Venus -118132-02-23 16:34 J -41426235.95 -41426235.81 -41426235.66 0.1767 0.1012

Venus -118131-12-22 18:29 J -41425568.89 -41425568.73 -41425568.57 0.1786 0.0744

Mercury -118127-02-23 15:51 J -41424410.00 -41424409.84 -41424409.68 0.1823 0.0185

Mercury -118126-01-04 00:44 J -41424095.57 -41424095.47 -41424095.37 0.1695 0.0921

Mercury -118125-12-09 09:08 J -41423390.23 -41423390.12 -41423390.02 0.1682 0.0781

Mercury -118118-07-16 14:10 J -41420980.04 -41420979.91 -41420979.78 0.1818 0.1029

Mercury -118117-05-26 10:34 J -41420665.14 -41420665.06 -41420664.99 0.1699 0.1352

Mercury -118115-05-01 19:12 J -41419959.82 -41419959.70 -41419959.58 0.1686 0.0380

Mercury -118107-11-12 21:22 J -41416842.67 -41416842.61 -41416842.55 0.1831 0.1680

Mercury -118106-09-22 05:17 J -41416529.40 -41416529.28 -41416529.16 0.1689 0.0025

Venus -118105-07-09 07:56 J -41416238.19 -41416238.17 -41416238.15 0.1755 0.1737
 Mercury -118104-08-27 12:29 J -41415824.01 -41415823.98 -41415823.95 0.1677 0.1601
 Venus -118103-05-08 14:53 J -41415570.05 -41415569.88 -41415569.71 0.1737 0.0294
 Venus -118101-03-07 03:36 J -41414901.48 -41414901.35 -41414901.21 0.1720 0.1031
 Venus -118099-12-22 09:36 J -41413881.28 -41413881.10 -41413880.92 0.1778 0.0113
 Mercury -118097-04-03 18:29 J -41413412.87 -41413412.73 -41413412.58 0.1827 0.0775
 Venus -118097-10-19 07:12 J -41413214.24 -41413214.20 -41413214.16 0.1797 0.1751
 Mercury -118096-02-11 15:08 J -41413098.99 -41413098.87 -41413098.75 0.1692 0.0442
 Mercury -118094-01-17 22:48 J -41412393.63 -41412393.55 -41412393.47 0.1680 0.1221
 Mercury -118088-08-24 16:34 J -41409982.97 -41409982.81 -41409982.65 0.1823 0.0099
 Mercury -118087-07-05 00:58 J -41409668.57 -41409668.46 -41409668.36 0.1695 0.0866
 Mercury -118085-06-09 09:08 J -41408963.22 -41408963.12 -41408963.02 0.1682 0.0829
 Mercury -118078-01-14 14:39 J -41406553.02 -41406552.89 -41406552.75 0.1818 0.0944
 Mercury -118078-11-25 10:34 J -41406238.14 -41406238.06 -41406237.98 0.1699 0.1299
 Mercury -118076-10-30 19:12 J -41405532.81 -41405532.70 -41405532.58 0.1686 0.0432
 Venus -118071-05-07 15:22 J -41403883.00 -41403882.86 -41403882.72 0.1744 0.0963
 Venus -118069-03-06 01:41 J -41403214.60 -41403214.43 -41403214.27 0.1727 0.0420
 Mercury -118069-06-05 13:27 J -41403122.98 -41403122.94 -41403122.90 0.1814 0.1757
 Venus -118067-01-03 17:32 J -41402545.79 -41402545.77 -41402545.74 0.1711 0.1677
 Mercury -118067-05-13 22:05 J -41402415.62 -41402415.58 -41402415.54 0.1831 0.1765
 Venus -118067-12-21 23:03 J -41402193.69 -41402193.54 -41402193.39 0.1769 0.0920
 Mercury -118066-03-23 05:17 J -41402102.40 -41402102.28 -41402102.16 0.1689 0.0034
 Venus -118065-10-19 00:00 J -41401526.66 -41401526.50 -41401526.34 0.1789 0.0864
 Mercury -118064-02-25 12:29 J -41401397.00 -41401396.98 -41401396.96 0.1677 0.1646
 Mercury -118058-10-03 19:27 J -41398985.83 -41398985.69 -41398985.55 0.1827 0.0865
 Mercury -118057-08-12 15:08 J -41398671.99 -41398671.87 -41398671.75 0.1692 0.0392
 Mercury -118055-07-18 22:48 J -41397966.62 -41397966.55 -41397966.47 0.1680 0.1267
 Mercury -118048-02-22 17:03 J -41395555.95 -41395555.79 -41395555.63 0.1823 0.0042
 Mercury -118047-01-03 00:58 J -41395241.56 -41395241.46 -41395241.35 0.1695 0.0812
 Mercury -118046-12-09 09:08 J -41394536.22 -41394536.12 -41394536.02 0.1683 0.0878

Venus -118039-05-06 17:03 J -41392195.84 -41392195.79 -41392195.73 0.1752 0.1654

Mercury -118039-07-15 15:22 J -41392126.00 -41392125.86 -41392125.72 0.1819 0.0861

Mercury -118038-05-26 10:34 J -41391811.14 -41391811.06 -41391810.98 0.1699 0.1246

Venus -118037-03-05 00:29 J -41391527.65 -41391527.48 -41391527.31 0.1734 0.0217

Mercury -118036-04-30 19:12 J -41391105.81 -41391105.70 -41391105.58 0.1685 0.0484

Venus -118035-01-02 14:39 J -41390859.02 -41390858.89 -41390858.77 0.1717 0.1095

Venus -118035-12-21 10:34 J -41390506.10 -41390506.06 -41390506.01 0.1761 0.1693

Venus -118033-10-18 15:36 J -41389839.03 -41389838.85 -41389838.68 0.1780 0.0046

Mercury -118030-12-05 14:10 J -41388695.97 -41388695.91 -41388695.85 0.1814 0.1669

Mercury -118029-10-15 19:56 J -41388380.68 -41388380.67 -41388380.65 0.1702 0.1688

Earth -118028-06-28 04:34 J -41388125.46 -41388125.31 -41388125.16 0.1706 0.0985

Moon -118028-06-28 09:08 J -41388125.28 -41388125.12 -41388124.97 0.1706 0.0994 *

Mercury -118027-09-21 05:17 J -41387675.40 -41387675.28 -41387675.16 0.1689 0.0075

Moon -118021-01-08 01:12 J -41385740.65 -41385740.45 -41385740.25 0.1803 0.0691

Earth -118021-01-08 06:00 J -41385740.43 -41385740.25 -41385740.06 0.1803 0.0639 *

Mercury -118018-04-03 19:56 J -41384558.80 -41384558.67 -41384558.53 0.1827 0.0949

Mercury -118017-02-11 15:08 J -41384244.98 -41384244.87 -41384244.75 0.1692 0.0345

Mercury -118015-01-16 22:48 J -41383539.62 -41383539.55 -41383539.47 0.1680 0.1314

Mercury -118009-08-23 17:46 J -41381128.92 -41381128.76 -41381128.60 0.1823 0.0072

Mercury -118008-07-04 00:58 J -41380814.57 -41380814.46 -41380814.35 0.1695 0.0763

Mercury -118006-06-09 09:08 J -41380109.22 -41380109.12 -41380109.02 0.1683 0.0925

Venus -118005-03-04 01:12 J -41379840.60 -41379840.45 -41379840.31 0.1742 0.0887

Venus -118003-01-01 12:15 J -41379172.15 -41379171.99 -41379171.83 0.1725 0.0487

Venus -118001-10-18 05:46 J -41378151.41 -41378151.26 -41378151.10 0.1772 0.0828

118TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 118th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -117999-01-13 15:51 J | -41377698.98 | -41377698.84 | -41377698.69 | 0.1818 | 0.0782 | | |
| Venus | -117999-08-16 05:03 J | -41377484.44 | -41377484.29 | -41377484.14 | 0.1792 | 0.0989 | | |
| Mercury | -117999-11-24 10:34 J | -41377384.14 | -41377384.06 | -41377383.97 | 0.1699 | 0.1195 | | |
| Mercury | -117997-10-29 19:12 J | -41376678.81 | -41376678.70 | -41376678.58 | 0.1686 | 0.0529 | | |
| Mercury | -117990-06-05 14:24 J | -41374268.97 | -41374268.90 | -41374268.82 | 0.1814 | 0.1600 | | |
| Mercury | -117989-04-15 20:10 J | -41373953.69 | -41373953.66 | -41373953.63 | 0.1702 | 0.1631 | | |
| Mercury | -117987-03-22 05:17 J | -41373248.40 | -41373248.28 | -41373248.16 | 0.1689 | 0.0134 | | |
| Mercury | -117979-10-02 20:39 J | -41370131.77 | -41370131.64 | -41370131.50 | 0.1827 | 0.1036 | | |
| Mercury | -117978-08-12 15:22 J | -41369817.98 | -41369817.86 | -41369817.74 | 0.1692 | 0.0288 | | |
| Mercury | -117976-07-17 23:03 J | -41369112.61 | -41369112.54 | -41369112.47 | 0.1680 | 0.1363 | | |
| Venus | -117973-03-03 02:24 J | -41368153.47 | -41368153.40 | -41368153.33 | 0.1749 | 0.1573 | | |
| Venus | -117972-12-31 11:17 J | -41367485.20 | -41367485.03 | -41367484.86 | 0.1732 | 0.0152 | | |
| Venus | -117970-10-31 01:41 J | -41366816.56 | -41366816.43 | -41366816.31 | 0.1715 | 0.1156 | | |
| Mercury | -117969-02-22 18:29 J | -41366701.89 | -41366701.73 | -41366701.57 | 0.1823 | 0.0156 | | |
| Venus | -117969-10-17 17:46 J | -41366463.83 | -41366463.76 | -41366463.69 | 0.1764 | 0.1611 | | |
| Mercury | -117968-01-02 00:58 J | -41366387.57 | -41366387.46 | -41366387.35 | 0.1695 | 0.0713 | | |
| Venus | -117967-08-15 21:51 J | -41365796.77 | -41365796.59 | -41365796.41 | 0.1783 | 0.0117 | | |
| Mercury | -117967-12-08 09:08 J | -41365682.21 | -41365682.12 | -41365682.02 | 0.1682 | 0.0973 | | |
| Mercury | -117960-07-14 16:34 J | -41363271.96 | -41363271.81 | -41363271.67 | 0.1818 | 0.0700 | | |
| Mercury | -117959-05-25 10:34 J | -41362957.14 | -41362957.06 | -41362956.97 | 0.1699 | 0.1144 | | |
| Mercury | -117957-04-29 19:12 J | -41362251.81 | -41362251.70 | -41362251.58 | 0.1686 | 0.0579 | | |
| Mercury | -117951-12-04 15:22 J | -41359841.94 | -41359841.86 | -41359841.77 | 0.1814 | 0.1508 | | |

Mercury -117950-10-15 20:10 J -41359526.70 -41359526.66 -41359526.62 0.1703 0.1580

Earth -117949-06-30 10:48 J -41359268.22 -41359268.05 -41359267.88 0.1708 0.0654

Moon -117949-06-30 16:48 J -41359267.95 -41359267.80 -41359267.64 0.1708 0.0877 *

Mercury -117948-09-20 05:32 J -41358821.39 -41358821.27 -41358821.15 0.1689 0.0186

Venus -117940-12-30 11:17 J -41355798.18 -41355798.03 -41355797.88 0.1739 0.0813

Mercury -117939-04-02 21:22 J -41355704.74 -41355704.61 -41355704.49 0.1827 0.1115

Mercury -117938-02-10 15:22 J -41355390.98 -41355390.86 -41355390.74 0.1692 0.0245

Venus -117938-10-29 23:03 J -41355129.70 -41355129.54 -41355129.38 0.1722 0.0552

Mercury -117936-01-15 22:48 J -41354685.61 -41354685.55 -41354685.48 0.1680 0.1407

Venus -117935-08-15 12:00 J -41354109.16 -41354109.00 -41354108.84 0.1775 0.0728

Venus -117933-06-12 10:48 J -41353442.19 -41353442.05 -41353441.91 0.1794 0.1111

Mercury -117930-08-23 18:58 J -41352274.87 -41352274.71 -41352274.56 0.1823 0.0233

Mercury -117929-07-03 01:12 J -41351960.56 -41351960.45 -41351960.34 0.1695 0.0657

Mercury -117927-06-08 09:08 J -41351255.21 -41351255.12 -41351255.02 0.1683 0.1021

Mercury -117920-01-12 17:17 J -41348844.93 -41348844.78 -41348844.63 0.1819 0.0609

Mercury -117920-11-23 10:48 J -41348530.14 -41348530.05 -41348529.96 0.1699 0.1089

Mercury -117918-10-29 19:27 J -41347824.80 -41347824.69 -41347824.58 0.1685 0.0629

Mercury -117911-06-04 15:51 J -41345414.93 -41345414.84 -41345414.74 0.1814 0.1431

Mercury -117910-04-15 20:10 J -41345099.71 -41345099.66 -41345099.61 0.1703 0.1528

Mercury -117908-03-21 05:17 J -41344394.39 -41344394.28 -41344394.16 0.1689 0.0231

Venus -117908-12-29 12:00 J -41344111.09 -41344111.00 -41344110.91 0.1747 0.1492

Venus -117906-10-28 21:22 J -41343442.78 -41343442.61 -41343442.44 0.1729 0.0082

Venus -117904-08-27 12:29 J -41342774.09 -41342773.98 -41342773.86 0.1713 0.1218

Venus -117903-08-15 00:29 J -41342421.57 -41342421.48 -41342421.39 0.1767 0.1523

Venus -117901-06-12 03:22 J -41341754.54 -41341754.36 -41341754.18 0.1786 0.0228

Mercury -117900-10-01 22:05 J -41341277.70 -41341277.58 -41341277.46 0.1827 0.1204

Mercury -117899-08-11 15:22 J -41340963.98 -41340963.86 -41340963.74 0.1692 0.0189

Mercury -117897-07-16 22:48 J -41340258.60 -41340258.55 -41340258.49 0.1680 0.1455

Mercury -117890-02-21 19:41 J -41337847.84 -41337847.68 -41337847.52 0.1823 0.0320

Mercury -117889-01-02 01:12 J -41337533.57 -41337533.45 -41337533.34 0.1695 0.0611

Mercury -117888-12-07 09:08 J -41336828.21 -41336828.12 -41336828.02 0.1683 0.1070

Mercury -117881-07-13 17:46 J -41334417.91 -41334417.76 -41334417.61 0.1818 0.0535

Mercury -117880-05-24 10:48 J -41334103.15 -41334103.05 -41334102.95 0.1699 0.1036

Mercury -117878-04-29 19:27 J -41333397.80 -41333397.69 -41333397.58 0.1686 0.0674

Venus -117874-10-27 21:08 J -41331755.77 -41331755.62 -41331755.47 0.1737 0.0739

Venus -117872-08-26 09:36 J -41331087.26 -41331087.10 -41331086.95 0.1720 0.0620

Mercury -117872-12-03 16:20 J -41330987.92 -41330987.82 -41330987.71 0.1814 0.1354

Mercury -117871-10-14 20:24 J -41330672.71 -41330672.65 -41330672.59 0.1702 0.1472

Venus -117869-06-11 18:15 J -41330066.91 -41330066.74 -41330066.57 0.1778 0.0626

Mercury -117869-09-19 05:32 J -41329967.39 -41329967.27 -41329967.15 0.1689 0.0274

Venus -117867-04-09 15:36 J -41329399.98 -41329399.85 -41329399.72 0.1797 0.1245

Mercury -117860-04-01 22:34 J -41326850.67 -41326850.56 -41326850.44 0.1827 0.1285

Mercury -117859-02-09 15:22 J -41326536.98 -41326536.86 -41326536.74 0.1692 0.0140

Mercury -117857-01-15 23:03 J -41325831.59 -41325831.54 -41325831.49 0.1680 0.1502

Mercury -117851-08-22 20:24 J -41323420.80 -41323420.65 -41323420.49 0.1823 0.0412

Mercury -117850-07-03 01:12 J -41323106.56 -41323106.45 -41323106.33 0.1695 0.0556

Mercury -117848-06-07 09:08 J -41322401.20 -41322401.12 -41322401.03 0.1683 0.1118

Venus -117842-10-26 21:51 J -41320068.69 -41320068.59 -41320068.50 0.1744 0.1419

Mercury -117841-01-12 18:29 J -41319990.89 -41319990.73 -41319990.58 0.1818 0.0451

Mercury -117841-11-22 10:48 J -41319676.15 -41319676.05 -41319675.95 0.1699 0.0986

Venus -117840-08-25 08:10 J -41319400.33 -41319400.16 -41319399.99 0.1727 0.0015

Mercury -117839-10-28 19:27 J -41318970.80 -41318970.69 -41318970.58 0.1686 0.0722

Venus -117838-06-24 23:32 J -41318731.63 -41318731.52 -41318731.40 0.1711 0.1280

Venus -117837-06-11 07:41 J -41318379.29 -41318379.18 -41318379.08 0.1769 0.1437

Venus -117835-04-09 09:08 J -41317712.29 -41317712.12 -41317711.94 0.1789 0.0343

Mercury -117832-06-03 17:03 J -41316560.90 -41316560.79 -41316560.68 0.1814 0.1272

Mercury -117831-04-14 20:24 J -41316245.72 -41316245.65 -41316245.59 0.1703 0.1426

Mercury -117829-03-20 05:32 J -41315540.39 -41315540.27 -41315540.15 0.1689 0.0322

Mercury -117821-09-30 23:32 J -41312423.63 -41312423.52 -41312423.42 0.1827 0.1374

Mercury -117820-08-10 15:22 J -41312109.98 -41312109.86 -41312109.74 0.1692 0.0100

Mercury -117818-07-16 23:03 J -41311404.59 -41311404.54 -41311404.50 0.1680 0.1547
 Mercury -117811-02-20 20:53 J -41308993.79 -41308993.63 -41308993.48 0.1823 0.0482
 Mercury -117810-01-01 01:12 J -41308679.56 -41308679.45 -41308679.33 0.1695 0.0507
 Mercury -117809-12-06 09:22 J -41307974.20 -41307974.11 -41307974.03 0.1683 0.1164
 Venus -117808-08-24 07:12 J -41307713.35 -41307713.20 -41307713.04 0.1734 0.0669
 Venus -117806-06-23 20:39 J -41307044.79 -41307044.64 -41307044.48 0.1718 0.0679
 Venus -117803-04-09 00:15 J -41306024.66 -41306024.49 -41306024.32 0.1780 0.0519
 Mercury -117802-07-13 19:12 J -41305563.86 -41305563.70 -41305563.55 0.1819 0.0370
 Venus -117801-02-04 20:39 J -41305357.76 -41305357.64 -41305357.53 0.1800 0.1377
 Mercury -117801-05-23 10:48 J -41305249.15 -41305249.05 -41305248.95 0.1699 0.0936
 Mercury -117799-04-28 19:27 J -41304543.80 -41304543.69 -41304543.58 0.1686 0.0771
 Mercury -117793-12-02 17:46 J -41302133.88 -41302133.76 -41302133.64 0.1814 0.1184
 Mercury -117792-10-13 20:24 J -41301818.72 -41301818.65 -41301818.58 0.1703 0.1369
 Mercury -117790-09-19 05:32 J -41301113.39 -41301113.27 -41301113.15 0.1689 0.0371
 Mercury -117781-04-01 00:00 J -41297996.60 -41297996.50 -41297996.40 0.1827 0.1454
 Mercury -117780-02-08 15:22 J -41297682.98 -41297682.86 -41297682.74 0.1692 0.0067
 Mercury -117778-01-14 23:03 J -41296977.58 -41296977.54 -41296977.51 0.1680 0.1592
 Venus -117776-08-23 07:27 J -41296026.29 -41296026.19 -41296026.08 0.1742 0.1341
 Venus -117774-06-22 18:44 J -41295357.89 -41295357.72 -41295357.55 0.1725 0.0066
 Venus -117772-04-21 10:48 J -41294689.15 -41294689.05 -41294688.94 0.1709 0.1341
 Mercury -117772-08-21 21:36 J -41294566.75 -41294566.60 -41294566.45 0.1823 0.0571
 Venus -117771-04-08 13:56 J -41294337.04 -41294336.92 -41294336.81 0.1772 0.1341
 Mercury -117771-07-02 01:12 J -41294252.56 -41294252.45 -41294252.33 0.1695 0.0459
 Venus -117769-02-04 14:10 J -41293670.09 -41293669.91 -41293669.74 0.1791 0.0470
 Mercury -117769-06-06 09:22 J -41293547.20 -41293547.11 -41293547.03 0.1683 0.1210
 Mercury -117762-01-11 19:41 J -41291136.84 -41291136.68 -41291136.53 0.1818 0.0288
 Mercury -117762-11-22 11:03 J -41290822.15 -41290822.04 -41290821.94 0.1699 0.0882
 Mercury -117760-10-27 19:27 J -41290116.79 -41290116.69 -41290116.58 0.1686 0.0819
 Mercury -117753-06-02 18:00 J -41287706.87 -41287706.75 -41287706.62 0.1814 0.1114
 Mercury -117752-04-13 20:39 J -41287391.72 -41287391.64 -41287391.57 0.1702 0.1316

Mercury -117750-03-20 05:32 J -41286686.38 -41286686.27 -41286686.15 0.1689 0.0422
 Moon -117744-06-28 21:08 J -41284393.77 -41284393.62 -41284393.46 0.1701 0.0911
 Earth -117744-06-29 03:51 J -41284393.51 -41284393.34 -41284393.17 0.1701 0.0649 *
 Venus -117742-06-21 17:17 J -41283670.93 -41283670.78 -41283670.62 0.1732 0.0597
 Mercury -117742-10-01 00:44 J -41283569.55 -41283569.47 -41283569.38 0.1827 0.1543
 Mercury -117741-08-09 15:36 J -41283255.97 -41283255.85 -41283255.73 0.1692 0.0031
 Venus -117740-04-20 07:27 J -41283002.34 -41283002.19 -41283002.04 0.1715 0.0746
 Mercury -117739-07-15 23:03 J -41282550.56 -41282550.54 -41282550.52 0.1680 0.1640
 Earth -117737-01-08 01:56 J -41282009.62 -41282009.42 -41282009.22 0.1809 0.0226
 Moon -117737-01-08 03:22 J -41282009.54 -41282009.36 -41282009.17 0.1809 0.0165 *
 Venus -117737-02-04 05:46 J -41281982.44 -41281982.26 -41281982.09 0.1783 0.0405
 Venus -117736-12-02 00:58 J -41281315.55 -41281315.46 -41281315.36 0.1802 0.1515
 Mercury -117732-02-19 22:20 J -41280139.72 -41280139.57 -41280139.42 0.1823 0.0657
 Mercury -117732-12-31 01:12 J -41279825.56 -41279825.45 -41279825.33 0.1695 0.0411
 Mercury -117730-12-06 09:22 J -41279120.19 -41279120.11 -41279120.03 0.1683 0.1257
 Mercury -117723-07-12 20:10 J -41276709.81 -41276709.66 -41276709.50 0.1818 0.0209
 Mercury -117722-05-23 11:03 J -41276395.15 -41276395.04 -41276394.93 0.1699 0.0830
 Mercury -117720-04-27 19:27 J -41275689.79 -41275689.69 -41275689.59 0.1686 0.0866
 Mercury -117714-12-02 18:58 J -41273279.84 -41273279.71 -41273279.58 0.1814 0.1025
 Mercury -117713-10-12 20:39 J -41272964.72 -41272964.64 -41272964.56 0.1703 0.1266
 Mercury -117711-09-18 05:32 J -41272259.38 -41272259.27 -41272259.15 0.1689 0.0471
 Venus -117710-06-20 17:46 J -41271983.88 -41271983.76 -41271983.65 0.1739 0.1272
 Venus -117708-04-19 05:17 J -41271315.45 -41271315.28 -41271315.11 0.1722 0.0122
 Venus -117706-02-16 21:36 J -41270646.69 -41270646.60 -41270646.50 0.1706 0.1407
 Venus -117705-02-03 20:24 J -41270294.77 -41270294.65 -41270294.52 0.1775 0.1246
 Venus -117704-12-01 19:12 J -41269627.87 -41269627.70 -41269627.53 0.1794 0.0593
 Mercury -117702-04-01 01:12 J -41269142.52 -41269142.45 -41269142.37 0.1827 0.1622
 Mercury -117701-02-08 15:36 J -41268828.97 -41268828.85 -41268828.73 0.1692 0.0079
 Mercury -117693-08-20 22:48 J -41265712.70 -41265712.55 -41265712.40 0.1823 0.0732
 Mercury -117692-07-01 01:27 J -41265398.56 -41265398.44 -41265398.32 0.1695 0.0352

Mercury -117690-06-06 09:22 J -41264693.18 -41264693.11 -41264693.04 0.1683 0.1304
 Mercury -117683-01-10 21:08 J -41262282.78 -41262282.62 -41262282.46 0.1819 0.0116
 Mercury -117683-11-21 11:03 J -41261968.15 -41261968.04 -41261967.93 0.1699 0.0779
 Mercury -117681-10-26 19:41 J -41261262.78 -41261262.68 -41261262.58 0.1685 0.0917
 Venus -117676-04-18 03:36 J -41259628.51 -41259628.35 -41259628.18 0.1729 0.0525
 Venus -117674-02-15 18:29 J -41258959.88 -41258959.73 -41258959.59 0.1713 0.0811
 Mercury -117674-06-02 19:27 J -41258852.82 -41258852.69 -41258852.56 0.1814 0.0948
 Mercury -117673-04-12 20:39 J -41258537.73 -41258537.64 -41258537.56 0.1703 0.1214
 Venus -117672-12-01 11:46 J -41257940.19 -41257940.01 -41257939.84 0.1786 0.0298
 Mercury -117671-03-19 05:32 J -41257832.38 -41257832.27 -41257832.15 0.1689 0.0516
 Venus -117670-09-29 06:15 J -41257273.31 -41257273.24 -41257273.17 0.1805 0.1646
 Moon -117665-07-01 05:03 J -41255536.43 -41255536.29 -41255536.14 0.1704 0.1108
 Earth -117665-07-01 08:53 J -41255536.28 -41255536.13 -41255535.97 0.1704 0.0939 *
 Mercury -117665-10-22 18:29 J -41255422.77 -41255422.73 -41255422.69 0.1810 0.1737
 Mercury -117664-09-03 06:00 J -41255107.28 -41255107.25 -41255107.22 0.1706 0.1654
 Mercury -117663-09-30 02:10 J -41254715.47 -41254715.41 -41254715.36 0.1827 0.1710
 Mercury -117662-08-09 15:36 J -41254401.97 -41254401.85 -41254401.73 0.1692 0.0111
 Mercury -117653-02-19 23:32 J -41251285.66 -41251285.52 -41251285.37 0.1823 0.0822
 Mercury -117653-12-30 01:27 J -41250971.56 -41250971.44 -41250971.32 0.1696 0.0305
 Mercury -117651-12-05 09:22 J -41250266.18 -41250266.11 -41250266.04 0.1683 0.1350
 Venus -117644-04-17 03:22 J -41247941.48 -41247941.36 -41247941.24 0.1737 0.1193
 Mercury -117644-07-11 21:22 J -41247855.77 -41247855.61 -41247855.45 0.1818 0.0051
 Mercury -117643-05-22 11:03 J -41247541.15 -41247541.04 -41247540.93 0.1699 0.0730
 Venus -117642-02-14 15:36 J -41247273.02 -41247272.85 -41247272.68 0.1720 0.0192
 Mercury -117641-04-26 19:27 J -41246835.78 -41246835.69 -41246835.59 0.1686 0.0960
 Venus -117641-12-14 09:22 J -41246604.19 -41246604.11 -41246604.03 0.1704 0.1464
 Venus -117640-12-01 02:24 J -41246252.53 -41246252.40 -41246252.26 0.1777 0.1146
 Venus -117638-09-29 00:29 J -41245585.65 -41245585.48 -41245585.32 0.1797 0.0718
 Mercury -117635-12-01 19:56 J -41244425.80 -41244425.67 -41244425.53 0.1814 0.0869
 Mercury -117634-10-12 20:39 J -41244110.73 -41244110.64 -41244110.55 0.1702 0.1159

Mercury -117632-09-17 05:46 J -41243405.38 -41243405.26 -41243405.15 0.1689 0.0568

Mercury -117625-04-22 19:12 J -41240995.76 -41240995.70 -41240995.64 0.1810 0.1656

Mercury -117624-03-04 06:00 J -41240680.29 -41240680.25 -41240680.21 0.1706 0.1603

Mercury -117623-03-31 02:39 J -41240288.41 -41240288.39 -41240288.36 0.1827 0.1794

Mercury -117622-02-07 15:36 J -41239974.97 -41239974.85 -41239974.73 0.1692 0.0163

Mercury -117614-08-21 00:15 J -41236858.63 -41236858.49 -41236858.35 0.1823 0.0908

Mercury -117613-06-30 01:27 J -41236544.56 -41236544.44 -41236544.32 0.1695 0.0256

Mercury -117611-06-05 09:22 J -41235839.17 -41235839.11 -41235839.05 0.1683 0.1395

Venus -117610-02-13 13:41 J -41235586.09 -41235585.93 -41235585.77 0.1727 0.0448

Venus -117609-12-13 05:32 J -41234917.41 -41234917.27 -41234917.12 0.1711 0.0874

Venus -117606-09-28 17:03 J -41233897.97 -41233897.79 -41233897.61 0.1789 0.0183

Mercury -117604-01-09 22:05 J -41233428.74 -41233428.58 -41233428.42 0.1819 0.0058

Venus -117604-07-26 10:20 J -41233231.09 -41233231.07 -41233231.05 0.1808 0.1792

Mercury -117604-11-20 11:17 J -41233114.15 -41233114.03 -41233113.92 0.1699 0.0680

Mercury -117602-10-26 19:41 J -41232408.78 -41232408.68 -41232408.59 0.1686 0.1010

Mercury -117595-06-01 20:39 J -41229998.78 -41229998.64 -41229998.50 0.1814 0.0788

Mercury -117594-04-12 20:39 J -41229683.73 -41229683.64 -41229683.55 0.1703 0.1111

Mercury -117592-03-18 05:46 J -41228978.38 -41228978.26 -41228978.15 0.1689 0.0614

Mercury -117586-10-22 19:41 J -41226568.76 -41226568.68 -41226568.61 0.1810 0.1583

Mercury -117585-09-02 06:15 J -41226253.29 -41226253.24 -41226253.19 0.1706 0.1545

Mercury -117583-08-08 15:36 J -41225547.97 -41225547.85 -41225547.73 0.1692 0.0214

Venus -117578-02-12 13:27 J -41223899.07 -41223898.94 -41223898.81 0.1734 0.1120

Venus -117577-12-12 02:24 J -41223230.56 -41223230.40 -41223230.23 0.1718 0.0264

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 Moon -117381-07-02 07:41 J -41151804.27 -41151804.18 -41151804.09 0.1699 0.1445 *
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Venus -117374-01-14 19:12 J -41149416.82 -41149416.70 -41149416.57 0.1807 0.1267

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Venus -117347-06-02 08:39 J -41139416.31 -41139416.14 -41139415.97 0.1718 0.0181

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 Mercury -117180-01-19 16:05 J -41078552.89 -41078552.83 -41078552.77 0.1710 0.1471
 Mercury -117179-02-15 07:27 J -41078161.21 -41078161.19 -41078161.18 0.1823 0.1808
 Venus -117179-09-07 17:32 J -41077956.94 -41077956.77 -41077956.59 0.1797 0.0356
 Mercury -117179-12-26 01:56 J -41077847.54 -41077847.42 -41077847.30 0.1696 0.0286
 Venus -117177-07-05 07:56 J -41077290.23 -41077290.17 -41077290.11 0.1815 0.1710
 Moon -117176-07-01 02:10 J -41076929.60 -41076929.41 -41076929.21 0.1693 0.0182
 Earth -117176-07-01 03:08 J -41076929.55 -41076929.37 -41076929.18 0.1693 0.0037 *
 Mercury -117170-07-08 04:48 J -41074731.43 -41074731.30 -41074731.16 0.1819 0.0930
 Moon -117169-01-07 04:48 J -41074548.43 -41074548.30 -41074548.16 0.1821 0.1257
 Earth -117169-01-07 12:44 J -41074548.16 -41074547.97 -41074547.79 0.1821 0.0774 *
 Mercury -117169-05-17 11:46 J -41074417.13 -41074417.01 -41074416.89 0.1699 0.0124
 Mercury -117167-04-22 19:56 J -41073711.72 -41073711.67 -41073711.62 0.1686 0.1518
 Mercury -117161-11-27 03:22 J -41071301.52 -41071301.36 -41071301.20 0.1815 0.0103
 Mercury -117160-10-07 21:22 J -41070986.72 -41070986.61 -41070986.49 0.1703 0.0546
 Mercury -117158-09-13 06:00 J -41070281.33 -41070281.25 -41070281.16 0.1689 0.1136
 Venus -117151-01-23 02:24 J -41067957.50 -41067957.40 -41067957.30 0.1727 0.1355
 Mercury -117151-04-19 02:10 J -41067871.56 -41067871.41 -41067871.27 0.1810 0.0716
 Mercury -117150-02-28 06:44 J -41067556.31 -41067556.22 -41067556.12 0.1706 0.0982
 Venus -117150-11-22 17:03 J -41067288.95 -41067288.79 -41067288.62 0.1711 0.0053
 Mercury -117148-02-02 16:05 J -41066850.94 -41066850.83 -41066850.72 0.1692 0.0738
 Venus -117148-09-21 12:44 J -41066620.08 -41066619.97 -41066619.87 0.1696 0.1309
 Venus -117147-09-07 10:34 J -41066269.18 -41066269.06 -41066268.93 0.1788 0.1262
 Venus -117145-07-05 03:51 J -41065602.50 -41065602.34 -41065602.17 0.1808 0.0729
 Mercury -117142-09-09 01:12 J -41064441.53 -41064441.45 -41064441.36 0.1805 0.1494
 Mercury -117141-07-20 16:05 J -41064125.89 -41064125.83 -41064125.76 0.1710 0.1420
 Mercury -117139-06-26 01:56 J -41063420.54 -41063420.42 -41063420.30 0.1696 0.0338
 Mercury -117130-01-06 05:46 J -41060304.39 -41060304.26 -41060304.13 0.1819 0.1020
 Mercury -117130-11-16 11:46 J -41059990.13 -41059990.01 -41059989.89 0.1699 0.0076
 Mercury -117128-10-21 19:56 J -41059284.71 -41059284.67 -41059284.63 0.1686 0.1564

Mercury -117121-05-28 03:51 J -41056874.50 -41056874.34 -41056874.18 0.1814 0.0171
 Mercury -117120-04-07 21:22 J -41056559.73 -41056559.61 -41056559.49 0.1703 0.0499
 Mercury -117118-03-14 06:00 J -41055854.34 -41055854.25 -41055854.17 0.1689 0.1177
 Venus -117118-11-21 14:24 J -41055602.05 -41055601.90 -41055601.74 0.1718 0.0618
 Venus -117116-09-20 08:10 J -41054933.31 -41054933.16 -41054933.00 0.1702 0.0711
 Venus -117113-07-04 23:17 J -41053914.71 -41053914.53 -41053914.35 0.1799 0.0234
 Mercury -117112-10-18 02:39 J -41053444.54 -41053444.39 -41053444.25 0.1810 0.0644
 Mercury -117111-08-29 06:58 J -41053129.31 -41053129.21 -41053129.11 0.1706 0.0924
 Mercury -117109-08-03 16:05 J -41052423.94 -41052423.83 -41052423.72 0.1692 0.0787
 Mercury -117102-03-10 01:56 J -41050014.52 -41050014.42 -41050014.33 0.1805 0.1415
 Mercury -117101-01-19 16:20 J -41049698.89 -41049698.82 -41049698.75 0.1710 0.1368
 Mercury -117100-12-25 02:10 J -41048993.53 -41048993.41 -41048993.30 0.1695 0.0390
 Earth -117097-07-03 07:41 J -41048072.25 -41048072.18 -41048072.10 0.1695 0.1546
 Mercury -117091-07-07 06:29 J -41045877.36 -41045877.23 -41045877.11 0.1819 0.1101
 Mercury -117090-05-17 11:46 J -41045563.13 -41045563.01 -41045562.89 0.1699 0.0030
 Mercury -117088-04-21 19:56 J -41044857.70 -41044857.67 -41044857.64 0.1686 0.1608
 Venus -117086-11-20 12:44 J -41043915.08 -41043914.97 -41043914.86 0.1725 0.1282
 Venus -117084-09-19 04:20 J -41043246.49 -41043246.32 -41043246.16 0.1709 0.0101
 Venus -117082-07-20 00:44 J -41042577.57 -41042577.47 -41042577.37 0.1694 0.1366
 Mercury -117082-11-27 04:34 J -41042447.47 -41042447.31 -41042447.15 0.1814 0.0256
 Venus -117081-07-04 16:05 J -41042226.97 -41042226.83 -41042226.69 0.1791 0.1148
 Mercury -117081-10-06 21:22 J -41042132.72 -41042132.61 -41042132.49 0.1703 0.0452
 Venus -117079-05-02 08:39 J -41041560.30 -41041560.14 -41041559.98 0.1810 0.0866
 Mercury -117079-09-12 06:00 J -41041427.33 -41041427.25 -41041427.17 0.1689 0.1225
 Mercury -117072-04-18 03:08 J -41039017.52 -41039017.37 -41039017.22 0.1810 0.0562
 Mercury -117071-02-27 06:58 J -41038702.32 -41038702.21 -41038702.11 0.1707 0.0879
 Mercury -117069-02-02 16:05 J -41037996.93 -41037996.83 -41037996.72 0.1692 0.0833
 Mercury -117063-09-08 02:24 J -41035587.50 -41035587.40 -41035587.30 0.1805 0.1342
 Mercury -117062-07-20 16:20 J -41035271.89 -41035271.82 -41035271.74 0.1710 0.1313
 Mercury -117060-06-25 01:56 J -41034566.53 -41034566.42 -41034566.30 0.1696 0.0437

Venus -117052-09-18 01:12 J -41031559.61 -41031559.45 -41031559.29 0.1715 0.0548

Mercury -117051-01-05 06:58 J -41031450.33 -41031450.21 -41031450.09 0.1819 0.1174

Mercury -117051-11-15 12:00 J -41031136.13 -41031136.00 -41031135.88 0.1699 0.0061

Venus -117050-07-18 19:41 J -41030890.83 -41030890.68 -41030890.53 0.1700 0.0774

Mercury -117049-10-20 19:56 J -41030430.69 -41030430.67 -41030430.65 0.1686 0.1653

Venus -117047-05-02 03:51 J -41029872.52 -41029872.34 -41029872.16 0.1802 0.0101

Mercury -117042-05-28 05:03 J -41028020.44 -41028020.29 -41028020.13 0.1815 0.0335

Mercury -117041-04-06 21:36 J -41027705.72 -41027705.60 -41027705.49 0.1703 0.0402

Mercury -117039-03-13 06:00 J -41027000.32 -41027000.25 -41027000.17 0.1689 0.1273

Mercury -117033-10-17 04:05 J -41024590.49 -41024590.33 -41024590.18 0.1810 0.0477

Mercury -117032-08-28 06:58 J -41024275.31 -41024275.21 -41024275.10 0.1706 0.0827

Mercury -117030-08-03 16:05 J -41023569.93 -41023569.83 -41023569.72 0.1692 0.0882

Mercury -117023-03-09 02:53 J -41021160.49 -41021160.38 -41021160.27 0.1805 0.1266

Mercury -117022-01-18 16:20 J -41020844.90 -41020844.82 -41020844.74 0.1710 0.1265

Mercury -117021-12-24 02:10 J -41020139.53 -41020139.41 -41020139.30 0.1696 0.0482

Venus -117020-09-16 23:17 J -41019872.65 -41019872.53 -41019872.41 0.1723 0.1210

Venus -117018-07-17 15:22 J -41019204.03 -41019203.86 -41019203.70 0.1707 0.0167

Venus -117016-05-16 12:29 J -41018535.07 -41018534.98 -41018534.89 0.1692 0.1425

Venus -117015-05-01 21:22 J -41018184.76 -41018184.61 -41018184.46 0.1794 0.1030

Venus -117013-02-27 12:29 J -41017518.13 -41017517.98 -41017517.84 0.1813 0.1022

Mercury -117013-06-10 01:41 J -41017414.44 -41017414.43 -41017414.43 0.1714 0.1713

Mercury -117012-07-06 07:27 J -41017023.30 -41017023.19 -41017023.07 0.1819 0.1257

Mercury -117011-05-16 11:46 J -41016709.13 -41016709.01 -41016708.89 0.1699 0.0081

Mercury -117003-11-26 05:46 J -41013593.41 -41013593.26 -41013593.10 0.1814 0.0416

Mercury -117002-10-06 21:36 J -41013278.72 -41013278.60 -41013278.48 0.1703 0.0347

117TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 117th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -117000-09-11 06:00 J | -41012573.32 | -41012573.25 | -41012573.17 | 0.1689 | 0.1318 | | |
| Mercury | -116993-04-17 04:20 J | -41010163.48 | -41010163.32 | -41010163.17 | 0.1810 | 0.0414 | | |
| Mercury | -116992-02-26 07:12 J | -41009848.31 | -41009848.20 | -41009848.09 | 0.1706 | 0.0774 | | |
| Mercury | -116990-02-01 16:05 J | -41009142.93 | -41009142.83 | -41009142.73 | 0.1692 | 0.0929 | | |
| Venus | -116986-07-16 12:15 J | -41007517.15 | -41007516.99 | -41007516.83 | 0.1713 | 0.0482 | | |
| Venus | -116984-05-15 07:12 J | -41006848.34 | -41006848.20 | -41006848.05 | 0.1698 | 0.0836 | | |
| Mercury | -116984-09-07 03:36 J | -41006733.46 | -41006733.35 | -41006733.23 | 0.1805 | 0.1184 | | |
| Mercury | -116983-07-19 16:34 J | -41006417.90 | -41006417.81 | -41006417.73 | 0.1710 | 0.1213 | | |
| Venus | -116981-02-27 08:39 J | -41005830.32 | -41005830.14 | -41005829.96 | 0.1805 | 0.0046 | | |
| Mercury | -116981-06-24 02:10 J | -41005712.53 | -41005712.41 | -41005712.30 | 0.1695 | 0.0529 | | |
| Mercury | -116974-12-10 01:41 J | -41002987.46 | -41002987.43 | -41002987.40 | 0.1714 | 0.1659 | | |
| Mercury | -116972-01-04 08:24 J | -41002596.25 | -41002596.15 | -41002596.04 | 0.1819 | 0.1346 | | |
| Mercury | -116972-11-14 12:00 J | -41002282.12 | -41002282.00 | -41002281.88 | 0.1699 | 0.0125 | | |
| Earth | -116971-06-29 23:32 J | -41002054.65 | -41002054.52 | -41002054.38 | 0.1687 | 0.1140 | | |
| Moon | -116971-06-30 00:58 J | -41002054.60 | -41002054.46 | -41002054.32 | 0.1687 | 0.0934 | * | |
| Mercury | -116963-05-27 06:15 J | -40999166.39 | -40999166.24 | -40999166.08 | 0.1814 | 0.0492 | | |
| Mercury | -116962-04-06 21:36 J | -40998851.72 | -40998851.60 | -40998851.48 | 0.1703 | 0.0299 | | |
| Mercury | -116960-03-12 06:00 J | -40998146.32 | -40998146.25 | -40998146.18 | 0.1689 | 0.1362 | | |
| Venus | -116954-07-15 09:51 J | -40995830.22 | -40995830.09 | -40995829.96 | 0.1720 | 0.1139 | | |
| Mercury | -116954-10-17 05:03 J | -40995736.44 | -40995736.29 | -40995736.13 | 0.1810 | 0.0324 | | |
| Mercury | -116953-08-27 07:12 J | -40995421.31 | -40995421.20 | -40995421.09 | 0.1707 | 0.0727 | | |
| Venus | -116952-05-14 02:53 J | -40995161.55 | -40995161.38 | -40995161.21 | 0.1704 | 0.0224 | | |

Mercury -116951-08-02 16:05 J -40994715.92 -40994715.83 -40994715.73 0.1692 0.0975
 Venus -116950-03-14 00:00 J -40994492.58 -40994492.50 -40994492.42 0.1691 0.1486
 Venus -116949-02-27 02:10 J -40994142.56 -40994142.41 -40994142.25 0.1797 0.0907
 Venus -116948-12-24 16:34 J -40993475.94 -40993475.81 -40993475.67 0.1815 0.1169
 Mercury -116944-03-08 03:51 J -40992306.46 -40992306.34 -40992306.21 0.1805 0.1118
 Mercury -116943-01-17 16:34 J -40991990.90 -40991990.81 -40991990.72 0.1711 0.1161
 Mercury -116942-12-24 02:10 J -40991285.52 -40991285.41 -40991285.30 0.1696 0.0575
 Mercury -116934-06-10 01:56 J -40988560.46 -40988560.42 -40988560.38 0.1714 0.1604
 Mercury -116933-07-05 08:39 J -40988169.24 -40988169.14 -40988169.04 0.1819 0.1412
 Mercury -116932-05-15 12:00 J -40987855.12 -40987855.00 -40987854.88 0.1699 0.0170
 Mercury -116924-11-25 07:12 J -40984739.35 -40984739.20 -40984739.05 0.1815 0.0577
 Mercury -116923-10-05 21:36 J -40984424.72 -40984424.60 -40984424.48 0.1703 0.0253
 Mercury -116921-09-10 06:15 J -40983719.31 -40983719.24 -40983719.18 0.1689 0.1410
 Venus -116920-05-12 23:17 J -40983474.70 -40983474.53 -40983474.37 0.1711 0.0413
 Venus -116918-03-12 18:29 J -40982805.87 -40982805.73 -40982805.59 0.1696 0.0901
 Venus -116916-12-24 12:44 J -40981788.15 -40981787.97 -40981787.79 0.1807 0.0178
 Mercury -116914-04-17 05:32 J -40981309.42 -40981309.27 -40981309.11 0.1810 0.0248
 Mercury -116913-02-26 07:12 J -40980994.31 -40980994.20 -40980994.09 0.1707 0.0677
 Mercury -116911-01-31 16:05 J -40980288.92 -40980288.83 -40980288.73 0.1692 0.1020
 Mercury -116905-09-06 04:48 J -40977879.43 -40977879.30 -40977879.18 0.1805 0.1034
 Mercury -116904-07-18 16:34 J -40977563.90 -40977563.81 -40977563.72 0.1710 0.1109
 Mercury -116902-06-24 02:10 J -40976858.52 -40976858.41 -40976858.30 0.1696 0.0624
 Mercury -116895-01-27 04:20 J -40974449.34 -40974449.32 -40974449.31 0.1800 0.1790
 Mercury -116895-12-09 01:41 J -40974133.47 -40974133.43 -40974133.38 0.1714 0.1557
 Mercury -116893-01-04 09:36 J -40973742.19 -40973742.10 -40973742.01 0.1819 0.1501
 Mercury -116893-11-13 12:00 J -40973428.12 -40973428.00 -40973427.88 0.1699 0.0216
 Moon -116892-07-01 22:34 J -40973197.74 -40973197.56 -40973197.38 0.1689 0.0103
 Earth -116892-07-02 03:36 J -40973197.53 -40973197.35 -40973197.17 0.1689 0.0362 *
 Venus -116888-05-11 20:24 J -40971787.78 -40971787.65 -40971787.52 0.1718 0.1064
 Venus -116886-03-11 13:41 J -40971119.10 -40971118.93 -40971118.77 0.1702 0.0295

Earth -116885-01-07 02:24 J -40970817.53 -40970817.40 -40970817.27 0.1826 0.1409
 Moon -116885-01-07 12:15 J -40970817.12 -40970816.99 -40970816.86 0.1826 0.1402
 Venus -116884-01-08 11:46 J -40970450.07 -40970450.01 -40970449.94 0.1689 0.1546
 Mercury -116884-05-26 07:27 J -40970312.34 -40970312.19 -40970312.04 0.1814 0.0646
 Venus -116884-12-24 06:58 J -40970100.37 -40970100.21 -40970100.05 0.1799 0.0780
 Mercury -116883-04-05 21:36 J -40969997.72 -40969997.60 -40969997.48 0.1703 0.0205
 Venus -116882-10-21 20:24 J -40969433.77 -40969433.65 -40969433.52 0.1818 0.1326
 Mercury -116881-03-11 06:00 J -40969292.30 -40969292.25 -40969292.19 0.1689 0.1452
 Mercury -116875-10-16 06:00 J -40966882.40 -40966882.25 -40966882.09 0.1810 0.0178
 Mercury -116874-08-27 07:27 J -40966567.31 -40966567.19 -40966567.08 0.1706 0.0624
 Mercury -116872-08-01 16:20 J -40965861.91 -40965861.82 -40965861.73 0.1692 0.1068
 Mercury -116865-03-07 05:17 J -40963452.41 -40963452.28 -40963452.15 0.1805 0.0955
 Mercury -116864-01-16 16:34 J -40963136.90 -40963136.81 -40963136.71 0.1710 0.1060
 Mercury -116863-12-23 02:10 J -40962431.52 -40962431.41 -40962431.30 0.1696 0.0674
 Mercury -116856-07-28 04:48 J -40960022.35 -40960022.30 -40960022.26 0.1801 0.1715
 Mercury -116855-06-09 01:55 J -40959706.48 -40959706.42 -40959706.36 0.1714 0.1502
 Venus -116854-03-10 10:05 J -40959432.25 -40959432.08 -40959431.92 0.1709 0.0343
 Mercury -116854-07-05 10:19 J -40959315.15 -40959315.07 -40959315.00 0.1819 0.1581
 Mercury -116853-05-14 12:00 J -40959001.12 -40959001.00 -40959000.88 0.1699 0.0263
 Venus -116852-01-07 06:00 J -40958763.39 -40958763.25 -40958763.11 0.1694 0.0965
 Venus -116852-12-24 00:29 J -40958412.53 -40958412.48 -40958412.43 0.1791 0.1697
 Venus -116850-10-21 17:17 J -40957745.95 -40957745.78 -40957745.60 0.1810 0.0318
 Mercury -116845-11-24 08:10 J -40955885.30 -40955885.16 -40955885.01 0.1814 0.0733
 Mercury -116844-10-04 21:51 J -40955570.71 -40955570.59 -40955570.47 0.1703 0.0155
 Mercury -116842-09-10 06:15 J -40954865.29 -40954865.24 -40954865.19 0.1689 0.1499
 Mercury -116835-04-16 06:43 J -40952455.38 -40952455.22 -40952455.06 0.1810 0.0095
 Mercury -116834-02-25 07:12 J -40952140.31 -40952140.20 -40952140.08 0.1707 0.0578
 Mercury -116832-01-30 16:19 J -40951434.91 -40951434.82 -40951434.73 0.1692 0.1112
 Mercury -116826-09-06 05:46 J -40949025.40 -40949025.26 -40949025.13 0.1805 0.0885
 Mercury -116825-07-17 16:48 J -40948709.90 -40948709.80 -40948709.70 0.1710 0.1006

Mercury -116823-06-23 02:10 J -40948004.52 -40948004.41 -40948004.30 0.1696 0.0717

Venus -116822-03-09 06:58 J -40947745.35 -40947745.21 -40947745.07 0.1715 0.0993

Venus -116820-01-06 01:27 J -40947076.61 -40947076.44 -40947076.28 0.1700 0.0356

Venus -116819-11-05 23:46 J -40946407.56 -40946407.51 -40946407.46 0.1687 0.1605

Venus -116818-10-21 12:15 J -40946058.15 -40946057.99 -40946057.82 0.1802 0.0656

Mercury -116816-01-26 05:17 J -40945595.34 -40945595.28 -40945595.22 0.1801 0.1641

Venus -116816-08-18 00:43 J -40945391.57 -40945391.47 -40945391.36 0.1820 0.1477

Mercury -116816-12-08 01:55 J -40945279.48 -40945279.42 -40945279.35 0.1714 0.1450

Mercury -116814-01-03 10:48 J -40944888.12 -40944888.05 -40944887.99 0.1819 0.1655

Mercury -116814-11-13 12:15 J -40944574.11 -40944573.99 -40944573.88 0.1699 0.0319

Earth -116806-01-10 10:34 J -40941959.15 -40941959.06 -40941958.97 0.1822 0.1626

Mercury -116805-05-25 08:53 J -40941458.27 -40941458.13 -40941457.99 0.1815 0.0810

Mercury -116804-04-04 21:51 J -40941143.71 -40941143.59 -40941143.47 0.1703 0.0104

Mercury -116802-03-11 06:15 J -40940438.29 -40940438.24 -40940438.19 0.1689 0.1545

Mercury -116796-10-15 07:27 J -40938028.35 -40938028.19 -40938028.03 0.1810 0.0025

Mercury -116795-08-26 07:27 J -40937713.31 -40937713.19 -40937713.08 0.1706 0.0525

Mercury -116793-07-31 16:19 J -40937007.91 -40937007.82 -40937007.73 0.1692 0.1158

Venus -116790-03-08 04:48 J -40936058.34 -40936058.30 -40936058.26 0.1722 0.1665

Venus -116788-01-04 21:07 J -40935389.78 -40935389.62 -40935389.45 0.1707 0.0278

Venus -116787-11-04 17:46 J -40934720.89 -40934720.76 -40934720.62 0.1692 0.1024

Mercury -116786-03-07 06:15 J -40934598.38 -40934598.24 -40934598.10 0.1805 0.0808

Venus -116786-10-21 05:46 J -40934370.34 -40934370.26 -40934370.18 0.1794 0.1583

Mercury -116785-01-16 16:48 J -40934282.90 -40934282.80 -40934282.70 0.1710 0.0959

Venus -116784-08-17 21:36 J -40933703.78 -40933703.60 -40933703.43 0.1813 0.0462

Mercury -116784-12-22 02:10 J -40933577.51 -40933577.41 -40933577.30 0.1696 0.0765

Mercury -116777-07-27 05:46 J -40931168.33 -40931168.26 -40931168.18 0.1801 0.1566

Mercury -116776-06-08 01:55 J -40930852.48 -40930852.42 -40930852.35 0.1715 0.1401

Mercury -116775-07-04 11:31 J -40930461.07 -40930461.02 -40930460.98 0.1819 0.1738

Mercury -116774-05-14 12:00 J -40930147.11 -40930147.00 -40930146.88 0.1699 0.0364

Mercury -116766-11-24 09:36 J -40927031.24 -40927031.10 -40927030.96 0.1814 0.0889

Mercury -116765-10-03 21:51 J -40926716.71 -40926716.59 -40926716.47 0.1703 0.0054

Mercury -116763-09-09 06:15 J -40926011.28 -40926011.24 -40926011.20 0.1689 0.1588

Venus -116756-01-03 17:46 J -40923702.90 -40923702.76 -40923702.62 0.1713 0.0921

Mercury -116756-04-15 07:41 J -40923601.33 -40923601.18 -40923601.02 0.1810 0.0069

Mercury -116755-02-24 07:27 J -40923286.31 -40923286.19 -40923286.07 0.1706 0.0473

Venus -116755-11-03 12:43 J -40923034.14 -40923033.97 -40923033.81 0.1698 0.0419

Mercury -116753-01-30 16:19 J -40922580.90 -40922580.82 -40922580.74 0.1692 0.1204

Venus -116753-09-02 11:31 J -40922365.04 -40922365.02 -40922364.99 0.1685 0.1664

Venus -116752-08-17 16:48 J -40922015.97 -40922015.80 -40922015.62 0.1805 0.0521

Venus -116750-06-15 04:19 J -40921349.40 -40921349.32 -40921349.25 0.1823 0.1641

Mercury -116747-09-05 07:12 J -40920171.35 -40920171.20 -40920171.06 0.1805 0.0725

Mercury -116746-07-17 16:48 J -40919855.90 -40919855.80 -40919855.70 0.1710 0.0907

Mercury -116744-06-22 02:24 J -40919150.51 -40919150.40 -40919150.30 0.1696 0.0813

Mercury -116737-01-26 06:29 J -40916741.32 -40916741.23 -40916741.15 0.1801 0.1488

Mercury -116737-12-07 02:10 J -40916425.49 -40916425.41 -40916425.34 0.1714 0.1347

Mercury -116735-11-12 12:15 J -40915720.11 -40915719.99 -40915719.88 0.1699 0.0410

Mercury -116726-05-25 10:05 J -40912604.22 -40912604.08 -40912603.95 0.1814 0.0964

Mercury -116725-04-03 21:51 J -40912289.71 -40912289.59 -40912289.47 0.1703 0.0021

Venus -116724-01-02 15:51 J -40912015.90 -40912015.84 -40912015.78 0.1720 0.1595

Mercury -116723-03-10 06:15 J -40911584.27 -40911584.24 -40911584.21 0.1689 0.1631

Venus -116723-11-02 08:10 J -40911347.32 -40911347.16 -40911346.99 0.1705 0.0212

Venus -116721-09-01 05:17 J -40910678.40 -40910678.28 -40910678.15 0.1690 0.1087

Venus -116720-08-17 11:17 J -40910328.13 -40910328.03 -40910327.93 0.1796 0.1470

Venus -116718-06-15 01:41 J -40909661.60 -40909661.43 -40909661.26 0.1815 0.0613

Mercury -116717-10-14 08:39 J -40909174.30 -40909174.14 -40909173.98 0.1810 0.0144

Mercury -116716-08-25 07:27 J -40908859.31 -40908859.19 -40908859.07 0.1707 0.0427

Mercury -116714-07-31 16:19 J -40908153.90 -40908153.82 -40908153.74 0.1692 0.1249

Mercury -116707-03-06 07:27 J -40905744.34 -40905744.19 -40905744.05 0.1805 0.0657

Mercury -116706-01-15 17:03 J -40905428.90 -40905428.79 -40905428.69 0.1711 0.0856

Mercury -116705-12-21 02:24 J -40904723.51 -40904723.40 -40904723.30 0.1696 0.0858

Mercury -116698-07-27 06:58 J -40902314.31 -40902314.21 -40902314.12 0.1801 0.1416

Mercury -116697-06-07 02:10 J -40901998.49 -40901998.41 -40901998.33 0.1714 0.1294

Mercury -116695-05-13 12:15 J -40901293.11 -40901292.99 -40901292.87 0.1699 0.0457

Venus -116691-11-01 04:48 J -40899660.44 -40899660.30 -40899660.15 0.1711 0.0856

Venus -116689-08-31 00:15 J -40898991.65 -40898991.49 -40898991.32 0.1696 0.0481

Earth -116687-07-01 01:12 J -40898322.61 -40898322.45 -40898322.29 0.1684 0.0768

Moon -116687-07-01 04:19 J -40898322.50 -40898322.32 -40898322.14 0.1684 0.0558 *

Mercury -116687-11-23 10:48 J -40898177.18 -40898177.05 -40898176.92 0.1815 0.1051

Venus -116686-06-14 22:05 J -40897973.75 -40897973.58 -40897973.40 0.1807 0.0394

Mercury -116686-10-03 21:51 J -40897862.71 -40897862.59 -40897862.46 0.1703 0.0071

Venus -116684-04-11 07:55 J -40897307.19 -40897307.17 -40897307.15 0.1825 0.1804

Mercury -116684-09-08 06:15 J -40897157.25 -40897157.24 -40897157.23 0.1689 0.1679

Mercury -116677-04-14 09:07 J -40894747.27 -40894747.12 -40894746.96 0.1810 0.0222

Mercury -116676-02-23 07:27 J -40894432.31 -40894432.19 -40894432.07 0.1707 0.0379

Mercury -116674-01-29 16:19 J -40893726.89 -40893726.82 -40893726.74 0.1692 0.1295

Mercury -116668-09-04 08:10 J -40891317.31 -40891317.16 -40891317.01 0.1805 0.0574

Mercury -116667-07-16 17:03 J -40891001.90 -40891001.79 -40891001.68 0.1710 0.0805

Mercury -116665-06-21 02:24 J -40890296.50 -40890296.40 -40890296.30 0.1696 0.0904

Venus -116659-10-31 02:10 J -40887973.48 -40887973.41 -40887973.33 0.1718 0.1523

Mercury -116658-01-25 07:27 J -40887887.29 -40887887.19 -40887887.09 0.1801 0.1341

Mercury -116658-12-07 02:10 J -40887571.49 -40887571.41 -40887571.32 0.1715 0.1247

Venus -116657-08-29 19:41 J -40887304.85 -40887304.68 -40887304.51 0.1702 0.0143

Mercury -116656-11-11 12:15 J -40886866.11 -40886865.99 -40886865.88 0.1699 0.0502

Venus -116655-06-29 17:31 J -40886635.90 -40886635.77 -40886635.65 0.1689 0.1143

Venus -116654-06-14 16:19 J -40886285.93 -40886285.82 -40886285.70 0.1799 0.1349

Venus -116652-04-11 05:46 J -40885619.43 -40885619.26 -40885619.10 0.1818 0.0764

Mercury -116648-04-28 11:17 J -40884141.04 -40884141.03 -40884141.01 0.1718 0.1694

Mercury -116647-05-24 11:17 J -40883750.16 -40883750.03 -40883749.91 0.1814 0.1119

Mercury -116646-04-03 21:51 J -40883435.71 -40883435.59 -40883435.46 0.1703 0.0114

Mercury -116638-10-14 09:51 J -40880320.25 -40880320.09 -40880319.94 0.1810 0.0300

Mercury -116637-08-24 07:41 J -40880005.30 -40880005.18 -40880005.06 0.1706 0.0323
 Mercury -116635-07-30 16:34 J -40879299.89 -40879299.81 -40879299.74 0.1692 0.1344
 Mercury -116628-03-05 08:39 J -40876890.29 -40876890.14 -40876889.98 0.1805 0.0500
 Mercury -116627-01-14 17:03 J -40876574.90 -40876574.79 -40876574.68 0.1710 0.0757
 Mercury -116626-12-21 02:24 J -40875869.50 -40875869.40 -40875869.30 0.1696 0.0951
 Venus -116625-08-28 15:51 J -40875617.99 -40875617.84 -40875617.69 0.1709 0.0787
 Venus -116623-06-28 11:46 J -40874949.16 -40874949.01 -40874948.85 0.1694 0.0544
 Venus -116620-04-11 02:10 J -40873931.58 -40873931.41 -40873931.23 0.1810 0.0252
 Mercury -116619-07-26 07:55 J -40873460.27 -40873460.17 -40873460.06 0.1801 0.1267
 Mercury -116618-06-07 02:24 J -40873144.49 -40873144.40 -40873144.32 0.1714 0.1195
 Mercury -116616-05-12 12:15 J -40872439.10 -40872438.99 -40872438.88 0.1699 0.0549
 Mercury -116609-10-27 11:17 J -40869714.06 -40869714.03 -40869713.99 0.1719 0.1645
 Earth -116608-07-03 04:48 J -40869465.47 -40869465.30 -40869465.14 0.1685 0.0706
 Moon -116608-07-03 11:31 J -40869465.19 -40869465.02 -40869464.85 0.1686 0.0722 *
 Mercury -116608-11-22 12:00 J -40869323.12 -40869323.00 -40869322.88 0.1814 0.1206
 Mercury -116607-10-02 22:05 J -40869008.70 -40869008.58 -40869008.46 0.1703 0.0142
 Mercury -116598-04-14 10:19 J -40865893.22 -40865893.07 -40865892.91 0.1810 0.0374
 Mercury -116597-02-23 07:41 J -40865578.30 -40865578.18 -40865578.06 0.1707 0.0285
 Mercury -116595-01-28 16:19 J -40864872.88 -40864872.82 -40864872.75 0.1692 0.1386
 Venus -116593-08-27 13:12 J -40863931.04 -40863930.95 -40863930.86 0.1716 0.1453
 Venus -116591-06-27 06:43 J -40863262.38 -40863262.22 -40863262.05 0.1700 0.0090
 Venus -116589-04-26 05:17 J -40862593.39 -40862593.28 -40862593.16 0.1687 0.1204
 Mercury -116589-09-03 09:07 J -40862463.27 -40862463.12 -40862462.97 0.1805 0.0428
 Venus -116588-04-10 21:07 J -40862243.75 -40862243.62 -40862243.49 0.1802 0.1222
 Mercury -116588-07-15 17:03 J -40862147.90 -40862147.79 -40862147.67 0.1710 0.0706
 Venus -116586-02-06 09:07 J -40861577.28 -40861577.12 -40861576.96 0.1820 0.0929
 Mercury -116586-06-21 02:24 J -40861442.50 -40861442.40 -40861442.30 0.1696 0.0995
 Mercury -116579-01-24 08:39 J -40859033.26 -40859033.14 -40859033.02 0.1801 0.1190
 Mercury -116579-12-06 02:24 J -40858717.49 -40858717.40 -40858717.31 0.1714 0.1142
 Mercury -116577-11-10 12:29 J -40858012.10 -40858011.98 -40858011.87 0.1699 0.0602

Mercury -116569-04-27 11:31 J -40855287.07 -40855287.02 -40855286.98 0.1718 0.1592
 Mercury -116568-05-23 12:43 J -40854896.08 -40854895.97 -40854895.86 0.1815 0.1284
 Mercury -116567-04-02 22:05 J -40854581.70 -40854581.58 -40854581.46 0.1703 0.0189
 Venus -116559-06-26 03:07 J -40851575.52 -40851575.37 -40851575.21 0.1707 0.0725
 Mercury -116559-10-13 11:03 J -40851466.19 -40851466.04 -40851465.89 0.1810 0.0457
 Mercury -116558-08-24 07:41 J -40851151.30 -40851151.18 -40851151.06 0.1707 0.0228
 Venus -116557-04-24 23:31 J -40850906.67 -40850906.52 -40850906.36 0.1693 0.0607
 Mercury -116556-07-29 16:19 J -40850445.88 -40850445.82 -40850445.75 0.1692 0.1432
 Venus -116554-02-06 06:43 J -40849889.40 -40849889.22 -40849889.03 0.1813 0.0114
 Mercury -116549-03-04 09:51 J -40848036.25 -40848036.09 -40848035.94 0.1805 0.0348
 Mercury -116548-01-13 17:03 J -40847720.90 -40847720.79 -40847720.67 0.1710 0.0659
 Mercury -116547-12-20 02:24 J -40847015.49 -40847015.40 -40847015.30 0.1696 0.1043
 Mercury -116540-07-25 09:07 J -40844606.24 -40844606.12 -40844606.00 0.1801 0.1116
 Mercury -116539-06-06 02:24 J -40844290.49 -40844290.40 -40844290.30 0.1715 0.1093
 Mercury -116537-05-11 12:15 J -40843585.10 -40843584.99 -40843584.87 0.1699 0.0645
 Mercury -116530-10-27 11:31 J -40840860.07 -40840860.02 -40840859.96 0.1718 0.1537
 Mercury -116529-11-21 13:12 J -40840469.05 -40840468.95 -40840468.84 0.1814 0.1359
 Mercury -116528-10-01 22:05 J -40840154.70 -40840154.58 -40840154.46 0.1703 0.0241
 Venus -116527-06-25 00:00 J -40839888.60 -40839888.50 -40839888.40 0.1713 0.1384
 Venus -116525-04-23 18:29 J -40839219.90 -40839219.73 -40839219.56 0.1698 0.0025
 Venus -116523-02-21 17:03 J -40838550.90 -40838550.79 -40838550.68 0.1685 0.1267
 Moon -116522-01-09 23:46 J -40838228.71 -40838228.51 -40838228.31 0.1828 0.0868
 Earth -116522-01-09 23:46 J -40838228.69 -40838228.51 -40838228.34 0.1828 0.1002 *
 Venus -116522-02-06 01:41 J -40838201.57 -40838201.43 -40838201.28 0.1805 0.1090
 Venus -116521-12-03 13:12 J -40837535.10 -40837534.95 -40837534.81 0.1822 0.1083
 Mercury -116519-04-13 11:31 J -40837039.17 -40837039.02 -40837038.87 0.1810 0.0526
 Mercury -116518-02-22 07:41 J -40836724.30 -40836724.18 -40836724.06 0.1707 0.0183
 Mercury -116516-01-27 16:34 J -40836018.87 -40836018.81 -40836018.76 0.1692 0.1477
 Mercury -116510-09-03 10:34 J -40833609.21 -40833609.06 -40833608.90 0.1805 0.0265
 Mercury -116509-07-14 17:17 J -40833293.90 -40833293.78 -40833293.67 0.1710 0.0605

Mercury -116507-06-20 02:39 J -40832588.49 -40832588.39 -40832588.30 0.1696 0.1091

Mercury -116500-01-23 09:51 J -40830179.22 -40830179.09 -40830178.97 0.1801 0.1040

Mercury -116500-12-05 02:24 J -40829863.49 -40829863.40 -40829863.30 0.1714 0.1044

Mercury -116498-11-10 12:29 J -40829158.09 -40829157.98 -40829157.87 0.1699 0.0693

Venus -116493-04-22 14:10 J -40827533.06 -40827532.91 -40827532.75 0.1704 0.0654

Venus -116491-02-20 11:03 J -40826864.19 -40826864.04 -40826863.89 0.1690 0.0672

Mercury -116491-06-15 09:36 J -40826749.12 -40826749.10 -40826749.09 0.1796 0.1781

Mercury -116490-04-27 11:31 J -40826433.08 -40826433.02 -40826432.96 0.1719 0.1491

Mercury -116489-05-22 13:41 J -40826042.02 -40826041.93 -40826041.83 0.1814 0.1436

Venus -116489-12-03 10:34 J -40825847.24 -40825847.06 -40825846.88 0.1815 0.0050

Mercury -116488-04-01 22:05 J -40825727.70 -40825727.58 -40825727.46 0.1703 0.0285

Mercury -116480-10-12 12:15 J -40822612.14 -40822611.99 -40822611.84 0.1810 0.0612

Mercury -116479-08-23 07:41 J -40822297.30 -40822297.18 -40822297.05 0.1707 0.0145

Mercury -116477-07-28 16:34 J -40821591.86 -40821591.81 -40821591.76 0.1692 0.1521

Mercury -116470-03-04 10:48 J -40819182.20 -40819182.05 -40819181.89 0.1805 0.0204

Mercury -116469-01-13 17:17 J -40818866.89 -40818866.78 -40818866.66 0.1711 0.0554

Mercury -116468-12-19 02:24 J -40818161.48 -40818161.40 -40818161.31 0.1696 0.1136

Venus -116461-04-21 10:34 J -40815846.17 -40815846.06 -40815845.95 0.1711 0.1308

Mercury -116461-07-24 10:19 J -40815752.20 -40815752.07 -40815751.94 0.1801 0.0967

Mercury -116460-06-05 02:39 J -40815436.49 -40815436.39 -40815436.29 0.1714 0.0990

Venus -116459-02-19 05:31 J -40815177.44 -40815177.27 -40815177.10 0.1696 0.0059

Mercury -116458-05-11 12:29 J -40814731.09 -40814730.98 -40814730.87 0.1699 0.0739

Venus -116458-12-20 05:17 J -40814508.39 -40814508.28 -40814508.18 0.1683 0.1327

Venus -116457-12-03 06:15 J -40814159.40 -40814159.24 -40814159.09 0.1807 0.0955

Venus -116455-09-30 16:34 J -40813492.94 -40813492.81 -40813492.68 0.1825 0.1249

Mercury -116452-12-14 10:05 J -40812322.12 -40812322.08 -40812322.03 0.1796 0.1701

Mercury -116451-10-26 11:46 J -40812006.08 -40812006.01 -40812005.95 0.1718 0.1436

Mercury -116450-11-21 14:39 J -40811614.97 -40811614.89 -40811614.80 0.1815 0.1525

Mercury -116449-09-30 22:19 J -40811300.69 -40811300.57 -40811300.46 0.1703 0.0338

Mercury -116440-04-12 12:58 J -40808185.11 -40808184.96 -40808184.82 0.1810 0.0689

Mercury -116439-02-21 07:55 J -40807870.29 -40807870.17 -40807870.05 0.1707 0.0093

Mercury -116437-01-27 16:34 J -40807164.85 -40807164.81 -40807164.77 0.1692 0.1565

Mercury -116431-09-02 11:31 J -40804755.17 -40804755.02 -40804754.86 0.1805 0.0128

Mercury -116430-07-14 17:17 J -40804439.89 -40804439.78 -40804439.66 0.1710 0.0508

Mercury -116428-06-19 02:39 J -40803734.48 -40803734.39 -40803734.31 0.1696 0.1180

Venus -116427-02-18 01:27 J -40803490.60 -40803490.44 -40803490.29 0.1702 0.0586

Venus -116426-12-18 22:48 J -40802821.70 -40802821.55 -40802821.40 0.1689 0.0737

Venus -116423-09-30 14:39 J -40801805.07 -40801804.89 -40801804.71 0.1818 0.0197

Mercury -116421-01-23 10:48 J -40801325.18 -40801325.05 -40801324.91 0.1801 0.0892

Mercury -116421-12-04 02:39 J -40801009.49 -40801009.39 -40801009.29 0.1715 0.0942

Mercury -116419-11-09 12:29 J -40800304.09 -40800303.98 -40800303.87 0.1699 0.0784

Mercury -116412-06-14 10:34 J -40797895.12 -40797895.06 -40797895.00 0.1796 0.1637

Mercury -116411-04-26 11:46 J -40797579.08 -40797579.01 -40797578.93 0.1718 0.1383

Mercury -116410-05-22 15:07 J -40797187.95 -40797187.87 -40797187.80 0.1814 0.1591

Mercury -116409-03-31 22:19 J -40796873.69 -40796873.57 -40796873.45 0.1703 0.0382

Moon -116403-07-01 23:17 J -40794590.70 -40794590.53 -40794590.36 0.1680 0.0455

Earth -116403-07-02 04:05 J -40794590.51 -40794590.33 -40794590.15 0.1680 0.0377 *

Mercury -116401-10-11 13:27 J -40793758.08 -40793757.94 -40793757.80 0.1810 0.0763

Mercury -116400-08-22 07:55 J -40793443.29 -40793443.17 -40793443.05 0.1706 0.0042

Mercury -116398-07-28 16:34 J -40792737.84 -40792737.81 -40792737.77 0.1692 0.1612

Venus -116395-02-16 21:36 J -40791803.72 -40791803.60 -40791803.49 0.1709 0.1239

Venus -116394-12-17 17:31 J -40791134.94 -40791134.77 -40791134.60 0.1694 0.0119

Venus -116392-10-16 17:03 J -40790465.88 -40790465.79 -40790465.69 0.1682 0.1388

Mercury -116391-03-03 12:15 J -40790328.15 -40790327.99 -40790327.83 0.1805 0.0044

Venus -116391-09-30 11:03 J -40790117.20 -40790117.04 -40790116.88 0.1810 0.0822

Mercury -116390-01-12 17:17 J -40790012.89 -40790012.78 -40790012.66 0.1711 0.0460

Venus -116389-07-27 20:24 J -40789450.76 -40789450.65 -40789450.53 0.1827 0.1410

Mercury -116389-12-18 02:39 J -40789307.47 -40789307.39 -40789307.31 0.1696 0.1226

Mercury -116382-07-24 11:31 J -40786898.16 -40786898.02 -40786897.89 0.1801 0.0817

Mercury -116381-06-04 02:39 J -40786582.49 -40786582.39 -40786582.28 0.1714 0.0891

Mercury -116379-05-10 12:29 J -40785877.08 -40785876.98 -40785876.87 0.1699 0.0831
 Mercury -116373-12-13 11:17 J -40783468.11 -40783468.03 -40783467.96 0.1796 0.1555
 Mercury -116372-10-25 11:46 J -40783152.08 -40783152.01 -40783151.93 0.1719 0.1336
 Mercury -116371-11-20 15:51 J -40782760.90 -40782760.84 -40782760.78 0.1815 0.1677
 Mercury -116370-09-30 22:19 J -40782446.69 -40782446.57 -40782446.45 0.1703 0.0429
 Venus -116362-12-16 12:43 J -40779448.13 -40779447.97 -40779447.81 0.1700 0.0518
 Mercury -116361-04-11 13:55 J -40779331.06 -40779330.92 -40779330.78 0.1810 0.0840
 Mercury -116360-02-20 07:55 J -40779016.29 -40779016.17 -40779016.05 0.1707 0.0016
 Venus -116360-10-15 10:48 J -40778779.20 -40778779.05 -40778778.90 0.1687 0.0796
 Venus -116359-09-30 05:46 J -40778429.27 -40778429.26 -40778429.24 0.1802 0.1791
 Mercury -116358-01-26 16:34 J -40778310.83 -40778310.81 -40778310.79 0.1692 0.1653
 Venus -116357-07-27 18:29 J -40777762.90 -40777762.73 -40777762.55 0.1820 0.0350
 Mercury -116352-09-01 12:43 J -40775901.13 -40775900.97 -40775900.81 0.1805 0.0032
 Mercury -116351-07-13 17:31 J -40775585.89 -40775585.77 -40775585.65 0.1710 0.0404
 Mercury -116349-06-18 02:39 J -40774880.47 -40774880.39 -40774880.31 0.1696 0.1270
 Mercury -116342-01-22 12:00 J -40772471.14 -40772471.00 -40772470.85 0.1801 0.0739
 Mercury -116342-12-04 02:53 J -40772155.49 -40772155.38 -40772155.28 0.1714 0.0839
 Mercury -116340-11-08 12:43 J -40771450.08 -40771449.97 -40771449.87 0.1699 0.0883
 Mercury -116333-06-13 11:46 J -40769041.10 -40769041.01 -40769040.93 0.1796 0.1483
 Mercury -116332-04-25 12:00 J -40768725.08 -40768725.00 -40768724.92 0.1719 0.1284
 Mercury -116331-05-21 16:34 J -40768333.85 -40768333.81 -40768333.78 0.1815 0.1755
 Mercury -116330-03-31 22:19 J -40768019.69 -40768019.57 -40768019.45 0.1703 0.0474
 Venus -116330-12-15 08:39 J -40767761.26 -40767761.14 -40767761.02 0.1706 0.1167
 Venus -116328-10-14 05:03 J -40767092.46 -40767092.29 -40767092.12 0.1692 0.0182
 Venus -116326-08-14 05:17 J -40766423.36 -40766423.28 -40766423.19 0.1680 0.1446
 Venus -116325-07-27 15:22 J -40766075.03 -40766074.86 -40766074.70 0.1812 0.0680
 Moon -116324-07-04 00:29 J -40765733.62 -40765733.48 -40765733.34 0.1682 0.1113
 Earth -116324-07-04 06:43 J -40765733.37 -40765733.22 -40765733.08 0.1682 0.1056 *
 Venus -116323-05-24 23:46 J -40765408.60 -40765408.51 -40765408.42 0.1830 0.1582
 Mercury -116322-10-11 14:53 J -40764904.02 -40764903.88 -40764903.75 0.1810 0.0923

Mercury -116321-08-21 07:55 J -40764589.29 -40764589.17 -40764589.04 0.1707 0.0082
 Mercury -116312-03-02 13:27 J -40761474.10 -40761473.94 -40761473.78 0.1805 0.0113
 Mercury -116311-01-11 17:31 J -40761158.89 -40761158.77 -40761158.65 0.1711 0.0358
 Mercury -116310-12-18 02:39 J -40760453.46 -40760453.39 -40760453.31 0.1696 0.1317
 Mercury -116303-07-23 12:29 J -40758044.12 -40758043.98 -40758043.83 0.1801 0.0669
 Mercury -116302-06-04 02:53 J -40757728.49 -40757728.38 -40757728.27 0.1715 0.0790
 Mercury -116300-05-09 12:29 J -40757023.08 -40757022.98 -40757022.88 0.1699 0.0923
 Venus -116296-10-13 00:00 J -40755405.66 -40755405.50 -40755405.34 0.1698 0.0450
 Venus -116294-08-12 22:34 J -40754736.70 -40754736.56 -40754736.41 0.1685 0.0858
 Mercury -116294-12-13 12:15 J -40754614.09 -40754613.99 -40754613.90 0.1796 0.1414
 Venus -116293-07-27 11:03 J -40754387.10 -40754387.04 -40754386.97 0.1804 0.1672
 Mercury -116293-10-24 12:00 J -40754298.08 -40754298.00 -40754297.91 0.1718 0.1230
 Venus -116291-05-24 22:19 J -40753720.74 -40753720.57 -40753720.39 0.1823 0.0508
 Mercury -116291-09-29 22:19 J -40753592.68 -40753592.57 -40753592.45 0.1703 0.0526
 Mercury -116283-03-16 21:07 J -40750867.65 -40750867.62 -40750867.60 0.1723 0.1685
 Mercury -116282-04-11 15:07 J -40750477.00 -40750476.87 -40750476.73 0.1810 0.0994
 Mercury -116281-02-20 08:10 J -40750162.28 -40750162.16 -40750162.04 0.1707 0.0118
 Mercury -116273-08-31 14:10 J -40747047.07 -40747046.91 -40747046.75 0.1805 0.0194
 Mercury -116272-07-12 17:31 J -40746731.89 -40746731.77 -40746731.65 0.1710 0.0311
 Mercury -116270-06-18 02:39 J -40746026.46 -40746026.39 -40746026.32 0.1696 0.1362
 Venus -116264-10-11 19:55 J -40743718.79 -40743718.67 -40743718.54 0.1704 0.1103
 Mercury -116263-01-21 13:12 J -40743617.10 -40743616.95 -40743616.80 0.1801 0.0590
 Mercury -116263-12-03 02:53 J -40743301.49 -40743301.38 -40743301.27 0.1714 0.0740
 Venus -116262-08-11 17:03 J -40743049.96 -40743049.79 -40743049.62 0.1691 0.0243
 Mercury -116261-11-07 12:43 J -40742596.07 -40742595.97 -40742595.88 0.1699 0.0971
 Venus -116260-06-10 17:31 J -40742380.84 -40742380.77 -40742380.70 0.1678 0.1504
 Venus -116259-05-24 20:10 J -40742032.83 -40742032.66 -40742032.48 0.1815 0.0543
 Venus -116257-03-21 02:53 J -40741366.42 -40741366.38 -40741366.33 0.1832 0.1756
 Mercury -116254-06-13 12:43 J -40740187.07 -40740186.97 -40740186.86 0.1796 0.1339
 Mercury -116253-04-24 12:00 J -40739871.09 -40739871.00 -40739870.91 0.1719 0.1183

Mercury -116251-03-30 22:19 J -40739165.68 -40739165.57 -40739165.45 0.1703 0.0571
 Mercury -116244-09-14 21:07 J -40736440.65 -40736440.62 -40736440.58 0.1723 0.1629
 Mercury -116243-10-10 16:05 J -40736049.96 -40736049.83 -40736049.70 0.1810 0.1077
 Mercury -116242-08-21 08:10 J -40735735.28 -40735735.16 -40735735.04 0.1707 0.0162
 Moon -116238-01-09 10:34 J -40734498.25 -40734498.06 -40734497.88 0.1833 0.0047
 Earth -116238-01-09 11:46 J -40734498.21 -40734498.01 -40734497.80 0.1833 0.0336 *
 Mercury -116233-03-01 14:24 J -40732620.05 -40732619.90 -40732619.74 0.1805 0.0258
 Mercury -116232-01-10 17:46 J -40732304.88 -40732304.76 -40732304.64 0.1711 0.0260
 Mercury -116231-12-17 02:39 J -40731599.45 -40731599.39 -40731599.32 0.1696 0.1407
 Venus -116230-08-10 11:46 J -40731363.17 -40731363.01 -40731362.85 0.1696 0.0386
 Venus -116228-06-09 10:48 J -40730694.19 -40730694.05 -40730693.90 0.1683 0.0914
 Venus -116227-05-24 15:51 J -40730344.93 -40730344.84 -40730344.75 0.1807 0.1543
 Venus -116225-03-21 01:55 J -40729678.58 -40729678.42 -40729678.25 0.1825 0.0670
 Mercury -116224-07-22 13:41 J -40729190.08 -40729189.93 -40729189.78 0.1801 0.0517
 Mercury -116223-06-03 02:53 J -40728874.49 -40728874.38 -40728874.26 0.1714 0.0692
 Mercury -116221-05-08 12:43 J -40728169.07 -40728168.97 -40728168.88 0.1699 0.1018
 Mercury -116215-12-12 13:27 J -40725760.05 -40725759.94 -40725759.83 0.1796 0.1259
 Mercury -116214-10-24 12:15 J -40725444.08 -40725443.99 -40725443.90 0.1719 0.1128
 Mercury -116212-09-28 22:34 J -40724738.67 -40724738.56 -40724738.45 0.1703 0.0619
 Mercury -116204-03-15 21:07 J -40722013.66 -40722013.62 -40722013.57 0.1723 0.1581
 Mercury -116203-04-10 16:34 J -40721622.93 -40721622.81 -40721622.69 0.1810 0.1151
 Mercury -116202-02-19 08:10 J -40721308.28 -40721308.16 -40721308.04 0.1707 0.0207
 Earth -116198-07-01 04:05 J -40719715.43 -40719715.33 -40719715.23 0.1675 0.1387
 Moon -116198-07-01 06:00 J -40719715.37 -40719715.25 -40719715.12 0.1675 0.1288 *
 Venus -116198-08-09 07:12 J -40719676.33 -40719676.20 -40719676.07 0.1702 0.1035
 Venus -116196-06-08 04:48 J -40719007.46 -40719007.30 -40719007.13 0.1689 0.0304
 Venus -116194-04-08 05:46 J -40718338.32 -40718338.26 -40718338.20 0.1677 0.1562
 Mercury -116194-08-31 15:07 J -40718193.02 -40718192.87 -40718192.71 0.1806 0.0344
 Venus -116193-03-20 23:46 J -40717990.68 -40717990.51 -40717990.33 0.1817 0.0392
 Mercury -116193-07-11 17:46 J -40717877.88 -40717877.76 -40717877.64 0.1711 0.0214

Mercury -116191-06-17 02:39 J -40717172.45 -40717172.39 -40717172.33 0.1696 0.1451
 Mercury -116184-01-20 14:24 J -40714763.05 -40714762.90 -40714762.75 0.1801 0.0442
 Mercury -116184-12-02 03:07 J -40714447.48 -40714447.37 -40714447.26 0.1715 0.0640
 Mercury -116182-11-07 12:43 J -40713742.06 -40713741.97 -40713741.88 0.1699 0.1062
 Mercury -116175-06-12 13:55 J -40711333.04 -40711332.92 -40711332.81 0.1796 0.1196
 Mercury -116174-04-24 12:15 J -40711017.08 -40711016.99 -40711016.89 0.1718 0.1077
 Mercury -116172-03-29 22:34 J -40710311.67 -40710311.56 -40710311.45 0.1703 0.0664
 Venus -116166-08-08 03:51 J -40707989.35 -40707989.34 -40707989.33 0.1709 0.1703
 Mercury -116165-09-13 21:22 J -40707586.67 -40707586.61 -40707586.56 0.1723 0.1527
 Venus -116164-06-06 23:17 J -40707320.70 -40707320.53 -40707320.37 0.1694 0.0323
 Mercury -116164-10-09 17:17 J -40707195.90 -40707195.78 -40707195.67 0.1810 0.1229
 Mercury -116163-08-20 08:10 J -40706881.28 -40706881.16 -40706881.04 0.1706 0.0266
 Venus -116162-04-06 22:48 J -40706651.69 -40706651.55 -40706651.41 0.1681 0.0976
 Venus -116161-03-20 20:10 J -40706302.78 -40706302.66 -40706302.55 0.1810 0.1408
 Venus -116159-01-16 05:03 J -40705636.45 -40705636.29 -40705636.13 0.1827 0.0844
 Mercury -116154-03-01 15:51 J -40703765.99 -40703765.84 -40703765.68 0.1805 0.0422
 Mercury -116153-01-10 17:46 J -40703450.88 -40703450.76 -40703450.64 0.1711 0.0163
 Mercury -116152-12-16 02:53 J -40702745.44 -40702745.38 -40702745.33 0.1696 0.1497
 Mercury -116145-07-21 14:53 J -40700336.03 -40700335.88 -40700335.73 0.1801 0.0366
 Mercury -116144-06-02 03:07 J -40700020.48 -40700020.37 -40700020.25 0.1714 0.0590
 Mercury -116142-05-08 12:43 J -40699315.06 -40699314.97 -40699314.88 0.1699 0.1107
 Mercury -116136-12-11 14:39 J -40696906.01 -40696905.89 -40696905.77 0.1796 0.1115
 Mercury -116135-10-23 12:15 J -40696590.08 -40696589.99 -40696589.89 0.1719 0.1031
 Mercury -116133-09-27 22:34 J -40695884.67 -40695884.56 -40695884.45 0.1703 0.0711
 Venus -116132-06-05 18:58 J -40695633.85 -40695633.71 -40695633.58 0.1700 0.0973
 Venus -116130-04-05 16:34 J -40694964.98 -40694964.81 -40694964.65 0.1687 0.0370
 Venus -116128-02-02 17:31 J -40694295.80 -40694295.77 -40694295.73 0.1675 0.1627
 Venus -116127-01-16 04:05 J -40693948.51 -40693948.33 -40693948.15 0.1820 0.0238
 Mercury -116125-03-14 21:22 J -40693159.67 -40693159.61 -40693159.55 0.1723 0.1476
 Mercury -116124-04-09 17:46 J -40692768.87 -40692768.76 -40692768.65 0.1810 0.1304

Mercury -116123-02-18 08:10 J -40692454.28 -40692454.16 -40692454.04 0.1707 0.0304

Earth -116119-07-03 06:43 J -40690858.40 -40690858.22 -40690858.03 0.1677 0.0027

Moon -116119-07-03 12:58 J -40690858.15 -40690857.96 -40690857.78 0.1677 0.0059 *

Mercury -116115-08-30 16:19 J -40689338.97 -40689338.82 -40689338.67 0.1805 0.0490

Mercury -116114-07-11 18:00 J -40689023.87 -40689023.75 -40689023.63 0.1710 0.0116

Mercury -116112-06-16 02:53 J -40688318.43 -40688318.38 -40688318.33 0.1696 0.1541

Mercury -116105-01-20 15:36 J -40685909.01 -40685908.85 -40685908.70 0.1801 0.0287

Mercury -116105-12-01 03:07 J -40685593.48 -40685593.37 -40685593.25 0.1714 0.0543

Mercury -116103-11-06 12:58 J -40684888.05 -40684887.96 -40684887.88 0.1699 0.1158

Venus -116100-06-04 14:53 J -40683946.92 -40683946.88 -40683946.83 0.1707 0.1635

Venus -116098-04-04 10:48 J -40683278.21 -40683278.05 -40683277.88 0.1692 0.0257

Venus -116096-02-01 10:48 J -40682609.18 -40682609.05 -40682608.92 0.1680 0.1037

Mercury -116096-06-11 15:07 J -40682479.00 -40682478.87 -40682478.75 0.1796 0.1043

Venus -116095-01-16 00:29 J -40682260.61 -40682260.48 -40682260.36 0.1812 0.1268

Mercury -116095-04-23 12:29 J -40682163.08 -40682162.98 -40682162.88 0.1719 0.0980

Venus -116094-11-13 08:53 J -40681594.28 -40681594.13 -40681593.98 0.1830 0.1008

Mercury -116093-03-28 22:34 J -40681457.67 -40681457.56 -40681457.45 0.1703 0.0755

Mercury -116087-11-01 15:07 J -40679048.89 -40679048.87 -40679048.84 0.1791 0.1760

Mercury -116086-09-13 21:36 J -40678732.67 -40678732.60 -40678732.54 0.1723 0.1425

Mercury -116085-10-08 18:29 J -40678341.83 -40678341.73 -40678341.63 0.1810 0.1388

Mercury -116084-08-19 08:24 J -40678027.27 -40678027.15 -40678027.03 0.1707 0.0353

Mercury -116075-02-28 17:03 J -40674911.94 -40674911.79 -40674911.64 0.1806 0.0569

Mercury -116074-01-09 17:46 J -40674596.88 -40674596.76 -40674596.63 0.1711 0.0087

Mercury -116073-12-15 02:53 J -40673891.42 -40673891.38 -40673891.34 0.1696 0.1585

Venus -116066-04-03 06:00 J -40671591.40 -40671591.25 -40671591.11 0.1698 0.0902

Mercury -116066-07-21 16:05 J -40671481.99 -40671481.83 -40671481.68 0.1801 0.0225

Mercury -116065-06-01 03:22 J -40671166.48 -40671166.36 -40671166.25 0.1715 0.0494

Venus -116064-01-31 04:19 J -40670922.48 -40670922.32 -40670922.16 0.1685 0.0433

Mercury -116063-05-07 12:43 J -40670461.05 -40670460.97 -40670460.88 0.1699 0.1197

Venus -116062-11-13 07:41 J -40669906.36 -40669906.18 -40669906.00 0.1822 0.0079

Mercury -116057-12-10 15:36 J -40668051.98 -40668051.85 -40668051.72 0.1796 0.0970

Mercury -116056-10-22 12:29 J -40667736.08 -40667735.98 -40667735.87 0.1718 0.0926

Mercury -116054-09-27 22:48 J -40667030.66 -40667030.55 -40667030.45 0.1703 0.0807

Mercury -116047-05-02 15:51 J -40664621.89 -40664621.84 -40664621.79 0.1791 0.1687

Mercury -116046-03-14 21:36 J -40664305.67 -40664305.60 -40664305.53 0.1723 0.1374

Mercury -116045-04-08 18:58 J -40663914.80 -40663914.71 -40663914.61 0.1810 0.1460

Mercury -116044-02-17 08:24 J -40663600.27 -40663600.15 -40663600.03 0.1707 0.0400

Earth -116040-07-05 09:07 J -40662001.21 -40662001.12 -40662001.02 0.1678 0.1420

Moon -116040-07-05 13:12 J -40662000.97 -40662000.95 -40662000.94 0.1679 0.1670

Mercury -116036-08-29 17:46 J -40660484.91 -40660484.76 -40660484.61 0.1806 0.0650

Mercury -116035-07-10 18:00 J -40660169.87 -40660169.75 -40660169.63 0.1710 0.0029

Venus -116034-04-02 01:41 J -40659904.49 -40659904.43 -40659904.36 0.1704 0.1560

Mercury -116033-06-15 02:53 J -40659464.41 -40659464.38 -40659464.35 0.1696 0.1628

Venus -116032-01-29 22:19 J -40659235.74 -40659235.57 -40659235.40 0.1690 0.0190

Venus -116031-11-29 23:03 J -40658566.66 -40658566.54 -40658566.41 0.1678 0.1098

Venus -116030-11-13 04:34 J -40658218.45 -40658218.31 -40658218.17 0.1815 0.1123

Venus -116028-09-09 12:00 J -40657552.14 -40657552.00 -40657551.87 0.1832 0.1185

Mercury -116026-01-19 16:48 J -40657054.96 -40657054.80 -40657054.65 0.1801 0.0149

Mercury -116026-12-01 03:22 J -40656739.48 -40656739.36 -40656739.24 0.1715 0.0443

Mercury -116024-11-05 12:58 J -40656034.04 -40656033.96 -40656033.88 0.1699 0.1245

Mercury -116017-06-10 16:05 J -40653624.96 -40653624.83 -40653624.69 0.1796 0.0898

Mercury -116016-04-22 12:29 J -40653309.08 -40653308.98 -40653308.87 0.1719 0.0880

Mercury -116014-03-28 22:48 J -40652603.66 -40652603.55 -40652603.45 0.1703 0.0851

Mercury -116008-10-31 16:05 J -40650194.89 -40650194.83 -40650194.76 0.1791 0.1621

Mercury -116007-09-12 21:36 J -40649878.67 -40649878.60 -40649878.52 0.1723 0.1321

Mercury -116006-10-08 19:41 J -40649487.76 -40649487.68 -40649487.59 0.1810 0.1539

Mercury -116005-08-18 08:24 J -40649173.27 -40649173.15 -40649173.03 0.1707 0.0446

116TH MILLENNIUM

BCE

This is a list of transits visible from Mars in the 116th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Venus | -116000-01-28 17:31 J | -40647548.92 | -40647548.77 | -40647548.62 | 0.1696 | 0.0837 | | |
| Venus | -115999-11-28 16:19 J | -40646879.98 | -40646879.82 | -40646879.66 | 0.1683 | 0.0498 | | |
| Mercury | -115996-02-27 18:00 J | -40646057.89 | -40646057.75 | -40646057.60 | 0.1806 | 0.0716 | | |
| Venus | -115996-09-09 11:31 J | -40645864.21 | -40645864.02 | -40645863.84 | 0.1825 | 0.0091 | | |
| Mercury | -115995-01-08 18:00 J | -40645742.87 | -40645742.75 | -40645742.63 | 0.1711 | 0.0039 | | |
| Mercury | -115994-12-15 02:53 J | -40645037.39 | -40645037.38 | -40645037.36 | 0.1696 | 0.1673 | | |
| Mercury | -115987-07-20 17:17 J | -40642627.94 | -40642627.78 | -40642627.62 | 0.1801 | 0.0067 | | |
| Mercury | -115986-06-01 03:22 J | -40642312.48 | -40642312.36 | -40642312.24 | 0.1715 | 0.0394 | | |
| Mercury | -115984-05-06 12:58 J | -40641607.04 | -40641606.96 | -40641606.88 | 0.1699 | 0.1291 | | |
| Mercury | -115978-12-10 16:48 J | -40639197.93 | -40639197.80 | -40639197.66 | 0.1796 | 0.0819 | | |
| Mercury | -115977-10-21 12:43 J | -40638882.08 | -40638881.97 | -40638881.86 | 0.1719 | 0.0826 | | |
| Mercury | -115975-09-26 22:48 J | -40638176.65 | -40638176.55 | -40638176.45 | 0.1703 | 0.0897 | | |
| Venus | -115968-01-27 13:12 J | -40635862.03 | -40635861.95 | -40635861.87 | 0.1702 | 0.1494 | | |
| Mercury | -115968-05-01 16:48 J | -40635767.88 | -40635767.80 | -40635767.73 | 0.1791 | 0.1548 | | |
| Mercury | -115967-03-13 21:36 J | -40635451.68 | -40635451.60 | -40635451.51 | 0.1723 | 0.1275 | | |
| Venus | -115967-11-27 10:19 J | -40635193.23 | -40635193.07 | -40635192.90 | 0.1689 | 0.0135 | | |
| Mercury | -115966-04-08 20:24 J | -40635060.72 | -40635060.65 | -40635060.58 | 0.1810 | 0.1613 | | |
| Mercury | -115965-02-17 08:24 J | -40634746.26 | -40634746.15 | -40634746.03 | 0.1707 | 0.0493 | | |
| Venus | -115965-09-26 11:17 J | -40634524.15 | -40634524.03 | -40634523.91 | 0.1677 | 0.1159 | | |
| Venus | -115964-09-09 08:53 J | -40634176.28 | -40634176.13 | -40634175.98 | 0.1817 | 0.0980 | | |

Venus -115962-07-07 15:36 J -40633509.97 -40633509.85 -40633509.73 0.1834 0.1354
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 Moon -115954-01-08 23:17 J -40630767.75 -40630767.53 -40630767.31 0.1838 0.0470 *
 Mercury -115947-01-18 17:46 J -40628200.91 -40628200.76 -40628200.60 0.1801 0.0045
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 Venus -115930-07-07 14:53 J -40621822.06 -40621821.88 -40621821.69 0.1827 0.0248
 Mercury -115929-10-30 17:31 J -40621340.86 -40621340.77 -40621340.68 0.1791 0.1469
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Mercury -115899-12-09 18:00 J -40610343.90 -40610343.75 -40610343.61 0.1796 0.0674
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 Venus -115869-09-22 16:34 J -40599463.96 -40599463.81 -40599463.66 0.1692 0.0703
 Mercury -115868-01-17 19:12 J -40599346.86 -40599346.70 -40599346.55 0.1801 0.0164
 Mercury -115868-11-29 03:36 J -40599031.47 -40599031.35 -40599031.23 0.1715 0.0246
 Venus -115867-07-23 16:19 J -40598794.97 -40598794.82 -40598794.66 0.1680 0.0621
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 Mercury -115850-10-30 18:29 J -40592486.83 -40592486.73 -40592486.63 0.1791 0.1327
 Mercury -115849-09-10 22:05 J -40592170.68 -40592170.58 -40592170.49 0.1723 0.1120
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 Mercury -115837-01-07 18:15 J -40588034.86 -40588034.74 -40588034.62 0.1711 0.0223
 Venus -115837-09-21 11:46 J -40587777.10 -40587777.01 -40587776.91 0.1698 0.1360
 Moon -115835-07-04 04:34 J -40587126.50 -40587126.31 -40587126.13 0.1673 0.0123
 Earth -115835-07-04 10:19 J -40587126.25 -40587126.07 -40587125.89 0.1674 0.0411 *

Venus -115835-07-22 10:19 J -40587108.24 -40587108.07 -40587107.91 0.1685 0.0034
 Venus -115833-05-21 12:00 J -40586439.11 -40586439.00 -40586438.89 0.1674 0.1278
 Venus -115832-05-03 17:17 J -40586091.95 -40586091.78 -40586091.61 0.1822 0.0682
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 Mercury -115829-07-18 19:27 J -40584919.84 -40584919.69 -40584919.53 0.1801 0.0231
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 Mercury -115800-08-02 06:58 J -40574313.26 -40574313.21 -40574313.15 0.1727 0.1520
 Mercury -115799-08-27 21:22 J -40573922.73 -40573922.61 -40573922.48 0.1806 0.1105
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 Mercury -115798-07-08 18:15 J -40573607.86 -40573607.74 -40573607.62 0.1711 0.0272
 Mercury -115789-01-17 20:10 J -40570492.81 -40570492.66 -40570492.50 0.1801 0.0315
 Mercury -115789-11-28 03:51 J -40570177.46 -40570177.34 -40570177.22 0.1715 0.0156
 Mercury -115787-11-03 13:12 J -40569472.01 -40569471.95 -40569471.90 0.1699 0.1514
 Mercury -115780-06-08 19:41 J -40567062.83 -40567062.68 -40567062.53 0.1796 0.0458
 Mercury -115779-04-20 12:58 J -40566747.07 -40566746.96 -40566746.84 0.1719 0.0581
 Mercury -115777-03-25 23:03 J -40566041.63 -40566041.54 -40566041.46 0.1703 0.1124
 Venus -115771-07-19 23:17 J -40563734.64 -40563734.53 -40563734.42 0.1696 0.1292
 Mercury -115771-10-29 19:27 J -40563632.80 -40563632.69 -40563632.58 0.1791 0.1190
 Mercury -115770-09-10 22:19 J -40563316.67 -40563316.57 -40563316.48 0.1723 0.1018
 Venus -115769-05-18 22:19 J -40563065.74 -40563065.57 -40563065.40 0.1683 0.0062

Mercury -115768-08-16 08:39 J -40562611.25 -40562611.14 -40562611.03 0.1707 0.0727

Venus -115767-03-19 00:15 J -40562396.59 -40562396.49 -40562396.39 0.1672 0.1338

Venus -115766-02-28 20:39 J -40562049.82 -40562049.64 -40562049.47 0.1825 0.0518

Mercury -115760-01-31 06:58 J -40559886.27 -40559886.21 -40559886.14 0.1727 0.1471

Mercury -115759-02-25 21:51 J -40559495.71 -40559495.59 -40559495.47 0.1806 0.1171

Mercury -115758-01-06 18:29 J -40559180.85 -40559180.73 -40559180.61 0.1711 0.0324

Mercury -115750-07-18 20:53 J -40556065.78 -40556065.63 -40556065.47 0.1801 0.0386

Mercury -115749-05-29 03:51 J -40555750.46 -40555750.34 -40555750.22 0.1715 0.0104

Mercury -115747-05-04 13:12 J -40555045.00 -40555044.95 -40555044.91 0.1699 0.1558

Mercury -115741-12-07 20:10 J -40552635.81 -40552635.66 -40552635.50 0.1796 0.0382

Mercury -115740-10-19 13:12 J -40552320.07 -40552319.95 -40552319.84 0.1719 0.0531

Mercury -115738-09-24 23:03 J -40551614.63 -40551614.54 -40551614.46 0.1703 0.1169

Venus -115737-05-17 16:05 J -40551378.99 -40551378.83 -40551378.67 0.1688 0.0571

Venus -115735-03-17 16:48 J -40550709.95 -40550709.80 -40550709.65 0.1676 0.0743

Venus -115734-02-28 18:00 J -40550361.83 -40550361.75 -40550361.66 0.1818 0.1583

Venus -115733-12-26 00:15 J -40549695.66 -40549695.49 -40549695.33 0.1834 0.0771

Mercury -115731-04-29 19:55 J -40549205.79 -40549205.67 -40549205.55 0.1791 0.1118

Mercury -115730-03-11 22:05 J -40548889.68 -40548889.58 -40548889.48 0.1723 0.0973

Mercury -115728-02-14 08:39 J -40548184.24 -40548184.14 -40548184.03 0.1707 0.0774

Mercury -115721-08-01 07:12 J -40545459.27 -40545459.20 -40545459.13 0.1727 0.1417

Mercury -115720-08-26 22:34 J -40545068.67 -40545068.56 -40545068.44 0.1806 0.1254

Mercury -115719-07-07 18:29 J -40544753.85 -40544753.73 -40544753.61 0.1711 0.0368

Mercury -115710-01-16 21:22 J -40541638.76 -40541638.61 -40541638.46 0.1801 0.0454

Mercury -115710-11-28 03:51 J -40541323.46 -40541323.34 -40541323.22 0.1715 0.0060

Mercury -115708-11-02 13:12 J -40540617.99 -40540617.95 -40540617.92 0.1699 0.1600

Venus -115705-05-16 11:03 J -40539692.15 -40539692.04 -40539691.92 0.1694 0.1227

Venus -115703-03-16 09:51 J -40539023.25 -40539023.09 -40539022.92 0.1681 0.0132

Venus -115701-01-14 12:15 J -40538354.07 -40538353.99 -40538353.90 0.1670 0.1402

Mercury -115701-06-07 20:39 J -40538208.79 -40538208.64 -40538208.49 0.1796 0.0313

Venus -115701-12-26 00:29 J -40538007.66 -40538007.48 -40538007.30 0.1827 0.0361

Mercury -115700-04-19 13:12 J -40537893.07 -40537892.95 -40537892.83 0.1719 0.0481
 Mercury -115698-03-25 23:03 J -40537187.62 -40537187.54 -40537187.46 0.1703 0.1215
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 Mercury -115689-08-15 08:53 J -40533757.24 -40533757.13 -40533757.02 0.1707 0.0820
 Mercury -115682-03-20 20:53 J -40531348.66 -40531348.63 -40531348.60 0.1786 0.1747
 Mercury -115681-01-31 07:12 J -40531032.27 -40531032.20 -40531032.12 0.1727 0.1368
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 Venus -115671-03-15 03:36 J -40527336.51 -40527336.35 -40527336.18 0.1686 0.0509
 Mercury -115671-07-17 21:51 J -40527211.74 -40527211.59 -40527211.43 0.1801 0.0531
 Moon -115670-01-08 02:24 J -40527037.55 -40527037.40 -40527037.25 0.1843 0.1105
 Earth -115670-01-08 05:03 J -40527037.44 -40527037.29 -40527037.14 0.1843 0.1277 *
 Mercury -115670-05-29 03:51 J -40526896.46 -40526896.34 -40526896.22 0.1715 0.0033
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 Venus -115669-12-25 22:05 J -40526319.69 -40526319.58 -40526319.47 0.1820 0.1436
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 Mercury -115642-08-01 07:27 J -40516605.27 -40516605.19 -40516605.11 0.1727 0.1316
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 Venus -115639-03-13 22:19 J -40515649.70 -40515649.57 -40515649.45 0.1692 0.1157
 Venus -115637-01-11 22:05 J -40514980.75 -40514980.58 -40514980.41 0.1680 0.0189

Venus -115636-11-11 00:58 J -40514311.54 -40514311.46 -40514311.38 0.1669 0.1459
 Venus -115635-10-23 03:36 J -40513965.53 -40513965.35 -40513965.16 0.1830 0.0196
 Mercury -115631-01-15 22:48 J -40512784.70 -40512784.55 -40512784.40 0.1801 0.0611
 Mercury -115631-11-27 04:05 J -40512469.46 -40512469.33 -40512469.21 0.1715 0.0074
 Earth -115630-07-03 12:00 J -40512251.18 -40512251.00 -40512250.83 0.1669 0.0561
 Moon -115630-07-03 18:29 J -40512250.91 -40512250.73 -40512250.55 0.1669 0.0258 *
 Mercury -115629-11-01 13:12 J -40511763.96 -40511763.95 -40511763.94 0.1699 0.1690
 Mercury -115622-06-07 21:51 J -40509354.74 -40509354.59 -40509354.43 0.1796 0.0165
 Mercury -115621-04-18 13:12 J -40509039.06 -40509038.95 -40509038.83 0.1719 0.0388
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 Mercury -115613-10-27 21:51 J -40505924.73 -40505924.59 -40505924.46 0.1791 0.0898
 Mercury -115612-09-08 22:34 J -40505608.67 -40505608.56 -40505608.46 0.1723 0.0822
 Mercury -115610-08-15 08:53 J -40504903.23 -40504903.13 -40504903.03 0.1707 0.0910
 Venus -115605-01-10 15:36 J -40503294.01 -40503293.85 -40503293.69 0.1685 0.0441
 Venus -115604-11-09 17:17 J -40502624.92 -40502624.78 -40502624.63 0.1673 0.0864
 Mercury -115603-03-19 21:51 J -40502494.65 -40502494.59 -40502494.52 0.1786 0.1610
 Venus -115603-10-23 01:41 J -40502277.55 -40502277.43 -40502277.30 0.1823 0.1283
 Mercury -115602-01-30 07:27 J -40502178.27 -40502178.19 -40502178.11 0.1727 0.1268
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 Venus -115601-08-19 06:15 J -40501611.38 -40501611.24 -40501611.10 0.1838 0.1133
 Mercury -115600-01-04 18:29 J -40501472.84 -40501472.73 -40501472.61 0.1711 0.0504
 Mercury -115593-06-21 16:19 J -40498747.83 -40498747.82 -40498747.81 0.1731 0.1719
 Mercury -115592-07-16 23:03 J -40498357.68 -40498357.54 -40498357.39 0.1801 0.0675
 Moon -115591-01-11 08:39 J -40498179.26 -40498179.14 -40498179.03 0.1841 0.1522
 Mercury -115591-05-28 04:05 J -40498042.45 -40498042.33 -40498042.21 0.1715 0.0092
 Mercury -115583-12-06 22:34 J -40494927.72 -40494927.56 -40494927.40 0.1796 0.0089
 Mercury -115582-10-18 13:27 J -40494612.06 -40494611.94 -40494611.82 0.1718 0.0332
 Mercury -115580-09-22 23:17 J -40493906.60 -40493906.53 -40493906.46 0.1703 0.1351
 Venus -115573-01-09 10:05 J -40491607.20 -40491607.08 -40491606.95 0.1690 0.1093
 Mercury -115573-04-27 22:19 J -40491497.71 -40491497.57 -40491497.43 0.1791 0.0827

Mercury -115572-03-09 22:34 J -40491181.67 -40491181.56 -40491181.45 0.1723 0.0773

Venus -115572-11-08 10:05 J -40490938.25 -40490938.08 -40490937.92 0.1678 0.0255

Mercury -115570-02-13 08:53 J -40490476.23 -40490476.13 -40490476.03 0.1707 0.0955

Venus -115570-09-08 13:27 J -40490269.01 -40490268.94 -40490268.88 0.1668 0.1520

Venus -115569-08-19 06:58 J -40489923.39 -40489923.21 -40489923.03 0.1832 0.0023

Mercury -115564-09-17 22:34 J -40488067.63 -40488067.56 -40488067.48 0.1786 0.1534

Mercury -115563-07-31 07:27 J -40487751.27 -40487751.19 -40487751.10 0.1727 0.1217

Mercury -115562-08-26 01:12 J -40487360.53 -40487360.45 -40487360.37 0.1806 0.1556

Mercury -115561-07-05 18:43 J -40487045.84 -40487045.72 -40487045.61 0.1711 0.0555

Mercury -115554-12-21 16:19 J -40484320.85 -40484320.82 -40484320.79 0.1732 0.1673

Mercury -115552-01-14 23:46 J -40483930.65 -40483930.51 -40483930.36 0.1801 0.0758

Mercury -115552-11-26 04:05 J -40483615.45 -40483615.33 -40483615.21 0.1715 0.0140

Earth -115551-07-05 14:10 J -40483394.07 -40483393.91 -40483393.75 0.1671 0.0808

Moon -115551-07-05 18:15 J -40483393.90 -40483393.74 -40483393.58 0.1671 0.0679 *

Mercury -115543-06-06 23:03 J -40480500.70 -40480500.54 -40480500.38 0.1796 0.0026

Mercury -115542-04-18 13:27 J -40480185.06 -40480184.94 -40480184.82 0.1719 0.0290

Mercury -115540-03-23 23:03 J -40479479.60 -40479479.54 -40479479.47 0.1703 0.1392

Venus -115540-11-07 03:36 J -40479251.51 -40479251.35 -40479251.18 0.1683 0.0380

Venus -115538-09-07 05:46 J -40478582.40 -40478582.26 -40478582.12 0.1672 0.0925

Venus -115537-08-19 05:46 J -40478235.40 -40478235.26 -40478235.12 0.1825 0.1129

Venus -115535-06-16 09:51 J -40477569.22 -40477569.09 -40477568.96 0.1841 0.1312

Mercury -115534-10-27 22:48 J -40477070.69 -40477070.55 -40477070.41 0.1791 0.0760

Mercury -115533-09-07 22:34 J -40476754.67 -40476754.56 -40476754.44 0.1723 0.0721

Mercury -115531-08-14 09:07 J -40476049.22 -40476049.12 -40476049.03 0.1707 0.1003

Mercury -115524-03-18 23:03 J -40473640.62 -40473640.54 -40473640.45 0.1787 0.1464

Mercury -115523-01-29 07:41 J -40473324.27 -40473324.18 -40473324.09 0.1727 0.1166

Mercury -115522-02-24 01:41 J -40472933.50 -40472933.43 -40472933.37 0.1806 0.1625

Mercury -115521-01-04 18:43 J -40472618.83 -40472618.72 -40472618.61 0.1711 0.0601

Mercury -115514-06-21 16:34 J -40469893.85 -40469893.81 -40469893.77 0.1731 0.1620

Mercury -115513-07-16 00:29 J -40469503.62 -40469503.48 -40469503.34 0.1801 0.0830

Mercury -115512-05-27 04:05 J -40469188.45 -40469188.33 -40469188.21 0.1715 0.0187

Venus -115508-11-05 21:36 J -40467564.73 -40467564.60 -40467564.46 0.1688 0.1026

Venus -115506-09-05 22:19 J -40466895.73 -40466895.57 -40466895.40 0.1676 0.0313

Venus -115504-07-06 02:10 J -40466226.46 -40466226.41 -40466226.36 0.1667 0.1577

Mercury -115504-12-05 23:46 J -40466073.67 -40466073.51 -40466073.36 0.1796 0.0066

Venus -115503-06-16 10:19 J -40465881.25 -40465881.07 -40465880.89 0.1834 0.0154

Mercury -115503-10-17 13:27 J -40465758.06 -40465757.94 -40465757.82 0.1719 0.0241

Mercury -115501-09-21 23:17 J -40465052.59 -40465052.53 -40465052.47 0.1703 0.1437

Mercury -115494-04-27 23:17 J -40462643.67 -40462643.53 -40462643.38 0.1791 0.0687

Mercury -115493-03-08 22:34 J -40462327.67 -40462327.56 -40462327.44 0.1723 0.0675

Mercury -115491-02-12 09:07 J -40461622.22 -40461622.12 -40461622.03 0.1707 0.1046

Mercury -115485-09-16 23:31 J -40459213.61 -40459213.52 -40459213.42 0.1786 0.1397

Mercury -115484-07-30 07:41 J -40458897.27 -40458897.18 -40458897.08 0.1727 0.1115

Mercury -115483-08-25 02:24 J -40458506.45 -40458506.40 -40458506.35 0.1806 0.1703

Mercury -115482-07-05 18:43 J -40458191.83 -40458191.72 -40458191.61 0.1711 0.0644

Venus -115476-11-04 16:19 J -40455877.84 -40455877.82 -40455877.81 0.1694 0.1682

Mercury -115475-12-20 16:34 J -40455466.86 -40455466.81 -40455466.76 0.1731 0.1568

Venus -115474-09-04 15:36 J -40455209.02 -40455208.85 -40455208.69 0.1681 0.0317

Mercury -115473-01-15 00:58 J -40455076.60 -40455076.46 -40455076.33 0.1801 0.0898

Mercury -115473-11-25 04:19 J -40454761.44 -40454761.32 -40454761.20 0.1715 0.0237

Venus -115472-07-04 18:00 J -40454539.88 -40454539.75 -40454539.61 0.1670 0.0985

Venus -115471-06-16 09:22 J -40454193.26 -40454193.11 -40454192.95 0.1827 0.0968

Venus -115469-04-12 12:00 J -40453527.10 -40453527.00 -40453526.90 0.1843 0.1508

Mercury -115464-06-06 00:15 J -40451646.65 -40451646.49 -40451646.34 0.1796 0.0133

Mercury -115463-04-17 13:41 J -40451331.06 -40451330.93 -40451330.81 0.1719 0.0199

Mercury -115461-03-22 23:17 J -40450625.59 -40450625.53 -40450625.47 0.1703 0.1482

Mercury -115455-10-27 00:00 J -40448216.64 -40448216.50 -40448216.35 0.1791 0.0609

Mercury -115454-09-07 22:48 J -40447900.66 -40447900.55 -40447900.44 0.1723 0.0621

Mercury -115452-08-13 09:07 J -40447195.21 -40447195.12 -40447195.03 0.1707 0.1092

Mercury -115445-03-18 00:00 J -40444786.60 -40444786.50 -40444786.40 0.1786 0.1328

Mercury -115444-01-28 07:41 J -40444470.27 -40444470.18 -40444470.08 0.1727 0.1068
 Mercury -115443-02-23 02:53 J -40444079.40 -40444079.38 -40444079.35 0.1806 0.1779
 Mercury -115442-01-03 18:43 J -40443764.83 -40443764.72 -40443764.61 0.1711 0.0690
 Venus -115442-09-03 09:22 J -40443522.24 -40443522.11 -40443521.97 0.1687 0.0961
 Venus -115440-07-03 10:19 J -40442853.23 -40442853.07 -40442852.90 0.1675 0.0378
 Venus -115438-05-03 14:39 J -40442183.91 -40442183.89 -40442183.86 0.1665 0.1637
 Venus -115437-04-12 12:58 J -40441839.14 -40441838.96 -40441838.78 0.1837 0.0338
 Mercury -115435-06-20 16:34 J -40441039.87 -40441039.81 -40441039.75 0.1732 0.1520
 Mercury -115434-07-16 01:27 J -40440649.57 -40440649.44 -40440649.30 0.1801 0.0975
 Mercury -115433-05-26 04:19 J -40440334.44 -40440334.32 -40440334.20 0.1715 0.0281
 Earth -115425-07-01 16:05 J -40437375.92 -40437375.83 -40437375.74 0.1665 0.1444
 Mercury -115425-12-05 00:58 J -40437219.62 -40437219.46 -40437219.31 0.1796 0.0208
 Mercury -115424-10-16 13:41 J -40436904.05 -40436903.93 -40436903.81 0.1719 0.0143
 Mercury -115422-09-21 23:17 J -40436198.58 -40436198.53 -40436198.48 0.1703 0.1525
 Mercury -115415-04-27 00:15 J -40433789.64 -40433789.49 -40433789.34 0.1791 0.0550
 Mercury -115414-03-08 22:48 J -40433473.66 -40433473.55 -40433473.43 0.1723 0.0573
 Mercury -115412-02-11 09:07 J -40432768.21 -40432768.12 -40432768.03 0.1707 0.1135
 Venus -115410-09-02 04:05 J -40431835.37 -40431835.33 -40431835.28 0.1692 0.1620
 Venus -115408-07-02 03:51 J -40431166.51 -40431166.34 -40431166.18 0.1680 0.0257
 Venus -115406-05-02 06:29 J -40430497.36 -40430497.23 -40430497.10 0.1669 0.1048
 Mercury -115406-09-17 00:43 J -40430359.58 -40430359.47 -40430359.36 0.1787 0.1252
 Venus -115405-04-12 13:12 J -40430151.11 -40430150.95 -40430150.79 0.1829 0.0808
 Mercury -115405-07-29 07:55 J -40430043.27 -40430043.17 -40430043.07 0.1727 0.1016
 Venus -115403-02-07 14:39 J -40429484.96 -40429484.89 -40429484.82 0.1845 0.1703
 Mercury -115403-07-04 18:58 J -40429337.82 -40429337.71 -40429337.61 0.1710 0.0741
 Mercury -115396-12-19 16:48 J -40426612.87 -40426612.80 -40426612.74 0.1731 0.1469
 Mercury -115394-01-14 02:24 J -40426222.53 -40426222.40 -40426222.27 0.1801 0.1056
 Mercury -115394-11-25 04:19 J -40425907.44 -40425907.32 -40425907.20 0.1715 0.0327
 Moon -115386-01-07 16:34 J -40423306.88 -40423306.81 -40423306.74 0.1848 0.1744
 Mercury -115385-06-05 01:12 J -40422792.60 -40422792.45 -40422792.29 0.1796 0.0278

Mercury -115384-04-16 13:41 J -40422477.05 -40422476.93 -40422476.81 0.1719 0.0096
 Mercury -115382-03-22 23:17 J -40421771.57 -40421771.53 -40421771.48 0.1703 0.1567
 Venus -115376-06-30 21:22 J -40419479.75 -40419479.61 -40419479.47 0.1685 0.0898
 Mercury -115376-10-26 01:12 J -40419362.60 -40419362.45 -40419362.30 0.1791 0.0472
 Mercury -115375-09-06 22:48 J -40419046.66 -40419046.55 -40419046.43 0.1723 0.0528
 Venus -115374-04-30 23:03 J -40418810.70 -40418810.54 -40418810.38 0.1673 0.0437
 Mercury -115373-08-12 09:07 J -40418341.20 -40418341.12 -40418341.03 0.1707 0.1180
 Venus -115371-02-07 15:51 J -40417797.01 -40417796.84 -40417796.66 0.1839 0.0523
 Mercury -115366-03-18 01:12 J -40415932.57 -40415932.45 -40415932.34 0.1786 0.1190
 Mercury -115365-01-28 07:55 J -40415616.27 -40415616.17 -40415616.07 0.1727 0.0967
 Mercury -115363-01-02 18:43 J -40414910.82 -40414910.72 -40414910.61 0.1711 0.0783
 Mercury -115356-06-19 16:48 J -40412185.87 -40412185.80 -40412185.73 0.1731 0.1415
 Mercury -115355-07-15 02:39 J -40411795.51 -40411795.39 -40411795.27 0.1801 0.1116
 Mercury -115354-05-26 04:19 J -40411480.43 -40411480.32 -40411480.20 0.1715 0.0378
 Moon -115346-07-04 10:34 J -40408519.25 -40408519.06 -40408518.87 0.1666 0.0085
 Earth -115346-07-04 16:19 J -40408519.00 -40408518.82 -40408518.63 0.1666 0.0155 *
 Mercury -115346-12-05 01:55 J -40408365.57 -40408365.42 -40408365.26 0.1797 0.0350
 Mercury -115345-10-15 13:41 J -40408050.05 -40408049.93 -40408049.80 0.1719 0.0076
 Venus -115344-06-29 15:36 J -40407792.91 -40407792.85 -40407792.78 0.1690 0.1554
 Mercury -115343-09-20 23:31 J -40407344.56 -40407344.52 -40407344.49 0.1703 0.1615
 Venus -115342-04-29 15:51 J -40407124.01 -40407123.84 -40407123.67 0.1678 0.0190
 Venus -115340-02-26 18:43 J -40406454.84 -40406454.72 -40406454.59 0.1668 0.1110
 Venus -115339-02-07 16:05 J -40406109.00 -40406108.83 -40406108.66 0.1832 0.0631
 Mercury -115336-04-26 01:41 J -40404935.58 -40404935.43 -40404935.28 0.1791 0.0400
 Mercury -115335-03-07 23:03 J -40404619.66 -40404619.54 -40404619.43 0.1723 0.0482
 Mercury -115333-02-11 09:07 J -40403914.20 -40403914.12 -40403914.04 0.1707 0.1224
 Mercury -115327-09-16 01:41 J -40401505.55 -40401505.43 -40401505.31 0.1786 0.1115
 Mercury -115326-07-29 08:10 J -40401189.27 -40401189.16 -40401189.06 0.1727 0.0917
 Mercury -115324-07-03 18:58 J -40400483.82 -40400483.71 -40400483.61 0.1711 0.0829
 Mercury -115317-12-18 16:48 J -40397758.87 -40397758.80 -40397758.72 0.1732 0.1370

Mercury -115315-01-13 03:22 J -40397368.47 -40397368.36 -40397368.24 0.1801 0.1198

Mercury -115315-11-24 04:19 J -40397053.43 -40397053.32 -40397053.20 0.1715 0.0424

Venus -115310-04-28 09:07 J -40395437.27 -40395437.12 -40395436.98 0.1683 0.0828

Venus -115308-02-25 10:48 J -40394768.21 -40394768.05 -40394767.89 0.1672 0.0503

Earth -115307-01-11 00:00 J -40394448.66 -40394448.50 -40394448.33 0.1845 0.1140

Moon -115307-01-11 08:39 J -40394448.31 -40394448.14 -40394447.97 0.1845 0.1014

Venus -115307-02-07 14:53 J -40394420.93 -40394420.88 -40394420.83 0.1825 0.1745

Mercury -115306-06-05 02:24 J -40393938.55 -40393938.40 -40393938.25 0.1796 0.0416

Venus -115306-12-05 18:00 J -40393754.91 -40393754.75 -40393754.58 0.1841 0.0718

Mercury -115305-04-15 13:41 J -40393623.05 -40393622.93 -40393622.81 0.1719 0.0037

Mercury -115303-03-21 23:17 J -40392917.55 -40392917.53 -40392917.50 0.1703 0.1653

Mercury -115297-10-25 02:10 J -40390508.57 -40390508.41 -40390508.26 0.1791 0.0334

Mercury -115296-09-05 23:03 J -40390192.65 -40390192.54 -40390192.42 0.1723 0.0428

Mercury -115294-08-12 09:22 J -40389487.19 -40389487.11 -40389487.03 0.1707 0.1271

Mercury -115287-03-17 02:24 J -40387078.53 -40387078.40 -40387078.28 0.1787 0.1045

Mercury -115286-01-27 08:10 J -40386762.27 -40386762.16 -40386762.06 0.1727 0.0869

Mercury -115284-01-01 18:58 J -40386056.81 -40386056.71 -40386056.61 0.1710 0.0875

Venus -115278-04-27 03:22 J -40383750.43 -40383750.36 -40383750.28 0.1688 0.1489

Mercury -115278-08-07 02:53 J -40383648.41 -40383648.38 -40383648.35 0.1781 0.1734

Mercury -115277-06-18 17:03 J -40383331.87 -40383331.79 -40383331.71 0.1731 0.1317

Venus -115276-02-24 03:36 J -40383081.51 -40383081.35 -40383081.18 0.1676 0.0128

Mercury -115276-07-14 04:05 J -40382941.44 -40382941.33 -40382941.22 0.1801 0.1271

Mercury -115275-05-25 04:19 J -40382626.43 -40382626.32 -40382626.20 0.1715 0.0469

Venus -115275-12-25 07:12 J -40382412.32 -40382412.20 -40382412.08 0.1666 0.1173

Venus -115274-12-05 19:41 J -40382066.86 -40382066.68 -40382066.51 0.1834 0.0464

Moon -115267-07-06 18:00 J -40379661.89 -40379661.75 -40379661.60 0.1668 0.1120

Earth -115267-07-06 18:00 J -40379661.87 -40379661.75 -40379661.62 0.1668 0.1192 *

Mercury -115267-12-04 03:07 J -40379511.52 -40379511.37 -40379511.22 0.1796 0.0495

Mercury -115266-10-15 13:55 J -40379196.04 -40379195.92 -40379195.80 0.1719 0.0051

Mercury -115264-09-19 23:31 J -40378490.53 -40378490.52 -40378490.52 0.1703 0.1699

Mercury -115257-04-25 02:39 J -40376081.54 -40376081.39 -40376081.23 0.1791 0.0260

Mercury -115256-03-06 23:03 J -40375765.66 -40375765.54 -40375765.42 0.1723 0.0382

Mercury -115254-02-10 09:22 J -40375060.19 -40375060.11 -40375060.04 0.1707 0.1314

Mercury -115248-09-15 02:39 J -40372651.51 -40372651.39 -40372651.26 0.1786 0.0980

Mercury -115247-07-28 08:10 J -40372335.27 -40372335.16 -40372335.05 0.1727 0.0818

Mercury -115245-07-02 18:58 J -40371629.81 -40371629.71 -40371629.61 0.1711 0.0917

Venus -115244-02-22 20:53 J -40371394.78 -40371394.63 -40371394.48 0.1681 0.0764

Venus -115243-12-23 23:31 J -40370725.68 -40370725.52 -40370725.36 0.1670 0.0562

Venus -115242-12-05 18:29 J -40370378.82 -40370378.73 -40370378.65 0.1827 0.1588

Venus -115240-10-01 21:07 J -40369712.77 -40369712.62 -40369712.46 0.1843 0.0902

Mercury -115238-02-05 03:07 J -40369221.42 -40369221.37 -40369221.31 0.1782 0.1670

Mercury -115238-12-18 17:03 J -40368904.87 -40368904.79 -40368904.71 0.1731 0.1266

Mercury -115236-01-12 04:34 J -40368514.42 -40368514.31 -40368514.21 0.1801 0.1339

Mercury -115236-11-23 04:34 J -40368199.42 -40368199.31 -40368199.19 0.1715 0.0514

Mercury -115228-05-10 01:41 J -40365474.43 -40365474.43 -40365474.42 0.1736 0.1729

Mercury -115227-06-04 03:36 J -40365084.50 -40365084.35 -40365084.20 0.1796 0.0565

Mercury -115226-04-15 13:55 J -40364769.04 -40364768.92 -40364768.80 0.1719 0.0096

Mercury -115218-10-25 03:22 J -40361654.51 -40361654.36 -40361654.20 0.1791 0.0182

Mercury -115217-09-04 23:17 J -40361338.65 -40361338.53 -40361338.41 0.1723 0.0335

Mercury -115215-08-11 09:22 J -40360633.18 -40360633.11 -40360633.04 0.1707 0.1357

Venus -115212-02-21 14:53 J -40359707.97 -40359707.88 -40359707.79 0.1686 0.1419

Venus -115211-12-22 16:05 J -40359039.00 -40359038.83 -40359038.67 0.1675 0.0067

Venus -115209-10-21 19:55 J -40358369.78 -40358369.67 -40358369.56 0.1665 0.1232

Mercury -115208-03-16 03:22 J -40358224.50 -40358224.36 -40358224.23 0.1786 0.0911

Venus -115208-10-01 22:19 J -40358024.75 -40358024.57 -40358024.39 0.1836 0.0284

Mercury -115207-01-26 08:10 J -40357908.27 -40357908.16 -40357908.05 0.1727 0.0772

Mercury -115205-01-01 18:58 J -40357202.81 -40357202.71 -40357202.61 0.1711 0.0962

Mercury -115199-08-06 03:51 J -40354794.40 -40354794.34 -40354794.27 0.1781 0.1598

Mercury -115198-06-18 17:03 J -40354477.87 -40354477.79 -40354477.70 0.1732 0.1219

Mercury -115197-07-13 05:17 J -40354087.38 -40354087.28 -40354087.19 0.1801 0.1415

Mercury -115196-05-24 04:34 J -40353772.42 -40353772.31 -40353772.19 0.1715 0.0557
 Mercury -115189-11-08 01:55 J -40351047.45 -40351047.42 -40351047.39 0.1736 0.1674
 Mercury -115188-12-03 04:19 J -40350657.47 -40350657.32 -40350657.17 0.1796 0.0637
 Mercury -115187-10-14 13:55 J -40350342.04 -40350341.92 -40350341.80 0.1719 0.0147
 Venus -115179-12-21 08:53 J -40347352.28 -40347352.13 -40347351.98 0.1679 0.0697
 Mercury -115178-04-25 03:36 J -40347227.51 -40347227.35 -40347227.19 0.1791 0.0123
 Mercury -115177-03-05 23:17 J -40346911.65 -40346911.53 -40346911.41 0.1723 0.0282
 Venus -115177-10-20 11:46 J -40346683.17 -40346683.01 -40346682.86 0.1669 0.0625
 Venus -115176-10-01 21:36 J -40346336.71 -40346336.60 -40346336.49 0.1830 0.1424
 Mercury -115175-02-09 09:22 J -40346206.18 -40346206.11 -40346206.05 0.1707 0.1400
 Venus -115174-07-29 23:31 J -40345670.67 -40345670.52 -40345670.38 0.1845 0.1100
 Mercury -115169-09-14 04:05 J -40343797.47 -40343797.33 -40343797.20 0.1787 0.0834
 Mercury -115168-07-27 08:24 J -40343481.26 -40343481.15 -40343481.04 0.1727 0.0720
 Mercury -115166-07-02 19:12 J -40342775.80 -40342775.70 -40342775.61 0.1710 0.1011
 Mercury -115159-02-04 04:19 J -40340367.39 -40340367.32 -40340367.24 0.1781 0.1528
 Mercury -115159-12-17 17:17 J -40340050.87 -40340050.78 -40340050.69 0.1731 0.1168
 Mercury -115157-01-12 06:00 J -40339660.34 -40339660.25 -40339660.16 0.1801 0.1495
 Mercury -115157-11-22 04:34 J -40339345.42 -40339345.31 -40339345.19 0.1715 0.0605
 Mercury -115149-05-09 01:55 J -40336620.46 -40336620.42 -40336620.38 0.1736 0.1629
 Mercury -115148-06-03 04:48 J -40336230.45 -40336230.30 -40336230.16 0.1796 0.0705
 Mercury -115147-04-14 13:55 J -40335915.04 -40335914.92 -40335914.79 0.1719 0.0194
 Venus -115147-12-20 02:53 J -40335665.48 -40335665.38 -40335665.28 0.1685 0.1354
 Venus -115145-10-19 04:05 J -40334996.50 -40334996.33 -40334996.17 0.1673 0.0040
 Venus -115143-08-19 08:24 J -40334327.26 -40334327.15 -40334327.05 0.1664 0.1293
 Venus -115142-07-30 01:26 J -40333982.63 -40333982.44 -40333982.26 0.1839 0.0110
 Earth -115141-07-02 20:38 J -40333643.78 -40333643.64 -40333643.49 0.1662 0.1025
 Moon -115141-07-03 02:38 J -40333643.52 -40333643.39 -40333643.25 0.1662 0.1084 *
 Mercury -115139-10-24 04:34 J -40332800.47 -40332800.31 -40332800.16 0.1791 0.0066
 Mercury -115138-09-04 23:17 J -40332484.65 -40332484.53 -40332484.41 0.1723 0.0237
 Mercury -115136-08-10 09:22 J -40331779.17 -40331779.11 -40331779.05 0.1707 0.1445

Mercury -115129-03-15 04:19 J -40329370.46 -40329370.32 -40329370.18 0.1786 0.0772

Mercury -115128-01-25 08:24 J -40329054.26 -40329054.15 -40329054.04 0.1727 0.0671

Mercury -115127-12-31 18:58 J -40328348.80 -40328348.71 -40328348.61 0.1711 0.1054

Mercury -115120-08-05 04:48 J -40325940.39 -40325940.30 -40325940.22 0.1782 0.1465

Mercury -115119-06-17 17:17 J -40325623.87 -40325623.78 -40325623.68 0.1731 0.1116

Mercury -115118-07-13 06:14 J -40325233.32 -40325233.24 -40325233.16 0.1801 0.1553

Mercury -115117-05-23 04:48 J -40324918.42 -40324918.30 -40324918.19 0.1715 0.0652

Venus -115113-10-17 21:07 J -40323309.78 -40323309.62 -40323309.46 0.1678 0.0635

Venus -115111-08-18 00:14 J -40322640.64 -40322640.49 -40322640.34 0.1668 0.0687

Venus -115110-07-30 01:12 J -40322294.58 -40322294.45 -40322294.32 0.1832 0.1261

Mercury -115110-11-08 01:55 J -40322193.47 -40322193.42 -40322193.37 0.1736 0.1578

Mercury -115109-12-02 05:31 J -40321803.41 -40321803.27 -40321803.13 0.1797 0.0783

Venus -115108-05-26 02:38 J -40321628.51 -40321628.39 -40321628.26 0.1846 0.1289

Mercury -115108-10-13 14:10 J -40321488.03 -40321487.91 -40321487.79 0.1719 0.0238

Mercury -115099-04-24 05:02 J -40318373.45 -40318373.29 -40318373.14 0.1791 0.0045

Mercury -115098-03-05 23:17 J -40318057.65 -40318057.53 -40318057.40 0.1723 0.0195

Mercury -115096-02-08 09:22 J -40317352.16 -40317352.11 -40317352.05 0.1707 0.1488

Mercury -115090-09-14 05:02 J -40314943.44 -40314943.29 -40314943.15 0.1787 0.0699

Mercury -115089-07-26 08:24 J -40314627.26 -40314627.15 -40314627.03 0.1727 0.0624

Mercury -115087-07-01 19:12 J -40313921.79 -40313921.70 -40313921.61 0.1711 0.1097

Venus -115081-10-16 14:38 J -40311623.00 -40311622.89 -40311622.78 0.1683 0.1287

Mercury -115080-02-03 05:17 J -40311513.37 -40311513.28 -40311513.18 0.1781 0.1395

Mercury -115080-12-16 17:17 J -40311196.87 -40311196.78 -40311196.68 0.1732 0.1072

Venus -115079-08-16 16:34 J -40310953.98 -40310953.81 -40310953.64 0.1672 0.0066

Mercury -115078-01-11 06:58 J -40310806.27 -40310806.21 -40310806.14 0.1801 0.1636

Mercury -115078-11-22 04:48 J -40310491.41 -40310491.30 -40310491.19 0.1715 0.0696

Venus -115077-06-15 21:07 J -40310284.71 -40310284.62 -40310284.52 0.1663 0.1350

Venus -115076-05-26 04:19 J -40309940.50 -40309940.32 -40309940.14 0.1841 0.0082

Mercury -115070-05-09 02:10 J -40307766.47 -40307766.41 -40307766.35 0.1736 0.1524

Mercury -115069-06-02 06:00 J -40307376.39 -40307376.25 -40307376.11 0.1796 0.0849

Mercury -115068-04-13 14:10 J -40307061.03 -40307060.91 -40307060.79 0.1719 0.0281

Earth -115062-07-05 21:22 J -40304786.79 -40304786.61 -40304786.43 0.1664 0.0266

Moon -115062-07-05 23:17 J -40304786.70 -40304786.53 -40304786.36 0.1664 0.0333 *

Mercury -115060-10-23 05:31 J -40303946.43 -40303946.27 -40303946.12 0.1792 0.0103

Mercury -115059-09-03 23:31 J -40303630.64 -40303630.52 -40303630.40 0.1723 0.0137

Mercury -115057-08-09 09:22 J -40302925.16 -40302925.11 -40302925.06 0.1707 0.1534

Mercury -115050-03-15 05:31 J -40300516.42 -40300516.27 -40300516.13 0.1787 0.0627

Mercury -115049-01-25 08:24 J -40300200.26 -40300200.15 -40300200.03 0.1727 0.0580

Mercury -115048-12-30 19:12 J -40299494.79 -40299494.70 -40299494.61 0.1711 0.1142

Venus -115047-08-15 09:22 J -40299267.27 -40299267.11 -40299266.96 0.1676 0.0573

Venus -115045-06-14 12:58 J -40298598.11 -40298597.96 -40298597.81 0.1666 0.0746

Venus -115044-05-26 04:34 J -40298252.46 -40298252.31 -40298252.17 0.1834 0.1088

Venus -115042-03-23 04:19 J -40297586.42 -40297586.32 -40297586.21 0.1848 0.1498

Mercury -115041-08-04 05:46 J -40297086.36 -40297086.26 -40297086.15 0.1781 0.1326

Mercury -115040-06-16 17:31 J -40296769.87 -40296769.77 -40296769.67 0.1731 0.1019

Mercury -115039-07-12 07:41 J -40296379.23 -40296379.18 -40296379.13 0.1801 0.1709

Mercury -115038-05-23 04:48 J -40296064.41 -40296064.30 -40296064.19 0.1715 0.0740

Mercury -115031-11-07 02:10 J -40293339.47 -40293339.41 -40293339.34 0.1736 0.1476

Mercury -115030-12-02 06:43 J -40292949.36 -40292949.22 -40292949.09 0.1796 0.0927

Mercury -115029-10-12 14:10 J -40292634.03 -40292633.91 -40292633.79 0.1719 0.0333

Moon -115023-01-09 20:24 J -40290718.87 -40290718.65 -40290718.43 0.1850 0.0044

Earth -115023-01-10 05:31 J -40290718.48 -40290718.27 -40290718.06 0.1850 0.0235 *

Mercury -115020-04-23 06:00 J -40289519.41 -40289519.25 -40289519.09 0.1791 0.0166

Mercury -115019-03-04 23:31 J -40289203.65 -40289203.52 -40289203.40 0.1723 0.0104

Mercury -115017-02-08 09:22 J -40288498.15 -40288498.11 -40288498.06 0.1707 0.1574

Venus -115015-08-14 02:38 J -40287580.50 -40287580.39 -40287580.28 0.1681 0.1221

Venus -115013-06-13 04:48 J -40286911.47 -40286911.30 -40286911.14 0.1670 0.0131

Venus -115011-04-13 09:50 J -40286242.18 -40286242.09 -40286242.01 0.1661 0.1411

Mercury -115011-09-13 06:00 J -40286089.40 -40286089.25 -40286089.11 0.1786 0.0564

Venus -115010-03-23 06:29 J -40285898.41 -40285898.23 -40285898.05 0.1843 0.0281

Mercury -115010-07-26 08:38 J -40285773.26 -40285773.14 -40285773.02 0.1727 0.0525

Mercury -115008-06-30 19:12 J -40285067.79 -40285067.70 -40285067.61 0.1711 0.1184

Mercury -115001-02-03 06:14 J -40282659.34 -40282659.24 -40282659.13 0.1782 0.1260

Mercury -115001-12-15 17:31 J -40282342.87 -40282342.77 -40282342.67 0.1731 0.0969

115TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 115th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -114999-01-10 08:10 J | -40281952.18 | -40281952.16 | -40281952.14 | 0.1801 | 0.1777 | | |
| Mercury | -114999-11-21 04:48 J | -40281637.40 | -40281637.30 | -40281637.19 | 0.1715 | 0.0791 | | |
| Mercury | -114991-05-08 02:10 J | -40278912.47 | -40278912.41 | -40278912.34 | 0.1736 | 0.1428 | | |
| Mercury | -114990-06-02 07:12 J | -40278522.33 | -40278522.20 | -40278522.07 | 0.1797 | 0.0996 | | |
| Mercury | -114989-04-12 14:10 J | -40278207.03 | -40278206.91 | -40278206.79 | 0.1719 | 0.0377 | | |
| Moon | -114983-07-07 18:14 J | -40275929.80 | -40275929.74 | -40275929.68 | 0.1665 | 0.1558 | | |
| Earth | -114983-07-07 22:19 J | -40275929.62 | -40275929.57 | -40275929.51 | 0.1665 | 0.1572 | | |
| Venus | -114981-06-11 21:36 J | -40275224.76 | -40275224.60 | -40275224.44 | 0.1675 | 0.0512 | | |
| Mercury | -114981-10-22 06:43 J | -40275092.38 | -40275092.22 | -40275092.07 | 0.1791 | 0.0242 | | |
| Mercury | -114980-09-02 23:31 J | -40274776.64 | -40274776.52 | -40274776.40 | 0.1723 | 0.0054 | | |
| Venus | -114979-04-12 01:12 J | -40274555.60 | -40274555.45 | -40274555.30 | 0.1665 | 0.0810 | | |
| Venus | -114978-03-23 07:41 J | -40274210.33 | -40274210.18 | -40274210.02 | 0.1836 | 0.0917 | | |
| Mercury | -114978-08-09 09:22 J | -40274071.14 | -40274071.11 | -40274071.07 | 0.1707 | 0.1619 | | |

Venus -114976-01-17 06:43 J -40273544.29 -40273544.22 -40273544.15 0.1850 0.1705

Mercury -114971-03-14 06:29 J -40271662.38 -40271662.23 -40271662.08 0.1787 0.0491

Mercury -114970-01-24 08:38 J -40271346.26 -40271346.14 -40271346.02 0.1727 0.0479

Mercury -114969-12-29 19:12 J -40270640.78 -40270640.70 -40270640.61 0.1711 0.1231

Mercury -114962-08-04 06:58 J -40268232.32 -40268232.21 -40268232.10 0.1782 0.1190

Mercury -114961-06-15 17:31 J -40267915.87 -40267915.77 -40267915.66 0.1732 0.0923

Mercury -114959-05-22 04:48 J -40267210.40 -40267210.30 -40267210.19 0.1715 0.0829

Mercury -114952-11-06 02:24 J -40264485.47 -40264485.40 -40264485.32 0.1736 0.1373

Mercury -114951-12-01 07:41 J -40264095.30 -40264095.18 -40264095.05 0.1796 0.1068

Mercury -114950-10-12 14:24 J -40263780.02 -40263779.90 -40263779.79 0.1719 0.0423

Venus -114949-06-10 14:38 J -40263538.01 -40263537.89 -40263537.76 0.1679 0.1161

Venus -114947-04-10 17:17 J -40262868.95 -40262868.78 -40262868.62 0.1669 0.0190

Venus -114945-02-08 22:05 J -40262199.65 -40262199.58 -40262199.50 0.1660 0.1476

Venus -114944-01-17 08:53 J -40261856.30 -40261856.13 -40261855.95 0.1845 0.0477

Mercury -114941-04-22 06:58 J -40260665.36 -40260665.21 -40260665.05 0.1792 0.0304

Mercury -114940-03-03 23:46 J -40260349.64 -40260349.51 -40260349.39 0.1723 0.0053

Mercury -114938-02-07 09:36 J -40259644.13 -40259644.10 -40259644.08 0.1707 0.1661

Mercury -114932-09-12 07:12 J -40257235.35 -40257235.20 -40257235.05 0.1787 0.0415

Mercury -114931-07-25 08:53 J -40256919.25 -40256919.13 -40256919.01 0.1727 0.0432

Mercury -114929-06-29 19:26 J -40256213.77 -40256213.69 -40256213.61 0.1710 0.1277

Mercury -114922-02-02 07:26 J -40253805.31 -40253805.19 -40253805.07 0.1781 0.1121

Mercury -114922-12-15 17:46 J -40253488.87 -40253488.76 -40253488.66 0.1732 0.0873

Mercury -114920-11-20 04:48 J -40252783.40 -40252783.30 -40252783.19 0.1715 0.0878

Venus -114915-04-09 09:36 J -40251182.26 -40251182.10 -40251181.94 0.1673 0.0446

Venus -114913-02-07 13:41 J -40250513.07 -40250512.93 -40250512.79 0.1664 0.0873

Venus -114912-01-17 10:19 J -40250168.24 -40250168.07 -40250167.90 0.1839 0.0728

Mercury -114912-05-07 02:24 J -40250058.48 -40250058.40 -40250058.32 0.1736 0.1328

Mercury -114911-06-01 08:10 J -40249668.28 -40249668.16 -40249668.03 0.1796 0.1138

Mercury -114910-04-12 14:24 J -40249353.02 -40249352.90 -40249352.79 0.1719 0.0467

Mercury -114902-10-22 07:55 J -40246238.33 -40246238.17 -40246238.02 0.1792 0.0385

Mercury -114901-09-01 23:46 J -40245922.63 -40245922.51 -40245922.39 0.1723 0.0057
 Mercury -114899-08-08 09:36 J -40245217.10 -40245217.10 -40245217.10 0.1707 0.1704
 Mercury -114892-03-13 07:26 J -40242808.34 -40242808.19 -40242808.04 0.1786 0.0357
 Mercury -114891-01-23 08:53 J -40242492.25 -40242492.13 -40242492.01 0.1727 0.0382
 Mercury -114890-12-29 19:12 J -40241786.77 -40241786.70 -40241786.62 0.1711 0.1318
 Venus -114883-04-08 02:24 J -40239495.53 -40239495.40 -40239495.27 0.1678 0.1089
 Mercury -114883-08-03 07:55 J -40239378.29 -40239378.17 -40239378.05 0.1782 0.1056
 Mercury -114882-06-15 17:46 J -40239061.87 -40239061.76 -40239061.65 0.1731 0.0823
 Venus -114881-02-06 05:17 J -40238826.44 -40238826.28 -40238826.11 0.1667 0.0257
 Mercury -114880-05-21 05:02 J -40238356.39 -40238356.29 -40238356.19 0.1715 0.0922
 Venus -114880-12-06 11:02 J -40238157.10 -40238157.04 -40238156.98 0.1659 0.1537
 Venus -114879-11-14 11:02 J -40237814.21 -40237814.04 -40237813.87 0.1847 0.0682
 Mercury -114874-12-24 08:53 J -40235948.16 -40235948.13 -40235948.10 0.1777 0.1721
 Mercury -114873-11-05 02:38 J -40235631.48 -40235631.39 -40235631.31 0.1736 0.1276
 Mercury -114872-11-30 09:07 J -40235241.24 -40235241.12 -40235241.01 0.1797 0.1217
 Mercury -114871-10-11 14:24 J -40234926.01 -40234925.90 -40234925.78 0.1719 0.0515
 Mercury -114862-04-22 08:24 J -40231811.30 -40231811.15 -40231811.00 0.1791 0.0453
 Mercury -114861-03-02 23:46 J -40231495.63 -40231495.51 -40231495.39 0.1723 0.0095
 Moon -114857-07-03 22:05 J -40229911.75 -40229911.58 -40229911.40 0.1660 0.0658
 Earth -114857-07-04 01:55 J -40229911.59 -40229911.42 -40229911.25 0.1660 0.0601 *
 Mercury -114853-09-11 08:10 J -40228381.31 -40228381.16 -40228381.01 0.1787 0.0282
 Mercury -114852-07-24 08:53 J -40228065.25 -40228065.13 -40228065.01 0.1727 0.0335
 Mercury -114850-06-29 19:26 J -40227359.76 -40227359.69 -40227359.62 0.1711 0.1361
 Venus -114849-02-04 21:50 J -40227139.76 -40227139.59 -40227139.43 0.1672 0.0380
 Venus -114848-12-05 02:10 J -40226470.55 -40226470.41 -40226470.27 0.1662 0.0938
 Venus -114847-11-14 13:41 J -40226126.10 -40226125.93 -40226125.76 0.1841 0.0550
 Mercury -114843-02-01 08:24 J -40224951.28 -40224951.15 -40224951.02 0.1782 0.0986
 Mercury -114843-12-14 17:46 J -40224634.87 -40224634.76 -40224634.65 0.1732 0.0777
 Mercury -114841-11-19 05:02 J -40223929.39 -40223929.29 -40223929.19 0.1715 0.0965
 Mercury -114834-06-24 09:07 J -40221521.17 -40221521.12 -40221521.07 0.1776 0.1665

Mercury -114833-05-06 02:38 J -40221204.47 -40221204.39 -40221204.30 0.1736 0.1225
 Mercury -114832-05-31 09:22 J -40220814.21 -40220814.11 -40220814.00 0.1796 0.1280
 Mercury -114831-04-11 14:24 J -40220499.01 -40220498.90 -40220498.78 0.1719 0.0559
 Mercury -114824-09-26 11:17 J -40217774.06 -40217774.03 -40217774.01 0.1740 0.1689
 Mercury -114823-10-21 08:53 J -40217384.28 -40217384.13 -40217383.98 0.1792 0.0520
 Mercury -114822-09-02 00:00 J -40217068.63 -40217068.50 -40217068.38 0.1723 0.0156
 Venus -114817-02-03 14:38 J -40215453.02 -40215452.89 -40215452.76 0.1676 0.1027
 Venus -114816-12-03 18:00 J -40214783.91 -40214783.75 -40214783.58 0.1666 0.0317
 Venus -114815-11-14 13:41 J -40214437.99 -40214437.93 -40214437.87 0.1834 0.1725
 Venus -114814-10-03 23:31 J -40214114.55 -40214114.52 -40214114.47 0.1658 0.1601
 Mercury -114813-03-12 08:53 J -40213954.29 -40213954.13 -40213953.98 0.1787 0.0217
 Venus -114813-09-10 13:41 J -40213772.09 -40213771.93 -40213771.77 0.1848 0.0878
 Mercury -114812-01-22 08:53 J -40213638.25 -40213638.13 -40213638.01 0.1727 0.0289
 Mercury -114811-12-28 19:26 J -40212932.76 -40212932.69 -40212932.62 0.1711 0.1405
 Mercury -114804-08-02 08:53 J -40210524.26 -40210524.13 -40210523.99 0.1782 0.0918
 Mercury -114803-06-14 18:00 J -40210207.86 -40210207.75 -40210207.64 0.1732 0.0725
 Mercury -114801-05-20 05:02 J -40209502.39 -40209502.29 -40209502.19 0.1715 0.1009
 Mercury -114795-12-23 09:50 J -40207094.16 -40207094.09 -40207094.03 0.1777 0.1591
 Mercury -114794-11-05 02:38 J -40206777.48 -40206777.39 -40206777.30 0.1736 0.1178
 Mercury -114793-11-29 10:05 J -40206387.18 -40206387.08 -40206386.97 0.1796 0.1357
 Mercury -114792-10-10 14:38 J -40206072.01 -40206071.89 -40206071.78 0.1719 0.0606
 Mercury -114784-03-27 11:17 J -40203347.07 -40203347.03 -40203346.99 0.1741 0.1640
 Venus -114784-12-02 10:05 J -40203097.24 -40203097.08 -40203096.91 0.1670 0.0318
 Mercury -114783-04-21 09:22 J -40202957.26 -40202957.11 -40202956.96 0.1792 0.0590
 Mercury -114782-03-02 23:46 J -40202641.63 -40202641.51 -40202641.39 0.1723 0.0187
 Venus -114782-10-02 14:53 J -40202428.01 -40202427.88 -40202427.75 0.1661 0.0998
 Venus -114781-09-10 16:05 J -40202084.01 -40202083.83 -40202083.65 0.1843 0.0359
 Earth -114778-07-07 02:24 J -40201054.56 -40201054.40 -40201054.23 0.1661 0.0677
 Moon -114778-07-07 04:48 J -40201054.47 -40201054.30 -40201054.12 0.1661 0.0644 *
 Mercury -114774-09-11 09:07 J -40199527.27 -40199527.12 -40199526.96 0.1786 0.0148

Mercury -114773-07-23 09:07 J -40199211.24 -40199211.12 -40199211.00 0.1727 0.0237
 Mercury -114771-06-28 19:26 J -40198505.75 -40198505.69 -40198505.63 0.1711 0.1447
 Mercury -114764-01-31 09:36 J -40196097.24 -40196097.10 -40196096.97 0.1782 0.0849
 Mercury -114764-12-13 18:00 J -40195780.86 -40195780.75 -40195780.63 0.1731 0.0677
 Mercury -114762-11-19 05:17 J -40195075.38 -40195075.28 -40195075.19 0.1715 0.1059
 Mercury -114755-06-23 10:19 J -40192667.15 -40192667.07 -40192667.00 0.1777 0.1526
 Mercury -114754-05-06 02:53 J -40192350.48 -40192350.38 -40192350.29 0.1736 0.1129
 Mercury -114753-05-30 10:48 J -40191960.15 -40191960.05 -40191959.96 0.1797 0.1426
 Mercury -114752-04-10 14:38 J -40191645.01 -40191644.89 -40191644.78 0.1719 0.0650
 Venus -114752-12-01 02:38 J -40191410.53 -40191410.39 -40191410.25 0.1674 0.0960
 Venus -114750-10-01 06:29 J -40190741.40 -40190741.23 -40190741.07 0.1665 0.0381
 Venus -114749-09-10 16:34 J -40190395.91 -40190395.81 -40190395.72 0.1837 0.1549
 Venus -114747-07-08 15:50 J -40189729.99 -40189729.84 -40189729.69 0.1850 0.1087
 Mercury -114745-09-25 11:31 J -40188920.07 -40188920.02 -40188919.98 0.1740 0.1589
 Mercury -114744-10-20 10:05 J -40188530.22 -40188530.08 -40188529.93 0.1792 0.0667
 Mercury -114743-09-01 00:00 J -40188214.62 -40188214.50 -40188214.38 0.1723 0.0236
 Earth -114739-01-09 08:10 J -40186988.36 -40186988.16 -40186987.97 0.1854 0.0769
 Moon -114739-01-09 15:22 J -40186988.06 -40186987.86 -40186987.67 0.1854 0.0315 *
 Mercury -114734-03-12 09:50 J -40185100.25 -40185100.09 -40185099.94 0.1787 0.0077
 Mercury -114733-01-22 09:07 J -40184784.24 -40184784.12 -40184784.00 0.1727 0.0193
 Mercury -114732-12-27 19:26 J -40184078.74 -40184078.69 -40184078.63 0.1711 0.1492
 Mercury -114725-08-01 10:05 J -40181670.22 -40181670.08 -40181669.95 0.1782 0.0784
 Mercury -114724-06-13 18:00 J -40181353.86 -40181353.75 -40181353.63 0.1732 0.0632
 Mercury -114722-05-20 05:02 J -40180648.38 -40180648.29 -40180648.20 0.1715 0.1097
 Venus -114720-11-29 20:10 J -40179723.70 -40179723.66 -40179723.62 0.1679 0.1622
 Venus -114718-09-29 22:19 J -40179054.74 -40179054.57 -40179054.41 0.1669 0.0250
 Venus -114716-07-30 03:36 J -40178385.48 -40178385.35 -40178385.23 0.1660 0.1061
 Mercury -114716-12-22 10:34 J -40178240.14 -40178240.06 -40178239.97 0.1777 0.1463
 Venus -114715-07-08 18:43 J -40178041.90 -40178041.72 -40178041.54 0.1845 0.0170
 Mercury -114715-11-04 02:53 J -40177923.47 -40177923.38 -40177923.28 0.1736 0.1077

Mercury -114714-11-29 11:17 J -40177533.11 -40177533.03 -40177532.94 0.1796 0.1497

Mercury -114713-10-09 14:38 J -40177218.00 -40177217.89 -40177217.78 0.1719 0.0695

Mercury -114705-03-26 11:31 J -40174493.08 -40174493.02 -40174492.97 0.1741 0.1539

Mercury -114704-04-20 10:34 J -40174103.21 -40174103.06 -40174102.92 0.1792 0.0730

Mercury -114703-03-02 00:00 J -40173787.62 -40173787.50 -40173787.38 0.1723 0.0285

Mercury -114695-09-10 10:34 J -40170673.22 -40170673.06 -40170672.91 0.1787 0.0038

Mercury -114694-07-23 09:07 J -40170357.24 -40170357.12 -40170357.00 0.1727 0.0149

Mercury -114692-06-27 19:26 J -40169651.74 -40169651.69 -40169651.63 0.1711 0.1537

Venus -114686-09-28 14:53 J -40167368.02 -40167367.88 -40167367.74 0.1673 0.0899

Mercury -114685-01-31 10:34 J -40167243.20 -40167243.06 -40167242.92 0.1782 0.0713

Mercury -114685-12-12 18:14 J -40166926.86 -40166926.74 -40166926.63 0.1732 0.0582

Venus -114684-07-28 19:12 J -40166698.87 -40166698.70 -40166698.54 0.1664 0.0443

Venus -114683-07-08 19:55 J -40166353.79 -40166353.67 -40166353.55 0.1839 0.1376

Mercury -114683-11-18 05:17 J -40166221.37 -40166221.28 -40166221.20 0.1715 0.1144

Venus -114681-05-04 18:43 J -40165687.85 -40165687.72 -40165687.59 0.1852 0.1285

Mercury -114676-06-22 11:17 J -40163813.13 -40163813.03 -40163812.94 0.1777 0.1394

Mercury -114675-05-05 02:53 J -40163496.48 -40163496.38 -40163496.28 0.1736 0.1032

Mercury -114674-05-30 12:00 J -40163106.08 -40163106.00 -40163105.93 0.1796 0.1569

Mercury -114673-04-09 14:38 J -40162791.00 -40162790.89 -40162790.78 0.1719 0.0740

Mercury -114666-09-25 11:46 J -40160066.08 -40160066.01 -40160065.95 0.1741 0.1487

Mercury -114665-10-19 11:17 J -40159676.17 -40159676.03 -40159675.89 0.1792 0.0807

Mercury -114664-08-31 00:00 J -40159360.62 -40159360.50 -40159360.38 0.1723 0.0329

Mercury -114655-03-11 10:48 J -40156246.21 -40156246.05 -40156245.90 0.1786 0.0067

Mercury -114654-01-21 09:22 J -40155930.24 -40155930.11 -40155929.99 0.1727 0.0108

Venus -114654-09-27 07:55 J -40155681.22 -40155681.17 -40155681.10 0.1678 0.1557

Mercury -114653-12-26 19:26 J -40155224.73 -40155224.69 -40155224.64 0.1711 0.1577

Earth -114652-07-03 07:26 J -40155036.28 -40155036.19 -40155036.10 0.1657 0.1426

Moon -114652-07-03 12:29 J -40155036.08 -40155035.98 -40155035.88 0.1657 0.1354

Venus -114652-07-27 11:02 J -40155012.21 -40155012.04 -40155011.88 0.1667 0.0191

Venus -114650-05-27 16:34 J -40154342.93 -40154342.81 -40154342.69 0.1659 0.1118

Venus -114649-05-04 21:22 J -40153999.80 -40153999.61 -40153999.43 0.1847 0.0050

Mercury -114646-08-01 11:02 J -40152816.18 -40152816.04 -40152815.89 0.1782 0.0646

Mercury -114645-06-12 18:14 J -40152499.85 -40152499.74 -40152499.62 0.1731 0.0532

Mercury -114643-05-19 05:17 J -40151794.37 -40151794.28 -40151794.19 0.1715 0.1188

Mercury -114637-12-21 12:00 J -40149386.11 -40149386.00 -40149385.90 0.1777 0.1322

Mercury -114636-11-03 03:07 J -40149069.47 -40149069.37 -40149069.27 0.1736 0.0978

Mercury -114635-11-28 12:43 J -40148679.03 -40148678.97 -40148678.91 0.1797 0.1648

Mercury -114634-10-09 14:53 J -40148363.99 -40148363.88 -40148363.78 0.1719 0.0788

Mercury -114626-03-26 11:46 J -40145639.08 -40145639.01 -40145638.95 0.1741 0.1440

Mercury -114625-04-19 11:46 J -40145249.15 -40145249.01 -40145248.87 0.1792 0.0874

Mercury -114624-03-01 00:00 J -40144933.61 -40144933.50 -40144933.38 0.1723 0.0377

Venus -114620-07-26 03:22 J -40143325.51 -40143325.36 -40143325.22 0.1671 0.0835

Venus -114618-05-26 07:55 J -40142656.33 -40142656.17 -40142656.01 0.1662 0.0501

Venus -114617-05-04 22:34 J -40142311.69 -40142311.56 -40142311.42 0.1841 0.1192

Mercury -114616-09-09 11:31 J -40141819.18 -40141819.02 -40141818.87 0.1787 0.0137

Venus -114615-03-01 20:10 J -40141645.76 -40141645.66 -40141645.55 0.1853 0.1505

Mercury -114615-07-22 09:22 J -40141503.23 -40141503.11 -40141502.99 0.1727 0.0058

Mercury -114613-06-26 19:41 J -40140797.72 -40140797.68 -40140797.65 0.1711 0.1620

Mercury -114606-01-30 11:46 J -40138389.16 -40138389.01 -40138388.87 0.1782 0.0579

Mercury -114606-12-12 18:14 J -40138072.85 -40138072.74 -40138072.62 0.1732 0.0490

Mercury -114604-11-17 05:17 J -40137367.36 -40137367.28 -40137367.20 0.1715 0.1231

Mercury -114597-06-21 12:00 J -40134959.10 -40134959.00 -40134958.89 0.1777 0.1266

Mercury -114596-05-04 03:07 J -40134642.47 -40134642.37 -40134642.26 0.1736 0.0930

Mercury -114595-05-29 12:58 J -40134252.00 -40134251.96 -40134251.91 0.1796 0.1707

Mercury -114594-04-09 14:53 J -40133936.99 -40133936.88 -40133936.78 0.1719 0.0831

Venus -114588-07-24 20:10 J -40131638.73 -40131638.66 -40131638.58 0.1676 0.1491

Mercury -114587-09-24 11:46 J -40131212.08 -40131212.01 -40131211.93 0.1741 0.1388

Venus -114586-05-24 23:31 J -40130969.69 -40130969.52 -40130969.36 0.1666 0.0131

Mercury -114586-10-19 12:14 J -40130822.12 -40130821.99 -40130821.85 0.1792 0.0944

Mercury -114585-08-30 00:14 J -40130506.61 -40130506.49 -40130506.37 0.1723 0.0422

Venus -114584-03-24 05:02 J -40130300.40 -40130300.29 -40130300.17 0.1658 0.1181
 Venus -114583-03-01 23:17 J -40129957.72 -40129957.53 -40129957.35 0.1849 0.0241
 Mercury -114576-03-10 12:00 J -40127392.15 -40127392.00 -40127391.84 0.1787 0.0214
 Mercury -114575-01-20 09:22 J -40127076.23 -40127076.11 -40127075.99 0.1727 0.0013
 Mercury -114574-12-26 19:41 J -40126370.70 -40126370.68 -40126370.66 0.1711 0.1664
 Earth -114573-07-05 07:41 J -40126179.36 -40126179.18 -40126179.00 0.1658 0.0172
 Moon -114573-07-05 07:55 J -40126179.34 -40126179.17 -40126179.00 0.1658 0.0075 *
 Mercury -114567-07-31 12:14 J -40123962.14 -40123961.99 -40123961.85 0.1782 0.0510
 Mercury -114566-06-12 18:29 J -40123645.85 -40123645.73 -40123645.61 0.1732 0.0437
 Mercury -114564-05-18 05:17 J -40122940.36 -40122940.28 -40122940.20 0.1715 0.1273
 Mercury -114558-12-21 12:43 J -40120532.08 -40120531.97 -40120531.85 0.1777 0.1192
 Mercury -114557-11-02 03:22 J -40120215.47 -40120215.36 -40120215.26 0.1736 0.0885
 Mercury -114556-11-27 13:41 J -40119824.94 -40119824.93 -40119824.91 0.1797 0.1786
 Mercury -114555-10-08 14:53 J -40119509.98 -40119509.88 -40119509.78 0.1719 0.0875
 Venus -114554-05-23 15:50 J -40119282.99 -40119282.84 -40119282.69 0.1670 0.0774
 Venus -114552-03-22 20:10 J -40118613.81 -40118613.66 -40118613.50 0.1661 0.0569
 Venus -114551-03-02 01:41 J -40118269.58 -40118269.43 -40118269.28 0.1843 0.1008
 Venus -114550-12-27 22:05 J -40117603.64 -40117603.58 -40117603.51 0.1855 0.1721
 Mercury -114547-03-25 12:00 J -40116785.08 -40116785.00 -40116784.93 0.1741 0.1340
 Mercury -114546-04-19 12:58 J -40116395.09 -40116394.96 -40116394.83 0.1792 0.1014
 Mercury -114545-02-29 00:14 J -40116079.61 -40116079.49 -40116079.37 0.1723 0.0464
 Mercury -114537-09-08 12:29 J -40112965.13 -40112964.98 -40112964.82 0.1787 0.0271
 Mercury -114536-07-21 09:36 J -40112649.22 -40112649.10 -40112648.98 0.1727 0.0056
 Mercury -114534-06-26 19:41 J -40111943.69 -40111943.68 -40111943.68 0.1711 0.1705
 Mercury -114527-01-29 12:43 J -40109535.12 -40109534.97 -40109534.82 0.1782 0.0439
 Mercury -114527-12-11 18:29 J -40109218.85 -40109218.73 -40109218.61 0.1732 0.0389
 Mercury -114525-11-16 05:31 J -40108513.35 -40108513.27 -40108513.20 0.1715 0.1321
 Venus -114522-05-22 08:24 J -40107596.23 -40107596.15 -40107596.06 0.1674 0.1428
 Venus -114520-03-21 11:46 J -40106927.17 -40106927.01 -40106926.84 0.1665 0.0075
 Venus -114518-01-19 17:46 J -40106257.87 -40106257.76 -40106257.65 0.1657 0.1244

Mercury -114518-06-21 13:12 J -40106105.06 -40106104.95 -40106104.83 0.1777 0.1126

Venus -114518-12-28 01:26 J -40105915.62 -40105915.44 -40105915.27 0.1850 0.0446

Mercury -114517-05-03 03:22 J -40105788.47 -40105788.36 -40105788.25 0.1736 0.0834

Mercury -114515-04-08 14:53 J -40105082.98 -40105082.88 -40105082.78 0.1719 0.0918

Mercury -114508-09-23 12:00 J -40102358.08 -40102358.00 -40102357.92 0.1741 0.1288

Mercury -114507-10-18 13:41 J -40101968.06 -40101967.93 -40101967.81 0.1792 0.1091

Mercury -114506-08-30 00:14 J -40101652.60 -40101652.49 -40101652.37 0.1723 0.0516

Mercury -114497-03-09 13:12 J -40098538.11 -40098537.95 -40098537.80 0.1787 0.0344

Mercury -114496-01-19 09:36 J -40098222.23 -40098222.10 -40098221.98 0.1727 0.0106

Moon -114494-07-08 03:36 J -40097322.50 -40097322.35 -40097322.20 0.1659 0.0854

Earth -114494-07-08 08:10 J -40097322.29 -40097322.16 -40097322.02 0.1659 0.1092 *

Venus -114488-03-20 03:50 J -40095240.49 -40095240.34 -40095240.19 0.1668 0.0706

Mercury -114488-07-30 13:12 J -40095108.10 -40095107.95 -40095107.80 0.1782 0.0376

Mercury -114487-06-11 18:29 J -40094791.85 -40094791.73 -40094791.61 0.1732 0.0346

Venus -114486-01-18 08:53 J -40094571.28 -40094571.13 -40094570.97 0.1660 0.0630

Venus -114486-12-28 03:50 J -40094227.51 -40094227.34 -40094227.18 0.1845 0.0813

Mercury -114485-05-17 05:17 J -40094086.35 -40094086.28 -40094086.21 0.1715 0.1360

Mercury -114479-12-20 13:41 J -40091678.05 -40091677.93 -40091677.80 0.1777 0.1062

Mercury -114478-11-02 03:36 J -40091361.46 -40091361.35 -40091361.24 0.1736 0.0781

Mercury -114476-10-07 15:07 J -40090655.97 -40090655.87 -40090655.77 0.1719 0.0968

Mercury -114469-05-11 14:53 J -40088247.91 -40088247.88 -40088247.84 0.1772 0.1713

Mercury -114468-03-24 12:00 J -40087931.08 -40087931.00 -40087930.91 0.1741 0.1241

Mercury -114467-04-18 13:55 J -40087541.04 -40087540.92 -40087540.80 0.1792 0.1154

Mercury -114466-02-28 00:29 J -40087225.60 -40087225.48 -40087225.37 0.1723 0.0560

Mercury -114459-08-14 20:38 J -40084500.66 -40084500.64 -40084500.62 0.1745 0.1703

Mercury -114458-09-08 13:55 J -40084111.08 -40084110.92 -40084110.77 0.1787 0.0419

Mercury -114457-07-20 09:36 J -40083795.22 -40083795.10 -40083794.98 0.1727 0.0138

Venus -114456-03-18 20:10 J -40083553.76 -40083553.66 -40083553.56 0.1673 0.1357

Moon -114455-01-08 02:10 J -40083258.48 -40083258.41 -40083258.33 0.1857 0.1759

Earth -114455-01-08 08:38 J -40083258.15 -40083258.14 -40083258.12 0.1857 0.1850

Venus -114454-01-17 00:14 J -40082884.65 -40082884.49 -40082884.32 0.1663 0.0043

Venus -114453-11-16 06:43 J -40082215.32 -40082215.22 -40082215.12 0.1656 0.1307

Venus -114452-10-24 03:22 J -40081873.53 -40081873.36 -40081873.19 0.1852 0.0660

Mercury -114448-01-28 13:55 J -40080681.08 -40080680.92 -40080680.77 0.1782 0.0307

Mercury -114448-12-10 18:43 J -40080364.84 -40080364.72 -40080364.60 0.1732 0.0295

Mercury -114446-11-16 05:31 J -40079659.34 -40079659.27 -40079659.20 0.1715 0.1406

Mercury -114439-06-20 14:24 J -40077251.03 -40077250.90 -40077250.78 0.1777 0.0993

Mercury -114438-05-03 03:36 J -40076934.47 -40076934.35 -40076934.24 0.1736 0.0739

Mercury -114436-04-07 15:07 J -40076228.97 -40076228.87 -40076228.78 0.1719 0.1010

Mercury -114430-11-10 15:22 J -40073820.91 -40073820.86 -40073820.81 0.1772 0.1651

Mercury -114429-09-22 12:14 J -40073504.08 -40073503.99 -40073503.90 0.1741 0.1188

Mercury -114428-10-17 14:38 J -40073114.00 -40073113.89 -40073113.77 0.1792 0.1230

Mercury -114427-08-29 00:29 J -40072798.60 -40072798.48 -40072798.37 0.1723 0.0602

Venus -114422-01-15 16:19 J -40071197.97 -40071197.82 -40071197.66 0.1667 0.0644

Venus -114421-11-14 21:36 J -40070528.76 -40070528.60 -40070528.45 0.1659 0.0696

Venus -114420-10-24 06:58 J -40070185.38 -40070185.21 -40070185.04 0.1847 0.0624

Mercury -114419-02-12 20:38 J -40070073.67 -40070073.64 -40070073.60 0.1745 0.1654

Mercury -114418-03-09 14:10 J -40069684.06 -40069683.91 -40069683.76 0.1787 0.0476

Mercury -114417-01-19 09:36 J -40069368.22 -40069368.10 -40069367.97 0.1727 0.0194

Mercury -114409-07-29 14:24 J -40066254.05 -40066253.90 -40066253.75 0.1782 0.0234

Mercury -114408-06-10 18:43 J -40065937.84 -40065937.72 -40065937.60 0.1732 0.0247

Mercury -114406-05-17 05:31 J -40065232.33 -40065232.27 -40065232.21 0.1715 0.1451

Mercury -114400-12-19 14:53 J -40062824.01 -40062823.88 -40062823.75 0.1777 0.0922

Mercury -114399-11-01 03:36 J -40062507.46 -40062507.35 -40062507.24 0.1736 0.0687

Mercury -114397-10-06 15:07 J -40061801.97 -40061801.87 -40061801.78 0.1719 0.1054

Venus -114390-01-14 08:53 J -40059511.24 -40059511.13 -40059511.03 0.1671 0.1297

Mercury -114390-05-11 15:50 J -40059393.91 -40059393.84 -40059393.77 0.1772 0.1586

Mercury -114389-03-23 12:14 J -40059077.08 -40059076.99 -40059076.90 0.1741 0.1142

Venus -114389-11-13 13:12 J -40058842.12 -40058841.95 -40058841.79 0.1662 0.0072

Mercury -114388-04-17 15:22 J -40058686.97 -40058686.86 -40058686.76 0.1792 0.1298

Mercury -114387-02-27 00:29 J -40058371.59 -40058371.48 -40058371.37 0.1723 0.0646
 Venus -114387-09-13 19:26 J -40058172.78 -40058172.69 -40058172.60 0.1655 0.1370
 Venus -114386-08-21 05:46 J -40057831.42 -40057831.26 -40057831.10 0.1854 0.0865
 Mercury -114380-08-13 20:53 J -40055646.68 -40055646.63 -40055646.59 0.1745 0.1604
 Mercury -114379-09-07 14:53 J -40055257.03 -40055256.88 -40055256.73 0.1787 0.0554
 Mercury -114378-07-20 09:50 J -40054941.21 -40054941.09 -40054940.97 0.1727 0.0235
 Earth -114376-01-12 02:10 J -40054399.50 -40054399.41 -40054399.31 0.1855 0.1645
 Moon -114376-01-12 09:36 J -40054399.23 -40054399.10 -40054398.98 0.1855 0.1536
 Mercury -114369-01-28 14:53 J -40051827.03 -40051826.88 -40051826.73 0.1782 0.0168
 Mercury -114369-12-09 18:43 J -40051510.84 -40051510.72 -40051510.59 0.1732 0.0209
 Moon -114368-07-04 10:05 J -40051304.21 -40051304.08 -40051303.94 0.1654 0.1179
 Earth -114368-07-04 14:10 J -40051304.05 -40051303.91 -40051303.76 0.1655 0.0971 *
 Mercury -114367-11-15 05:31 J -40050805.33 -40050805.27 -40050805.21 0.1715 0.1491
 Mercury -114360-06-19 15:07 J -40048397.00 -40048396.87 -40048396.73 0.1777 0.0865
 Mercury -114359-05-02 03:50 J -40048080.46 -40048080.34 -40048080.23 0.1736 0.0639
 Mercury -114357-04-06 15:07 J -40047374.96 -40047374.87 -40047374.78 0.1719 0.1097
 Venus -114357-11-12 04:48 J -40047155.45 -40047155.30 -40047155.14 0.1666 0.0580
 Venus -114355-09-12 10:19 J -40046486.21 -40046486.07 -40046485.92 0.1658 0.0755
 Venus -114354-08-21 09:07 J -40046143.30 -40046143.12 -40046142.95 0.1849 0.0422
 Mercury -114351-11-09 16:34 J -40044966.89 -40044966.81 -40044966.73 0.1772 0.1513
 Mercury -114350-09-22 12:29 J -40044650.08 -40044649.98 -40044649.89 0.1741 0.1090
 Mercury -114349-10-16 15:50 J -40044259.94 -40044259.84 -40044259.74 0.1792 0.1371
 Mercury -114348-08-28 00:43 J -40043944.58 -40043944.47 -40043944.36 0.1723 0.0698
 Mercury -114340-02-11 20:53 J -40041219.68 -40041219.63 -40041219.57 0.1745 0.1554
 Mercury -114339-03-08 15:36 J -40040830.00 -40040829.85 -40040829.71 0.1787 0.0625
 Mercury -114338-01-18 09:50 J -40040514.21 -40040514.09 -40040513.97 0.1727 0.0277
 Mercury -114330-07-29 15:22 J -40037400.01 -40037399.86 -40037399.70 0.1782 0.0101
 Mercury -114329-06-09 18:58 J -40037083.83 -40037083.71 -40037083.59 0.1732 0.0154
 Mercury -114327-05-16 05:31 J -40036378.32 -40036378.27 -40036378.22 0.1715 0.1533
 Venus -114325-11-10 20:53 J -40035468.74 -40035468.63 -40035468.52 0.1670 0.1230

Venus -114323-09-11 01:41 J -40034799.60 -40034799.43 -40034799.26 0.1661 0.0124
 Venus -114322-08-21 10:34 J -40034455.13 -40034455.06 -40034454.98 0.1843 0.1665
 Venus -114321-07-11 08:24 J -40034130.23 -40034130.15 -40034130.07 0.1654 0.1431
 Mercury -114321-12-18 16:05 J -40033969.97 -40033969.83 -40033969.70 0.1777 0.0790
 Venus -114320-06-17 07:55 J -40033789.32 -40033789.17 -40033789.03 0.1855 0.1084
 Mercury -114320-10-31 03:50 J -40033653.46 -40033653.34 -40033653.23 0.1736 0.0593
 Mercury -114318-10-06 15:07 J -40032947.96 -40032947.87 -40032947.78 0.1719 0.1143
 Mercury -114311-05-10 16:48 J -40030539.89 -40030539.80 -40030539.72 0.1771 0.1457
 Mercury -114310-03-23 12:29 J -40030223.08 -40030222.98 -40030222.88 0.1741 0.1041
 Mercury -114309-04-16 16:34 J -40029832.90 -40029832.81 -40029832.72 0.1792 0.1438
 Mercury -114308-02-26 00:29 J -40029517.58 -40029517.48 -40029517.37 0.1723 0.0740
 Mercury -114301-08-12 21:07 J -40026792.68 -40026792.62 -40026792.56 0.1745 0.1500
 Mercury -114300-09-06 15:50 J -40026402.98 -40026402.84 -40026402.69 0.1787 0.0686
 Mercury -114299-07-19 10:05 J -40026087.20 -40026087.08 -40026086.96 0.1727 0.0332
 Venus -114291-09-09 17:17 J -40023112.94 -40023112.78 -40023112.62 0.1665 0.0515
 Mercury -114290-01-27 16:05 J -40022972.99 -40022972.83 -40022972.68 0.1782 0.0029
 Mercury -114290-12-09 18:58 J -40022656.83 -40022656.71 -40022656.59 0.1732 0.0105
 Earth -114289-07-06 13:55 J -40022447.10 -40022446.92 -40022446.74 0.1655 0.0255
 Moon -114289-07-06 14:53 J -40022447.06 -40022446.88 -40022446.69 0.1655 0.0463 *
 Venus -114289-07-09 23:02 J -40022443.68 -40022443.54 -40022443.39 0.1657 0.0818
 Venus -114288-06-17 11:46 J -40022101.19 -40022101.01 -40022100.83 0.1851 0.0221
 Mercury -114288-11-14 05:46 J -40021951.31 -40021951.26 -40021951.22 0.1715 0.1580
 Mercury -114281-06-18 16:34 J -40019542.95 -40019542.81 -40019542.67 0.1777 0.0725
 Mercury -114280-05-01 03:50 J -40019226.45 -40019226.34 -40019226.22 0.1736 0.0543
 Mercury -114278-04-06 15:07 J -40018520.95 -40018520.87 -40018520.78 0.1719 0.1187
 Mercury -114272-11-08 17:31 J -40016112.86 -40016112.77 -40016112.68 0.1772 0.1385
 Mercury -114271-09-21 12:43 J -40015796.07 -40015795.97 -40015795.87 0.1741 0.0993
 Mercury -114270-10-16 17:17 J -40015405.87 -40015405.78 -40015405.70 0.1792 0.1513
 Mercury -114269-08-27 00:43 J -40015090.58 -40015090.47 -40015090.36 0.1723 0.0784
 Mercury -114261-02-11 21:07 J -40012365.69 -40012365.62 -40012365.55 0.1745 0.1456

Mercury -114260-03-07 16:34 J -40011975.95 -40011975.81 -40011975.67 0.1787 0.0759

Mercury -114259-01-17 09:50 J -40011660.21 -40011660.09 -40011659.97 0.1727 0.0369

Venus -114259-09-08 09:36 J -40011426.22 -40011426.10 -40011425.99 0.1668 0.1172

Venus -114257-07-08 14:24 J -40010757.06 -40010756.90 -40010756.73 0.1660 0.0187

Venus -114256-06-17 13:55 J -40010413.03 -40010412.92 -40010412.82 0.1845 0.1481

Venus -114255-05-08 21:22 J -40010087.68 -40010087.61 -40010087.54 0.1653 0.1496

Venus -114254-04-14 10:19 J -40009747.20 -40009747.07 -40009746.94 0.1857 0.1295

Mercury -114251-07-28 16:34 J -40008545.97 -40008545.81 -40008545.66 0.1782 0.0053

Mercury -114250-06-09 18:58 J -40008229.83 -40008229.71 -40008229.58 0.1732 0.0085

Mercury -114248-05-15 05:46 J -40007524.30 -40007524.26 -40007524.23 0.1715 0.1620

Mercury -114242-12-18 17:02 J -40005115.94 -40005115.79 -40005115.65 0.1777 0.0659

Mercury -114241-10-30 04:05 J -40004799.45 -40004799.33 -40004799.21 0.1736 0.0490

Mercury -114239-10-05 15:22 J -40004093.94 -40004093.86 -40004093.78 0.1719 0.1232

Mercury -114232-05-09 18:00 J -40001685.85 -40001685.75 -40001685.65 0.1772 0.1321

Mercury -114231-03-22 12:43 J -40001369.08 -40001368.97 -40001368.87 0.1741 0.0945

Mercury -114230-04-16 17:31 J -40000978.84 -40000978.77 -40000978.69 0.1792 0.1578

Mercury -114229-02-26 00:43 J -40000663.57 -40000663.47 -40000663.36 0.1723 0.0828

Venus -114225-07-07 06:00 J -39999070.41 -39999070.25 -39999070.09 0.1663 0.0455

Venus -114223-05-07 12:14 J -39998401.13 -39998400.99 -39998400.85 0.1656 0.0877

Venus -114222-04-14 13:41 J -39998059.11 -39998058.93 -39998058.74 0.1852 0.0030

Mercury -114222-08-12 21:22 J -39997938.69 -39997938.61 -39997938.54 0.1745 0.1403

Mercury -114221-09-05 17:17 J -39997548.92 -39997548.78 -39997548.64 0.1787 0.0833

Mercury -114220-07-18 10:05 J -39997233.20 -39997233.08 -39997232.96 0.1727 0.0416

Mercury -114211-01-26 17:02 J -39994118.94 -39994118.79 -39994118.63 0.1782 0.0117

Mercury -114211-12-08 19:12 J -39993802.82 -39993802.70 -39993802.58 0.1732 0.0017

Earth -114210-07-09 14:24 J -39993589.97 -39993589.90 -39993589.83 0.1657 0.1514

Moon -114210-07-09 19:55 J -39993589.77 -39993589.67 -39993589.57 0.1657 0.1384

Mercury -114209-11-13 05:46 J -39993097.28 -39993097.26 -39993097.23 0.1715 0.1664

Mercury -114202-06-18 17:31 J -39990688.92 -39990688.77 -39990688.63 0.1777 0.0592

Mercury -114201-04-30 04:05 J -39990372.45 -39990372.33 -39990372.21 0.1736 0.0451

Mercury -114199-04-05 15:22 J -39989666.94 -39989666.86 -39989666.78 0.1719 0.1272

Venus -114193-07-05 21:50 J -39987383.71 -39987383.59 -39987383.46 0.1667 0.1109

Mercury -114193-11-07 18:14 J -39987258.84 -39987258.74 -39987258.63 0.1772 0.1261

Mercury -114192-09-20 12:58 J -39986942.07 -39986941.96 -39986941.86 0.1741 0.0893

Venus -114191-05-06 03:22 J -39986714.53 -39986714.36 -39986714.20 0.1659 0.0248

Mercury -114191-10-15 18:14 J -39986551.79 -39986551.74 -39986551.68 0.1792 0.1651

Venus -114190-04-14 16:05 J -39986370.96 -39986370.83 -39986370.70 0.1847 0.1284

Mercury -114190-08-27 00:43 J -39986236.57 -39986236.47 -39986236.36 0.1723 0.0873

Venus -114189-03-05 10:19 J -39986045.13 -39986045.07 -39986045.02 0.1652 0.1557

Venus -114188-02-08 11:31 J -39985705.12 -39985705.02 -39985704.91 0.1858 0.1526

Mercury -114182-02-10 21:22 J -39983511.69 -39983511.61 -39983511.53 0.1745 0.1353

Mercury -114181-03-06 17:31 J -39983121.90 -39983121.77 -39983121.63 0.1787 0.0895

Mercury -114180-01-16 10:05 J -39982806.19 -39982806.08 -39982805.96 0.1727 0.0466

Mercury -114172-07-27 17:46 J -39979691.92 -39979691.76 -39979691.61 0.1782 0.0177

Mercury -114171-06-08 19:12 J -39979375.82 -39979375.70 -39979375.58 0.1732 0.0038

Mercury -114169-05-14 05:46 J -39978670.26 -39978670.26 -39978670.25 0.1715 0.1707

Moon -114163-07-04 01:41 J -39976428.49 -39976428.43 -39976428.37 0.1652 0.1549

Mercury -114163-12-17 18:00 J -39976261.89 -39976261.75 -39976261.60 0.1777 0.0524

Mercury -114162-10-30 04:05 J -39975945.45 -39975945.33 -39975945.21 0.1736 0.0402

Mercury -114160-10-04 15:22 J -39975239.93 -39975239.86 -39975239.78 0.1719 0.1317

Venus -114159-05-04 18:29 J -39975027.89 -39975027.73 -39975027.57 0.1662 0.0390

Venus -114157-03-04 00:43 J -39974358.60 -39974358.47 -39974358.33 0.1655 0.0943

Venus -114156-02-08 15:22 J -39974017.04 -39974016.86 -39974016.67 0.1854 0.0214

Mercury -114153-05-08 18:58 J -39972831.82 -39972831.71 -39972831.60 0.1772 0.1192

Mercury -114152-03-21 12:58 J -39972515.07 -39972514.96 -39972514.86 0.1741 0.0849

Mercury -114151-04-15 18:58 J -39972124.75 -39972124.71 -39972124.67 0.1792 0.1720

Mercury -114150-02-25 00:58 J -39971809.57 -39971809.46 -39971809.36 0.1723 0.0918

Mercury -114143-08-11 21:36 J -39969084.69 -39969084.60 -39969084.52 0.1745 0.1304

Mercury -114142-09-05 18:29 J -39968694.86 -39968694.73 -39968694.60 0.1787 0.0971

Mercury -114141-07-17 10:05 J -39968379.19 -39968379.08 -39968378.96 0.1727 0.0509

Mercury -114132-01-25 18:14 J -39965264.90 -39965264.74 -39965264.59 0.1782 0.0242
 Mercury -114132-12-07 19:12 J -39964948.82 -39964948.70 -39964948.57 0.1732 0.0106
 Venus -114127-05-03 10:34 J -39963341.19 -39963341.06 -39963340.93 0.1666 0.1046
 Venus -114125-03-02 15:50 J -39962672.01 -39962671.84 -39962671.68 0.1658 0.0319
 Venus -114124-02-08 18:58 J -39962328.86 -39962328.71 -39962328.57 0.1849 0.1088
 Venus -114124-12-31 23:02 J -39962002.56 -39962002.54 -39962002.51 0.1652 0.1623
 Mercury -114123-06-17 18:29 J -39961834.88 -39961834.73 -39961834.58 0.1777 0.0461
 Venus -114123-12-06 13:26 J -39961663.00 -39961662.94 -39961662.88 0.1860 0.1749
 Mercury -114122-04-30 04:19 J -39961518.44 -39961518.32 -39961518.20 0.1736 0.0352
 Mercury -114120-04-04 15:22 J -39960812.93 -39960812.86 -39960812.78 0.1719 0.1362
 Mercury -114114-11-07 19:41 J -39958404.80 -39958404.68 -39958404.56 0.1772 0.1119
 Mercury -114113-09-19 12:58 J -39958088.07 -39958087.96 -39958087.85 0.1741 0.0797
 Mercury -114111-08-26 00:58 J -39957382.56 -39957382.46 -39957382.36 0.1723 0.0964
 Mercury -114104-03-29 20:53 J -39954974.63 -39954974.63 -39954974.63 0.1767 0.1766
 Mercury -114103-02-09 21:36 J -39954657.69 -39954657.60 -39954657.52 0.1745 0.1255
 Mercury -114102-03-06 18:58 J -39954267.84 -39954267.71 -39954267.58 0.1787 0.1039
 Mercury -114101-01-16 10:19 J -39953952.19 -39953952.07 -39953951.96 0.1727 0.0553
 Mercury -114094-07-03 06:00 J -39951227.27 -39951227.25 -39951227.24 0.1750 0.1725
 Venus -114093-03-01 06:58 J -39950985.37 -39950985.21 -39950985.04 0.1661 0.0329
 Mercury -114093-07-26 18:43 J -39950837.87 -39950837.72 -39950837.57 0.1782 0.0308
 Moon -114092-01-10 16:05 J -39950670.04 -39950669.83 -39950669.62 0.1859 0.0221
 Earth -114092-01-11 02:53 J -39950669.58 -39950669.38 -39950669.18 0.1859 0.0584
 Mercury -114092-06-07 19:26 J -39950521.82 -39950521.69 -39950521.57 0.1732 0.0138
 Venus -114092-12-30 13:55 J -39950316.05 -39950315.92 -39950315.79 0.1654 0.1005
 Venus -114091-12-06 17:17 J -39949974.95 -39949974.78 -39949974.60 0.1855 0.0427
 Moon -114084-07-05 16:19 J -39947571.98 -39947571.82 -39947571.66 0.1653 0.0657
 Earth -114084-07-05 21:07 J -39947571.79 -39947571.62 -39947571.45 0.1653 0.0521 *
 Mercury -114084-12-16 19:12 J -39947407.85 -39947407.70 -39947407.55 0.1777 0.0387
 Mercury -114083-10-29 04:19 J -39947091.44 -39947091.32 -39947091.20 0.1736 0.0304
 Mercury -114081-10-03 15:36 J -39946385.92 -39946385.85 -39946385.79 0.1719 0.1405

Mercury -114074-05-08 19:55 J -39943977.79 -39943977.67 -39943977.55 0.1772 0.1066

Mercury -114073-03-20 13:12 J -39943661.06 -39943660.95 -39943660.84 0.1741 0.0748

Mercury -114071-02-24 00:58 J -39942955.56 -39942955.46 -39942955.36 0.1723 0.1005

Mercury -114065-09-27 21:22 J -39940547.65 -39940547.61 -39940547.57 0.1767 0.1699

Mercury -114064-08-10 21:36 J -39940230.68 -39940230.60 -39940230.51 0.1745 0.1205

Mercury -114063-09-04 19:26 J -39939840.82 -39939840.69 -39939840.57 0.1787 0.1102

Mercury -114062-07-17 10:19 J -39939525.18 -39939525.07 -39939524.95 0.1727 0.0601

Venus -114061-02-28 22:48 J -39939298.69 -39939298.55 -39939298.42 0.1664 0.0979

Venus -114060-12-29 04:48 J -39938629.47 -39938629.30 -39938629.14 0.1656 0.0378

Venus -114059-12-06 20:53 J -39938286.79 -39938286.63 -39938286.47 0.1850 0.0882

Mercury -114054-01-01 06:00 J -39936800.28 -39936800.25 -39936800.22 0.1750 0.1674

Mercury -114053-01-25 19:26 J -39936410.84 -39936410.69 -39936410.54 0.1782 0.0383

Mercury -114053-12-06 19:26 J -39936094.81 -39936094.69 -39936094.57 0.1732 0.0177

Mercury -114044-06-16 19:41 J -39932980.83 -39932980.68 -39932980.53 0.1777 0.0322

Mercury -114043-04-29 04:19 J -39932664.44 -39932664.32 -39932664.19 0.1736 0.0262

Mercury -114041-04-03 15:36 J -39931958.92 -39931958.85 -39931958.79 0.1719 0.1446

Mercury -114035-11-06 20:38 J -39929550.77 -39929550.64 -39929550.52 0.1772 0.0993

Mercury -114034-09-19 13:12 J -39929234.06 -39929233.95 -39929233.84 0.1741 0.0701

Mercury -114032-08-25 00:58 J -39928528.55 -39928528.46 -39928528.36 0.1723 0.1052

Venus -114029-02-27 14:38 J -39927611.92 -39927611.89 -39927611.86 0.1668 0.1637

Venus -114028-12-27 19:41 J -39926942.84 -39926942.68 -39926942.51 0.1659 0.0265

Venus -114026-10-28 02:38 J -39926273.51 -39926273.39 -39926273.26 0.1653 0.1069

Mercury -114025-03-28 21:50 J -39926120.65 -39926120.59 -39926120.54 0.1767 0.1639

Venus -114025-10-02 19:12 J -39925932.88 -39925932.70 -39925932.53 0.1857 0.0650

Mercury -114024-02-08 21:50 J -39925803.69 -39925803.59 -39925803.50 0.1745 0.1159

Mercury -114023-03-05 20:10 J -39925413.78 -39925413.66 -39925413.54 0.1787 0.1176

Mercury -114022-01-15 10:19 J -39925098.18 -39925098.07 -39925097.96 0.1727 0.0641

Mercury -114015-07-02 06:14 J -39922373.28 -39922373.24 -39922373.19 0.1750 0.1618

Mercury -114014-07-26 19:55 J -39921983.83 -39921983.67 -39921983.52 0.1782 0.0444

Mercury -114013-06-06 19:41 J -39921667.81 -39921667.68 -39921667.56 0.1732 0.0233

Moon -114005-07-07 18:43 J -39918714.90 -39918714.72 -39918714.55 0.1653 0.0698
Earth -114005-07-07 20:38 J -39918714.80 -39918714.64 -39918714.47 0.1654 0.0692 *
Mercury -114005-12-15 20:10 J -39918553.81 -39918553.66 -39918553.51 0.1777 0.0257
Mercury -114004-10-28 04:34 J -39918237.43 -39918237.31 -39918237.19 0.1736 0.0206
Mercury -114002-10-03 15:36 J -39917531.90 -39917531.85 -39917531.79 0.1719 0.1492

114TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 114th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Venus | -113996-12-26 11:31 J | -39915256.16 | -39915256.02 | -39915255.88 | 0.1663 | 0.0916 | | |
| Mercury | -113995-05-07 21:07 J | -39915123.75 | -39915123.62 | -39915123.49 | 0.1772 | 0.0927 | | |
| Mercury | -113994-03-20 13:12 J | -39914807.06 | -39914806.95 | -39914806.83 | 0.1741 | 0.0655 | | |
| Venus | -113994-10-26 17:17 J | -39914586.94 | -39914586.78 | -39914586.62 | 0.1656 | 0.0444 | | |
| Venus | -113993-10-02 23:46 J | -39914244.68 | -39914244.51 | -39914244.34 | 0.1852 | 0.0685 | | |
| Mercury | -113992-02-23 00:58 J | -39914101.55 | -39914101.46 | -39914101.36 | 0.1723 | 0.1096 | | |
| Mercury | -113986-09-27 22:19 J | -39911693.64 | -39911693.57 | -39911693.50 | 0.1767 | 0.1570 | | |
| Mercury | -113985-08-09 21:50 J | -39911376.68 | -39911376.59 | -39911376.49 | 0.1745 | 0.1106 | | |
| Mercury | -113984-09-03 20:53 J | -39910986.74 | -39910986.63 | -39910986.52 | 0.1787 | 0.1249 | | |
| Mercury | -113983-07-16 10:34 J | -39910671.17 | -39910671.06 | -39910670.95 | 0.1727 | 0.0690 | | |
| Mercury | -113976-12-31 06:14 J | -39907946.29 | -39907946.24 | -39907946.19 | 0.1750 | 0.1575 | | |
| Mercury | -113974-01-24 20:24 J | -39907556.80 | -39907556.65 | -39907556.50 | 0.1782 | 0.0517 | | |

Mercury -113974-12-06 19:41 J -39907240.80 -39907240.68 -39907240.56 0.1732 0.0272

Mercury -113965-06-15 20:38 J -39904126.79 -39904126.64 -39904126.48 0.1777 0.0194

Mercury -113964-04-28 04:34 J -39903810.43 -39903810.31 -39903810.19 0.1736 0.0167

Venus -113964-12-25 03:22 J -39903569.41 -39903569.36 -39903569.30 0.1667 0.1576

Mercury -113962-04-03 15:36 J -39903104.90 -39903104.85 -39903104.80 0.1719 0.1530

Venus -113962-10-25 08:24 J -39902900.31 -39902900.15 -39902899.98 0.1659 0.0205

Venus -113960-08-24 15:36 J -39902230.97 -39902230.85 -39902230.73 0.1652 0.1132

Venus -113959-07-30 21:22 J -39901890.77 -39901890.61 -39901890.45 0.1858 0.0866

Mercury -113956-11-05 21:36 J -39900696.74 -39900696.60 -39900696.47 0.1772 0.0867

Mercury -113955-09-18 13:26 J -39900380.05 -39900379.94 -39900379.82 0.1741 0.0601

Mercury -113953-08-24 01:12 J -39899674.54 -39899674.45 -39899674.36 0.1723 0.1139

Mercury -113946-03-28 22:48 J -39897266.63 -39897266.55 -39897266.47 0.1767 0.1508

Mercury -113945-02-08 22:05 J -39896949.68 -39896949.58 -39896949.49 0.1745 0.1058

Mercury -113944-03-04 21:07 J -39896559.72 -39896559.62 -39896559.51 0.1787 0.1309

Mercury -113943-01-14 10:34 J -39896244.17 -39896244.06 -39896243.95 0.1727 0.0735

Mercury -113936-07-01 06:29 J -39893519.29 -39893519.23 -39893519.17 0.1750 0.1522

Mercury -113935-07-25 21:07 J -39893129.77 -39893129.62 -39893129.47 0.1782 0.0584

Mercury -113934-06-06 19:41 J -39892813.80 -39892813.68 -39892813.56 0.1732 0.0314

Venus -113930-10-24 00:00 J -39891213.65 -39891213.50 -39891213.36 0.1662 0.0852

Venus -113928-08-23 06:14 J -39890544.40 -39890544.24 -39890544.08 0.1655 0.0505

Venus -113927-07-31 01:26 J -39890202.61 -39890202.44 -39890202.26 0.1854 0.0471

Mercury -113926-12-15 21:22 J -39889699.76 -39889699.61 -39889699.45 0.1777 0.0119

Mercury -113925-10-27 04:34 J -39889383.43 -39889383.31 -39889383.18 0.1736 0.0133

Mercury -113923-10-02 15:36 J -39888677.89 -39888677.85 -39888677.80 0.1719 0.1577

Mercury -113916-05-06 22:05 J -39886269.72 -39886269.58 -39886269.44 0.1772 0.0798

Mercury -113915-03-19 13:26 J -39885953.06 -39885952.94 -39885952.82 0.1741 0.0558

Mercury -113913-02-23 01:12 J -39885247.54 -39885247.45 -39885247.36 0.1723 0.1182

Mercury -113907-09-26 23:17 J -39882839.61 -39882839.53 -39882839.44 0.1767 0.1445

Mercury -113906-08-09 22:05 J -39882522.68 -39882522.58 -39882522.48 0.1745 0.1009

Mercury -113905-09-02 21:50 J -39882132.69 -39882132.59 -39882132.49 0.1787 0.1384

Mercury -113904-07-15 10:34 J -39881817.17 -39881817.06 -39881816.95 0.1727 0.0776

Venus -113898-10-22 15:36 J -39879526.92 -39879526.85 -39879526.78 0.1665 0.1509

Mercury -113897-12-30 06:29 J -39879092.29 -39879092.23 -39879092.16 0.1750 0.1472

Venus -113896-08-21 21:22 J -39878857.78 -39878857.61 -39878857.44 0.1657 0.0139

Mercury -113895-01-23 21:36 J -39878702.75 -39878702.60 -39878702.46 0.1782 0.0647

Venus -113895-07-31 04:05 J -39878514.38 -39878514.33 -39878514.28 0.1849 0.1766

Mercury -113895-12-05 19:41 J -39878386.80 -39878386.68 -39878386.56 0.1732 0.0363

Venus -113894-06-22 04:48 J -39878188.42 -39878188.30 -39878188.19 0.1651 0.1193

Venus -113893-05-26 23:17 J -39877848.68 -39877848.53 -39877848.39 0.1859 0.1095

Mercury -113886-06-15 21:50 J -39875272.75 -39875272.59 -39875272.44 0.1777 0.0071

Mercury -113885-04-27 04:48 J -39874956.42 -39874956.30 -39874956.18 0.1736 0.0068

Mercury -113883-04-02 15:50 J -39874250.88 -39874250.84 -39874250.80 0.1719 0.1619

Earth -113879-07-05 04:34 J -39872696.42 -39872696.31 -39872696.20 0.1651 0.1276

Moon -113879-07-05 07:26 J -39872696.26 -39872696.19 -39872696.11 0.1651 0.1461 *

Mercury -113877-11-04 22:48 J -39871842.69 -39871842.55 -39871842.41 0.1772 0.0727

Mercury -113876-09-17 13:41 J -39871526.05 -39871525.93 -39871525.82 0.1741 0.0510

Mercury -113874-08-24 01:12 J -39870820.53 -39870820.45 -39870820.36 0.1723 0.1228

Mercury -113867-03-27 23:46 J -39868412.60 -39868412.51 -39868412.42 0.1767 0.1383

Mercury -113866-02-07 22:05 J -39868095.68 -39868095.58 -39868095.47 0.1745 0.0963

Mercury -113865-03-03 22:34 J -39867705.65 -39867705.56 -39867705.47 0.1787 0.1453

Mercury -113864-01-13 10:34 J -39867390.16 -39867390.06 -39867389.95 0.1727 0.0821

Venus -113864-08-20 12:29 J -39867171.12 -39867170.98 -39867170.83 0.1661 0.0787

Venus -113862-06-20 19:12 J -39866501.86 -39866501.70 -39866501.54 0.1654 0.0565

Venus -113861-05-27 04:05 J -39866160.51 -39866160.33 -39866160.15 0.1856 0.0262

Mercury -113857-06-30 06:29 J -39864665.30 -39864665.23 -39864665.15 0.1750 0.1426

Mercury -113856-07-24 22:05 J -39864275.72 -39864275.58 -39864275.44 0.1782 0.0717

Mercury -113855-06-05 19:55 J -39863959.79 -39863959.67 -39863959.56 0.1732 0.0410

Mercury -113847-12-14 22:34 J -39860845.72 -39860845.56 -39860845.41 0.1777 0.0033

Mercury -113846-10-27 04:48 J -39860529.42 -39860529.30 -39860529.18 0.1736 0.0025

Mercury -113844-10-01 15:50 J -39859823.87 -39859823.84 -39859823.81 0.1719 0.1660

Mercury -113837-05-05 22:48 J -39857415.69 -39857415.55 -39857415.40 0.1772 0.0676

Mercury -113836-03-18 13:41 J -39857099.05 -39857098.93 -39857098.81 0.1741 0.0460

Mercury -113834-02-22 01:12 J -39856393.53 -39856393.45 -39856393.37 0.1723 0.1268

Venus -113832-08-19 04:19 J -39855484.40 -39855484.32 -39855484.24 0.1664 0.1450

Venus -113830-06-19 10:19 J -39854815.24 -39854815.07 -39854814.91 0.1656 0.0083

Venus -113829-05-27 06:58 J -39854472.30 -39854472.21 -39854472.11 0.1851 0.1571

Venus -113828-04-18 17:31 J -39854145.87 -39854145.77 -39854145.66 0.1651 0.1260

Mercury -113828-09-26 00:14 J -39853985.58 -39853985.49 -39853985.38 0.1767 0.1315

Venus -113827-03-24 01:12 J -39853806.57 -39853806.45 -39853806.32 0.1861 0.1318

Mercury -113827-08-08 22:19 J -39853668.68 -39853668.57 -39853668.47 0.1745 0.0910

Mercury -113826-09-02 22:48 J -39853278.63 -39853278.55 -39853278.46 0.1787 0.1517

Mercury -113825-07-14 10:48 J -39852963.16 -39852963.05 -39852962.95 0.1727 0.0869

Mercury -113818-12-30 06:43 J -39850238.29 -39850238.22 -39850238.14 0.1750 0.1374

Mercury -113816-01-22 22:48 J -39849848.68 -39849848.55 -39849848.41 0.1782 0.0793

Mercury -113816-12-04 19:55 J -39849532.79 -39849532.67 -39849532.55 0.1732 0.0452

Moon -113808-01-09 15:36 J -39846940.02 -39846939.85 -39846939.68 0.1862 0.1077

Earth -113808-01-10 02:10 J -39846939.62 -39846939.41 -39846939.21 0.1862 0.0525

Mercury -113807-06-14 22:48 J -39846418.70 -39846418.55 -39846418.39 0.1777 0.0086

Mercury -113806-04-27 04:48 J -39846102.42 -39846102.30 -39846102.17 0.1736 0.0054

Mercury -113804-04-01 15:50 J -39845396.85 -39845396.84 -39845396.83 0.1719 0.1701

Moon -113800-07-06 22:48 J -39843839.73 -39843839.55 -39843839.38 0.1651 0.0077

Earth -113800-07-07 04:05 J -39843839.51 -39843839.33 -39843839.14 0.1651 0.0092 *

Venus -113798-06-18 01:26 J -39843128.59 -39843128.44 -39843128.29 0.1659 0.0729

Mercury -113798-11-04 23:46 J -39842988.66 -39842988.51 -39842988.37 0.1772 0.0601

Mercury -113797-09-16 13:41 J -39842672.05 -39842671.93 -39842671.81 0.1741 0.0415

Venus -113796-04-17 08:10 J -39842459.31 -39842459.16 -39842459.00 0.1653 0.0628

Venus -113795-03-24 05:31 J -39842118.45 -39842118.27 -39842118.09 0.1857 0.0039

Mercury -113795-08-23 01:26 J -39841966.52 -39841966.44 -39841966.37 0.1723 0.1312

Mercury -113788-03-27 00:43 J -39839558.57 -39839558.47 -39839558.36 0.1767 0.1255

Mercury -113787-02-06 22:19 J -39839241.67 -39839241.57 -39839241.46 0.1746 0.0865

Mercury -113786-03-03 23:46 J -39838851.58 -39838851.51 -39838851.44 0.1787 0.1591

Mercury -113785-01-13 10:48 J -39838536.15 -39838536.05 -39838535.95 0.1727 0.0910

Mercury -113778-06-30 06:58 J -39835811.29 -39835811.21 -39835811.13 0.1750 0.1320

Mercury -113777-07-23 23:02 J -39835421.67 -39835421.54 -39835421.40 0.1782 0.0849

Mercury -113776-06-04 19:55 J -39835105.78 -39835105.67 -39835105.55 0.1732 0.0498

Mercury -113768-12-13 23:31 J -39831991.68 -39831991.52 -39831991.37 0.1777 0.0146

Mercury -113767-10-26 05:02 J -39831675.41 -39831675.29 -39831675.17 0.1736 0.0073

Venus -113766-06-16 17:02 J -39831441.88 -39831441.79 -39831441.70 0.1663 0.1389

Venus -113764-04-15 23:02 J -39830772.71 -39830772.54 -39830772.37 0.1655 0.0030

Venus -113763-03-24 08:53 J -39830430.26 -39830430.13 -39830430.01 0.1852 0.1360

Venus -113762-02-14 06:29 J -39830103.33 -39830103.23 -39830103.13 0.1650 0.1324

Venus -113761-01-19 02:24 J -39829764.50 -39829764.40 -39829764.30 0.1862 0.1560

Mercury -113758-05-06 00:14 J -39828561.64 -39828561.49 -39828561.34 0.1772 0.0534

Mercury -113757-03-17 13:55 J -39828245.04 -39828244.92 -39828244.80 0.1741 0.0372

Mercury -113755-02-21 01:26 J -39827539.51 -39827539.44 -39827539.37 0.1723 0.1355

Mercury -113749-09-25 01:26 J -39825131.56 -39825131.44 -39825131.33 0.1767 0.1188

Mercury -113748-08-07 22:34 J -39824814.67 -39824814.56 -39824814.45 0.1745 0.0813

Mercury -113747-09-02 00:14 J -39824424.54 -39824424.49 -39824424.43 0.1787 0.1661

Mercury -113746-07-14 10:48 J -39824109.15 -39824109.05 -39824108.95 0.1727 0.0956

Mercury -113739-12-29 06:58 J -39821384.30 -39821384.21 -39821384.13 0.1750 0.1279

Mercury -113737-01-22 23:46 J -39820994.64 -39820994.51 -39820994.37 0.1782 0.0923

Mercury -113737-12-03 19:55 J -39820678.78 -39820678.67 -39820678.55 0.1732 0.0544

Venus -113732-04-14 13:55 J -39819086.08 -39819085.92 -39819085.77 0.1658 0.0662

Venus -113730-02-12 20:53 J -39818416.78 -39818416.63 -39818416.48 0.1652 0.0695

Venus -113729-01-19 06:58 J -39818076.39 -39818076.21 -39818076.03 0.1859 0.0199

Mercury -113729-05-20 15:07 J -39817953.87 -39817953.87 -39817953.86 0.1755 0.1749

Mercury -113728-06-14 00:00 J -39817564.65 -39817564.50 -39817564.35 0.1777 0.0209

Mercury -113727-04-26 05:02 J -39817248.41 -39817248.29 -39817248.17 0.1736 0.0117

Moon -113721-07-09 03:36 J -39814982.51 -39814982.35 -39814982.19 0.1652 0.0953

Earth -113721-07-09 03:36 J -39814982.48 -39814982.35 -39814982.22 0.1652 0.1125 *

Mercury -113719-11-04 00:43 J -39814134.62 -39814134.47 -39814134.33 0.1772 0.0476

Mercury -113718-09-16 14:10 J -39813818.04 -39813817.91 -39813817.79 0.1741 0.0321

Mercury -113716-08-22 01:26 J -39813112.51 -39813112.44 -39813112.37 0.1723 0.1400

Mercury -113709-03-26 01:41 J -39810704.54 -39810704.43 -39810704.31 0.1767 0.1126

Mercury -113708-02-05 22:34 J -39810387.67 -39810387.56 -39810387.45 0.1745 0.0768

Mercury -113707-03-03 00:43 J -39809997.51 -39809997.47 -39809997.43 0.1787 0.1721

Mercury -113706-01-12 11:02 J -39809682.14 -39809682.04 -39809681.95 0.1727 0.1002

Venus -113700-04-13 05:31 J -39807399.37 -39807399.27 -39807399.17 0.1662 0.1325

Mercury -113700-08-16 03:22 J -39807274.37 -39807274.36 -39807274.35 0.1762 0.1750

Mercury -113699-06-29 06:58 J -39806957.29 -39806957.21 -39806957.12 0.1750 0.1228

Venus -113698-02-11 11:31 J -39806730.19 -39806730.02 -39806729.85 0.1654 0.0055

Mercury -113698-07-24 00:29 J -39806567.61 -39806567.48 -39806567.35 0.1782 0.0990

Venus -113697-01-19 11:17 J -39806388.17 -39806388.03 -39806387.89 0.1854 0.1152

Mercury -113697-06-03 20:10 J -39806251.78 -39806251.66 -39806251.55 0.1732 0.0589

Venus -113697-12-11 19:26 J -39806060.78 -39806060.69 -39806060.60 0.1649 0.1392

Venus -113696-11-15 04:05 J -39805722.38 -39805722.33 -39805722.28 0.1863 0.1794

Mercury -113690-11-19 15:22 J -39803526.89 -39803526.86 -39803526.83 0.1755 0.1699

Mercury -113689-12-13 00:43 J -39803137.63 -39803137.47 -39803137.32 0.1777 0.0282

Mercury -113688-10-25 05:17 J -39802821.41 -39802821.28 -39802821.16 0.1736 0.0172

Mercury -113679-05-05 01:12 J -39799707.60 -39799707.45 -39799707.30 0.1772 0.0407

Mercury -113678-03-17 13:55 J -39799391.04 -39799390.92 -39799390.80 0.1741 0.0275

Mercury -113676-02-20 01:26 J -39798685.50 -39798685.44 -39798685.37 0.1723 0.1441

Mercury -113670-09-25 02:10 J -39796277.53 -39796277.41 -39796277.28 0.1767 0.1064

Mercury -113669-08-06 22:48 J -39795960.67 -39795960.55 -39795960.44 0.1745 0.0721

Mercury -113667-07-13 10:48 J -39795255.14 -39795255.05 -39795254.95 0.1727 0.1043

Venus -113666-02-10 02:38 J -39795043.55 -39795043.39 -39795043.23 0.1657 0.0598

Venus -113665-12-10 09:50 J -39794374.23 -39794374.09 -39794373.94 0.1651 0.0760

Venus -113664-11-15 08:53 J -39794034.31 -39794034.13 -39794033.96 0.1860 0.0427

Mercury -113660-02-14 03:36 J -39792847.38 -39792847.35 -39792847.31 0.1762 0.1693

Mercury -113660-12-28 07:12 J -39792530.29 -39792530.20 -39792530.11 0.1750 0.1175

Mercury -113658-01-22 00:58 J -39792140.59 -39792140.46 -39792140.33 0.1782 0.1053
 Mercury -113658-12-03 20:10 J -39791824.77 -39791824.66 -39791824.54 0.1732 0.0634
 Mercury -113650-05-20 15:22 J -39789099.90 -39789099.86 -39789099.82 0.1755 0.1650
 Mercury -113649-06-13 00:58 J -39788710.61 -39788710.46 -39788710.30 0.1777 0.0345
 Mercury -113648-04-25 05:17 J -39788394.40 -39788394.28 -39788394.16 0.1736 0.0212
 Mercury -113640-11-03 01:55 J -39785280.57 -39785280.42 -39785280.27 0.1772 0.0338
 Mercury -113639-09-15 14:10 J -39784964.03 -39784963.91 -39784963.79 0.1741 0.0227
 Mercury -113637-08-21 01:41 J -39784258.49 -39784258.43 -39784258.37 0.1723 0.1484
 Venus -113634-02-08 18:00 J -39783356.86 -39783356.75 -39783356.64 0.1660 0.1259
 Venus -113633-12-09 00:29 J -39782687.64 -39782687.48 -39782687.31 0.1653 0.0124
 Venus -113632-11-15 12:58 J -39782346.11 -39782345.96 -39782345.80 0.1856 0.0933
 Venus -113631-10-09 08:24 J -39782018.22 -39782018.15 -39782018.07 0.1649 0.1456
 Mercury -113630-03-26 02:38 J -39781850.51 -39781850.39 -39781850.26 0.1767 0.1000
 Mercury -113629-02-05 22:48 J -39781533.67 -39781533.55 -39781533.44 0.1745 0.0673
 Mercury -113627-01-11 11:02 J -39780828.14 -39780828.04 -39780827.95 0.1727 0.1086
 Mercury -113621-08-15 04:19 J -39778420.37 -39778420.32 -39778420.26 0.1762 0.1626
 Mercury -113620-06-28 07:12 J -39778103.29 -39778103.20 -39778103.10 0.1750 0.1130
 Mercury -113619-07-23 01:26 J -39777713.56 -39777713.44 -39777713.31 0.1782 0.1123
 Mercury -113618-06-03 20:10 J -39777397.77 -39777397.66 -39777397.55 0.1732 0.0676
 Mercury -113611-11-18 15:36 J -39774672.90 -39774672.85 -39774672.80 0.1755 0.1598
 Mercury -113610-12-13 01:41 J -39774283.58 -39774283.43 -39774283.28 0.1777 0.0411
 Mercury -113609-10-24 05:17 J -39773967.40 -39773967.28 -39773967.16 0.1736 0.0254
 Venus -113601-12-07 15:22 J -39771001.02 -39771000.86 -39771000.70 0.1656 0.0534
 Mercury -113600-05-04 01:55 J -39770853.57 -39770853.42 -39770853.26 0.1772 0.0288
 Mercury -113599-03-16 14:10 J -39770537.03 -39770536.91 -39770536.79 0.1741 0.0179
 Venus -113599-10-07 22:48 J -39770331.70 -39770331.55 -39770331.41 0.1651 0.0824
 Venus -113598-09-12 10:05 J -39769992.25 -39769992.08 -39769991.91 0.1861 0.0663
 Mercury -113597-02-20 01:41 J -39769831.49 -39769831.43 -39769831.38 0.1723 0.1525
 Earth -113595-07-06 11:46 J -39768964.16 -39768964.01 -39768963.85 0.1649 0.0826
 Moon -113595-07-06 12:14 J -39768964.14 -39768963.99 -39768963.83 0.1649 0.0717 *

Mercury -113591-09-24 03:22 J -39767423.49 -39767423.36 -39767423.23 0.1767 0.0930

Mercury -113590-08-06 22:48 J -39767106.66 -39767106.55 -39767106.43 0.1745 0.0625

Mercury -113588-07-12 11:02 J -39766401.13 -39766401.04 -39766400.94 0.1727 0.1135

Mercury -113581-02-14 04:48 J -39763993.37 -39763993.30 -39763993.23 0.1762 0.1563

Mercury -113581-12-27 07:26 J -39763676.29 -39763676.19 -39763676.10 0.1750 0.1081

Mercury -113579-01-21 02:24 J -39763286.52 -39763286.40 -39763286.29 0.1782 0.1196

Mercury -113579-12-02 20:10 J -39762970.77 -39762970.66 -39762970.54 0.1732 0.0723

Mercury -113571-05-19 15:36 J -39760245.91 -39760245.85 -39760245.79 0.1755 0.1552

Mercury -113570-06-13 02:10 J -39759856.56 -39759856.41 -39759856.26 0.1777 0.0474

Mercury -113569-04-24 05:17 J -39759540.40 -39759540.28 -39759540.16 0.1736 0.0300

Venus -113569-12-06 06:43 J -39759314.34 -39759314.22 -39759314.11 0.1659 0.1195

Venus -113567-10-06 13:12 J -39758645.12 -39758644.95 -39758644.79 0.1653 0.0191

Venus -113566-09-12 15:22 J -39758304.03 -39758303.86 -39758303.69 0.1857 0.0722

Venus -113565-08-05 21:22 J -39757975.67 -39757975.61 -39757975.54 0.1648 0.1521

Mercury -113561-11-02 02:53 J -39756426.54 -39756426.38 -39756426.23 0.1772 0.0209

Mercury -113560-09-14 14:10 J -39756110.03 -39756109.91 -39756109.78 0.1741 0.0143

Mercury -113558-08-21 01:41 J -39755404.48 -39755404.43 -39755404.38 0.1723 0.1569

Mercury -113551-03-25 03:36 J -39752996.48 -39752996.35 -39752996.21 0.1767 0.0875

Mercury -113550-02-04 23:02 J -39752679.66 -39752679.54 -39752679.43 0.1746 0.0578

Mercury -113548-01-10 11:02 J -39751974.13 -39751974.04 -39751973.95 0.1727 0.1172

Mercury -113542-08-15 05:02 J -39749566.36 -39749566.29 -39749566.21 0.1762 0.1507

Mercury -113541-06-27 07:26 J -39749249.28 -39749249.19 -39749249.09 0.1750 0.1031

Mercury -113540-07-22 02:24 J -39748859.51 -39748859.40 -39748859.28 0.1782 0.1251

Mercury -113539-06-02 20:24 J -39748543.76 -39748543.65 -39748543.54 0.1732 0.0765

Venus -113535-10-05 04:05 J -39746958.49 -39746958.33 -39746958.17 0.1655 0.0470

Venus -113533-08-04 11:46 J -39746289.15 -39746289.01 -39746288.87 0.1650 0.0890

Venus -113532-07-09 12:14 J -39745950.15 -39745949.99 -39745949.83 0.1862 0.0890

Mercury -113532-11-17 15:50 J -39745818.91 -39745818.84 -39745818.78 0.1755 0.1503

Mercury -113531-12-12 02:53 J -39745429.53 -39745429.38 -39745429.24 0.1777 0.0545

Mercury -113530-10-24 05:31 J -39745113.39 -39745113.27 -39745113.15 0.1736 0.0348

Earth -113524-01-08 22:34 J -39743209.64 -39743209.56 -39743209.48 0.1864 0.1729
 Mercury -113521-05-03 03:22 J -39741999.51 -39741999.36 -39741999.21 0.1772 0.0144
 Mercury -113520-03-15 14:24 J -39741683.03 -39741682.90 -39741682.78 0.1741 0.0094
 Mercury -113518-02-19 01:41 J -39740977.47 -39740977.43 -39740977.39 0.1723 0.1610
 Moon -113516-07-08 07:12 J -39740107.37 -39740107.20 -39740107.03 0.1650 0.0337
 Earth -113516-07-08 11:31 J -39740107.20 -39740107.02 -39740106.85 0.1650 0.0361 *
 Mercury -113512-09-23 04:19 J -39738569.46 -39738569.32 -39738569.19 0.1767 0.0806
 Mercury -113511-08-05 23:02 J -39738252.66 -39738252.54 -39738252.42 0.1745 0.0528
 Mercury -113509-07-11 11:17 J -39737547.12 -39737547.03 -39737546.95 0.1727 0.1217
 Venus -113503-10-03 19:12 J -39735271.82 -39735271.70 -39735271.58 0.1658 0.1130
 Mercury -113502-02-13 05:46 J -39735139.35 -39735139.26 -39735139.18 0.1762 0.1441
 Mercury -113502-12-27 07:26 J -39734822.29 -39734822.19 -39734822.08 0.1750 0.0988
 Venus -113501-08-03 02:10 J -39734602.57 -39734602.41 -39734602.24 0.1652 0.0250
 Mercury -113500-01-20 03:22 J -39734432.47 -39734432.36 -39734432.26 0.1782 0.1326
 Venus -113500-07-09 17:02 J -39734261.96 -39734261.79 -39734261.61 0.1859 0.0496
 Mercury -113500-12-01 20:24 J -39734116.76 -39734116.65 -39734116.54 0.1732 0.0808
 Venus -113499-06-03 10:48 J -39733933.10 -39733933.05 -39733933.01 0.1648 0.1583
 Mercury -113492-05-18 15:50 J -39731391.91 -39731391.84 -39731391.77 0.1755 0.1451
 Mercury -113491-06-12 03:22 J -39731002.51 -39731002.36 -39731002.22 0.1777 0.0608
 Mercury -113490-04-24 05:31 J -39730686.39 -39730686.27 -39730686.15 0.1736 0.0390
 Mercury -113482-11-02 03:36 J -39727572.50 -39727572.35 -39727572.19 0.1772 0.0099
 Mercury -113481-09-13 14:24 J -39727256.02 -39727255.90 -39727255.77 0.1741 0.0070
 Mercury -113479-08-20 01:41 J -39726550.46 -39726550.43 -39726550.39 0.1723 0.1654
 Mercury -113472-03-24 04:48 J -39724142.44 -39724142.30 -39724142.16 0.1767 0.0743
 Mercury -113471-02-03 23:02 J -39723825.66 -39723825.54 -39723825.42 0.1745 0.0484
 Mercury -113469-01-10 11:17 J -39723120.11 -39723120.03 -39723119.95 0.1727 0.1260
 Venus -113469-08-01 17:02 J -39722915.96 -39722915.79 -39722915.63 0.1654 0.0408
 Venus -113468-07-09 20:38 J -39722573.66 -39722573.64 -39722573.63 0.1854 0.1844
 Venus -113467-06-02 00:58 J -39722246.59 -39722246.46 -39722246.32 0.1649 0.0951
 Venus -113466-05-06 13:41 J -39721908.08 -39721907.93 -39721907.79 0.1863 0.1129

Mercury -113463-08-14 06:14 J -39720712.33 -39720712.24 -39720712.15 0.1762 0.1376

Mercury -113462-06-27 07:41 J -39720395.28 -39720395.18 -39720395.07 0.1750 0.0934

Mercury -113461-07-21 03:50 J -39720005.43 -39720005.34 -39720005.24 0.1782 0.1395

Mercury -113460-06-01 20:24 J -39719689.75 -39719689.65 -39719689.54 0.1732 0.0853

Mercury -113453-11-16 16:05 J -39716964.91 -39716964.83 -39716964.76 0.1755 0.1404

Mercury -113452-12-11 03:50 J -39716575.48 -39716575.34 -39716575.19 0.1777 0.0678

Mercury -113451-10-23 05:31 J -39716259.38 -39716259.27 -39716259.15 0.1736 0.0440

Moon -113445-01-13 09:07 J -39714351.18 -39714351.12 -39714351.06 0.1864 0.1777

Mercury -113442-05-03 04:19 J -39713145.48 -39713145.32 -39713145.17 0.1772 0.0028

Mercury -113441-03-14 14:24 J -39712829.02 -39712828.90 -39712828.78 0.1741 0.0020

Mercury -113439-02-18 01:41 J -39712123.44 -39712123.43 -39712123.41 0.1723 0.1694

Moon -113437-07-10 04:19 J -39711250.43 -39711250.32 -39711250.21 0.1650 0.1305

Earth -113437-07-10 10:34 J -39711250.12 -39711250.06 -39711250.00 0.1650 0.1545

Venus -113437-07-31 07:55 J -39711229.30 -39711229.17 -39711229.04 0.1657 0.1064

Venus -113435-05-31 15:07 J -39710560.03 -39710559.87 -39710559.70 0.1651 0.0313

Venus -113434-05-06 19:12 J -39710219.88 -39710219.70 -39710219.52 0.1860 0.0275

Mercury -113433-09-22 05:17 J -39709715.42 -39709715.28 -39709715.14 0.1767 0.0681

Mercury -113432-08-04 23:17 J -39709398.65 -39709398.53 -39709398.41 0.1745 0.0434

Mercury -113430-07-11 11:17 J -39708693.11 -39708693.03 -39708692.95 0.1727 0.1301

Mercury -113423-02-12 06:43 J -39706285.32 -39706285.22 -39706285.13 0.1762 0.1319

Mercury -113423-12-26 07:55 J -39705968.28 -39705968.17 -39705968.07 0.1750 0.0886

Mercury -113421-01-20 04:19 J -39705578.41 -39705578.32 -39705578.23 0.1782 0.1455

Mercury -113421-11-30 20:38 J -39705262.74 -39705262.64 -39705262.54 0.1732 0.0900

Mercury -113413-05-17 16:05 J -39702537.91 -39702537.83 -39702537.75 0.1755 0.1355

Mercury -113412-06-11 04:19 J -39702148.46 -39702148.32 -39702148.18 0.1777 0.0738

Mercury -113411-04-23 05:31 J -39701832.38 -39701832.27 -39701832.15 0.1736 0.0484

Venus -113403-05-30 06:00 J -39698873.41 -39698873.25 -39698873.09 0.1653 0.0344

Mercury -113403-11-01 05:02 J -39698718.45 -39698718.29 -39698718.14 0.1772 0.0061

Venus -113402-05-06 22:48 J -39698531.63 -39698531.55 -39698531.46 0.1856 0.1636

Mercury -113402-09-13 14:38 J -39698402.02 -39698401.89 -39698401.77 0.1741 0.0065

Venus -113401-03-29 13:41 J -39698204.06 -39698203.93 -39698203.80 0.1649 0.1021

Venus -113400-03-02 15:36 J -39697865.98 -39697865.85 -39697865.73 0.1864 0.1363

Mercury -113393-03-23 05:46 J -39695288.40 -39695288.26 -39695288.12 0.1767 0.0617

Mercury -113392-02-02 23:17 J -39694971.65 -39694971.53 -39694971.41 0.1745 0.0389

Mercury -113390-01-09 11:17 J -39694266.10 -39694266.03 -39694265.95 0.1727 0.1345

Moon -113390-07-05 15:07 J -39694088.92 -39694088.87 -39694088.82 0.1647 0.1583

Earth -113390-07-05 20:10 J -39694088.72 -39694088.66 -39694088.60 0.1647 0.1554

Mercury -113384-08-13 07:12 J -39691858.31 -39691858.20 -39691858.10 0.1762 0.1254

Mercury -113383-06-26 07:55 J -39691541.28 -39691541.17 -39691541.06 0.1750 0.0842

Mercury -113382-07-21 05:02 J -39691151.37 -39691151.29 -39691151.22 0.1782 0.1523

Mercury -113381-05-31 20:38 J -39690835.74 -39690835.64 -39690835.54 0.1732 0.0940

Mercury -113374-11-16 16:19 J -39688110.91 -39688110.82 -39688110.74 0.1755 0.1304

Mercury -113373-12-10 05:02 J -39687721.43 -39687721.29 -39687721.15 0.1777 0.0807

Mercury -113372-10-22 05:46 J -39687405.38 -39687405.26 -39687405.15 0.1736 0.0526

Venus -113371-05-28 20:53 J -39687186.76 -39687186.63 -39687186.50 0.1656 0.1004

Venus -113369-03-28 04:05 J -39686517.49 -39686517.33 -39686517.16 0.1650 0.0375

Venus -113368-03-02 20:24 J -39686177.83 -39686177.65 -39686177.46 0.1861 0.0043

Mercury -113363-05-02 05:17 J -39684291.44 -39684291.28 -39684291.13 0.1772 0.0113

Mercury -113362-03-14 14:38 J -39683975.01 -39683974.89 -39683974.76 0.1741 0.0106

Mercury -113354-09-22 06:29 J -39680861.38 -39680861.23 -39680861.09 0.1767 0.0549

Mercury -113353-08-03 23:31 J -39680544.65 -39680544.52 -39680544.40 0.1745 0.0345

Mercury -113351-07-10 11:31 J -39679839.09 -39679839.02 -39679838.95 0.1727 0.1390

Mercury -113344-02-11 07:41 J -39677431.29 -39677431.18 -39677431.07 0.1762 0.1192

Mercury -113344-12-25 07:55 J -39677114.28 -39677114.17 -39677114.06 0.1750 0.0793

Mercury -113342-01-19 05:46 J -39676724.33 -39676724.26 -39676724.20 0.1782 0.1597

Mercury -113342-11-30 20:38 J -39676408.74 -39676408.64 -39676408.54 0.1732 0.0984

Venus -113337-03-26 18:43 J -39674830.89 -39674830.72 -39674830.56 0.1652 0.0280

Venus -113336-03-03 00:29 J -39674489.60 -39674489.48 -39674489.36 0.1857 0.1410

Venus -113335-01-25 02:38 J -39674161.51 -39674161.39 -39674161.26 0.1648 0.1086

Venus -113335-12-28 16:05 J -39673823.91 -39673823.83 -39673823.74 0.1865 0.1617

Mercury -113334-05-17 16:19 J -39673683.91 -39673683.82 -39673683.74 0.1755 0.1260
 Mercury -113333-06-10 05:31 J -39673294.41 -39673294.27 -39673294.14 0.1777 0.0871
 Mercury -113332-04-22 05:46 J -39672978.38 -39672978.26 -39672978.15 0.1736 0.0569
 Mercury -113325-10-07 00:29 J -39670253.50 -39670253.48 -39670253.46 0.1760 0.1733
 Mercury -113324-10-31 06:00 J -39669864.40 -39669864.25 -39669864.10 0.1772 0.0181
 Mercury -113323-09-12 14:38 J -39669548.01 -39669547.89 -39669547.76 0.1741 0.0152
 Mercury -113314-03-23 06:43 J -39666434.37 -39666434.22 -39666434.07 0.1767 0.0495
 Mercury -113313-02-02 23:31 J -39666117.64 -39666117.52 -39666117.40 0.1746 0.0296
 Mercury -113311-01-08 11:17 J -39665412.09 -39665412.03 -39665411.96 0.1727 0.1428
 Moon -113311-07-07 17:46 J -39665231.94 -39665231.76 -39665231.58 0.1648 0.0541
 Earth -113311-07-07 19:12 J -39665231.88 -39665231.70 -39665231.53 0.1648 0.0379 *
 Venus -113305-03-25 09:07 J -39663144.26 -39663144.12 -39663143.98 0.1655 0.0935
 Mercury -113305-08-12 07:55 J -39663004.28 -39663004.17 -39663004.05 0.1762 0.1134
 Mercury -113304-06-25 08:10 J -39662687.27 -39662687.16 -39662687.05 0.1750 0.0743
 Venus -113303-01-23 17:02 J -39662474.96 -39662474.79 -39662474.63 0.1649 0.0443
 Mercury -113303-07-20 06:00 J -39662297.31 -39662297.25 -39662297.20 0.1782 0.1651
 Venus -113303-12-28 21:22 J -39662135.80 -39662135.61 -39662135.43 0.1863 0.0212
 Mercury -113302-05-31 20:38 J -39661981.73 -39661981.64 -39661981.54 0.1732 0.1029
 Mercury -113295-01-02 10:05 J -39659574.10 -39659574.08 -39659574.07 0.1757 0.1739
 Mercury -113295-11-15 16:19 J -39659256.91 -39659256.82 -39659256.73 0.1755 0.1209
 Mercury -113294-12-10 06:14 J -39658867.38 -39658867.24 -39658867.11 0.1777 0.0943
 Mercury -113293-10-21 06:00 J -39658551.37 -39658551.25 -39658551.14 0.1736 0.0619
 Mercury -113285-04-07 00:29 J -39655826.51 -39655826.48 -39655826.45 0.1760 0.1685
 Mercury -113284-05-01 06:29 J -39655437.39 -39655437.23 -39655437.08 0.1772 0.0244
 Mercury -113283-03-13 14:53 J -39655121.01 -39655120.88 -39655120.76 0.1741 0.0199
 Mercury -113275-09-21 07:12 J -39652007.35 -39652007.20 -39652007.05 0.1767 0.0428
 Mercury -113274-08-03 23:31 J -39651690.64 -39651690.52 -39651690.40 0.1745 0.0250
 Venus -113273-03-24 00:29 J -39651457.52 -39651457.48 -39651457.44 0.1658 0.1606
 Mercury -113272-07-09 11:31 J -39650985.08 -39650985.02 -39650984.96 0.1727 0.1471
 Venus -113271-01-22 07:26 J -39650788.36 -39650788.19 -39650788.03 0.1652 0.0211

Venus -113271-12-29 02:24 J -39650447.54 -39650447.40 -39650447.26 0.1859 0.1191
 Venus -113270-11-22 15:36 J -39650118.97 -39650118.85 -39650118.73 0.1647 0.1154
 Venus -113269-10-24 17:46 J -39649781.77 -39649781.76 -39649781.74 0.1866 0.1860
 Mercury -113265-02-11 08:38 J -39648577.26 -39648577.14 -39648577.02 0.1762 0.1068
 Mercury -113265-12-24 08:10 J -39648260.28 -39648260.16 -39648260.05 0.1750 0.0700
 Mercury -113263-01-18 06:43 J -39647870.25 -39647870.22 -39647870.18 0.1782 0.1728
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 Mercury -113254-06-10 06:29 J -39644440.36 -39644440.23 -39644440.10 0.1777 0.1000
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 Mercury -113246-10-07 00:43 J -39641399.52 -39641399.47 -39641399.43 0.1759 0.1634
 Mercury -113245-10-30 06:43 J -39641010.37 -39641010.22 -39641010.06 0.1772 0.0309
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 Venus -113239-01-20 22:05 J -39639101.72 -39639101.58 -39639101.43 0.1654 0.0874
 Venus -113238-11-21 06:00 J -39638432.41 -39638432.25 -39638432.09 0.1649 0.0507
 Venus -113237-10-24 23:02 J -39638093.72 -39638093.54 -39638093.36 0.1863 0.0447
 Mercury -113235-03-22 07:55 J -39637580.32 -39637580.17 -39637580.02 0.1767 0.0362
 Mercury -113234-02-01 23:31 J -39637263.64 -39637263.52 -39637263.39 0.1745 0.0210
 Mercury -113232-01-07 11:31 J -39636558.07 -39636558.02 -39636557.96 0.1727 0.1515
 Earth -113232-07-09 18:14 J -39636374.89 -39636374.74 -39636374.58 0.1648 0.0791
 Moon -113232-07-09 22:05 J -39636374.73 -39636374.58 -39636374.43 0.1648 0.1029 *
 Mercury -113226-08-12 09:07 J -39634150.24 -39634150.12 -39634150.00 0.1762 0.1004
 Mercury -113225-06-24 08:24 J -39633833.27 -39633833.15 -39633833.04 0.1750 0.0651
 Mercury -113223-05-30 20:53 J -39633127.73 -39633127.63 -39633127.54 0.1732 0.1114
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 Mercury -113216-11-14 16:34 J -39630402.90 -39630402.81 -39630402.71 0.1755 0.1113
 Mercury -113215-12-09 07:12 J -39630013.33 -39630013.20 -39630013.08 0.1777 0.1070
 Mercury -113214-10-21 06:00 J -39629697.36 -39629697.25 -39629697.14 0.1736 0.0703
 Venus -113207-01-19 13:12 J -39627415.01 -39627414.95 -39627414.89 0.1657 0.1542

Mercury -113206-04-07 00:43 J -39626972.52 -39626972.47 -39626972.42 0.1760 0.1589

Venus -113206-11-19 20:24 J -39626745.82 -39626745.65 -39626745.48 0.1651 0.0146

Mercury -113205-04-30 07:26 J -39626583.34 -39626583.19 -39626583.04 0.1772 0.0370

Venus -113205-10-25 04:05 J -39626405.49 -39626405.33 -39626405.18 0.1860 0.0960

Mercury -113204-03-12 14:53 J -39626267.00 -39626266.88 -39626266.76 0.1741 0.0277

Venus -113204-09-19 04:34 J -39626076.42 -39626076.31 -39626076.19 0.1647 0.1221

Mercury -113196-09-20 08:10 J -39623153.31 -39623153.16 -39623153.00 0.1767 0.0306

Mercury -113195-08-02 23:46 J -39622836.63 -39622836.51 -39622836.39 0.1746 0.0156

Mercury -113193-07-08 11:31 J -39622131.07 -39622131.02 -39622130.97 0.1727 0.1555

Mercury -113186-02-10 09:36 J -39619723.23 -39619723.10 -39619722.98 0.1762 0.0947

Mercury -113186-12-24 08:24 J -39619406.27 -39619406.15 -39619406.04 0.1750 0.0602

Mercury -113184-11-28 20:53 J -39618700.72 -39618700.63 -39618700.54 0.1732 0.1160

Mercury -113177-07-02 11:17 J -39616293.10 -39616293.03 -39616292.96 0.1757 0.1561

Mercury -113176-05-15 16:34 J -39615975.90 -39615975.81 -39615975.71 0.1755 0.1067

Mercury -113175-06-09 07:41 J -39615586.30 -39615586.18 -39615586.06 0.1777 0.1134

Mercury -113174-04-21 06:00 J -39615270.36 -39615270.25 -39615270.14 0.1736 0.0745

Venus -113174-11-18 10:48 J -39615059.19 -39615059.05 -39615058.90 0.1653 0.0807

Venus -113172-09-17 18:58 J -39614389.87 -39614389.71 -39614389.56 0.1648 0.0574

Venus -113171-08-22 00:00 J -39614051.67 -39614051.50 -39614051.33 0.1864 0.0698

Mercury -113167-10-06 00:58 J -39612545.52 -39612545.46 -39612545.40 0.1760 0.1536

Mercury -113166-10-30 08:10 J -39612156.31 -39612156.16 -39612156.01 0.1772 0.0441

Mercury -113165-09-10 15:07 J -39611839.99 -39611839.87 -39611839.75 0.1741 0.0329

Earth -113161-01-12 15:22 J -39610621.06 -39610620.86 -39610620.66 0.1866 0.0679

Moon -113161-01-13 01:55 J -39610620.57 -39610620.42 -39610620.26 0.1866 0.1277

Mercury -113156-03-21 08:53 J -39608726.29 -39608726.13 -39608725.98 0.1767 0.0241

Mercury -113155-01-31 23:46 J -39608409.63 -39608409.51 -39608409.39 0.1745 0.0113

Mercury -113153-01-07 11:31 J -39607704.06 -39607704.02 -39607703.97 0.1727 0.1597

Mercury -113147-08-11 10:05 J -39605296.21 -39605296.08 -39605295.95 0.1762 0.0884

Mercury -113146-06-24 08:24 J -39604979.27 -39604979.15 -39604979.03 0.1750 0.0558

Mercury -113144-05-29 20:53 J -39604273.72 -39604273.63 -39604273.54 0.1732 0.1197

Venus -113142-11-17 01:55 J -39603372.49 -39603372.42 -39603372.35 0.1656 0.1477
 Venus -113140-09-16 09:07 J -39602703.29 -39602703.12 -39602702.95 0.1650 0.0082
 Venus -113139-08-22 06:14 J -39602363.41 -39602363.24 -39602363.08 0.1861 0.0738
 Venus -113138-07-17 17:46 J -39602033.86 -39602033.76 -39602033.66 0.1647 0.1287
 Mercury -113137-01-01 11:31 J -39601866.09 -39601866.02 -39601865.94 0.1757 0.1505
 Mercury -113137-11-13 16:48 J -39601548.90 -39601548.80 -39601548.70 0.1755 0.1014
 Mercury -113136-12-08 08:24 J -39601159.27 -39601159.15 -39601159.04 0.1777 0.1201
 Mercury -113135-10-20 06:00 J -39600843.35 -39600843.25 -39600843.14 0.1736 0.0794
 Mercury -113127-04-06 00:58 J -39598118.52 -39598118.46 -39598118.40 0.1760 0.1488
 Mercury -113126-04-30 08:24 J -39597729.30 -39597729.15 -39597729.00 0.1772 0.0495
 Mercury -113125-03-11 15:07 J -39597412.99 -39597412.87 -39597412.75 0.1741 0.0372
 Mercury -113117-09-19 09:22 J -39594299.26 -39594299.11 -39594298.95 0.1767 0.0172
 Mercury -113116-08-02 00:00 J -39593982.63 -39593982.50 -39593982.38 0.1745 0.0083
 Mercury -113114-07-08 11:46 J -39593277.05 -39593277.01 -39593276.98 0.1727 0.1640
 Venus -113108-09-14 23:46 J -39591016.66 -39591016.51 -39591016.36 0.1652 0.0744
 Mercury -113107-02-09 10:34 J -39590869.20 -39590869.06 -39590868.93 0.1762 0.0819
 Mercury -113107-12-23 08:24 J -39590552.26 -39590552.15 -39590552.03 0.1750 0.0513
 Earth -113106-07-07 03:36 J -39590356.48 -39590356.35 -39590356.21 0.1646 0.1104
 Moon -113106-07-07 07:26 J -39590356.34 -39590356.19 -39590356.05 0.1646 0.0896 *
 Venus -113106-07-16 07:55 J -39590347.33 -39590347.17 -39590347.02 0.1648 0.0640
 Venus -113105-06-18 02:10 J -39590009.57 -39590009.41 -39590009.25 0.1865 0.0933
 Mercury -113105-11-27 20:53 J -39589846.71 -39589846.63 -39589846.54 0.1732 0.1244
 Mercury -113098-07-02 12:14 J -39587439.08 -39587438.99 -39587438.91 0.1757 0.1441
 Mercury -113097-05-14 16:48 J -39587121.90 -39587121.80 -39587121.69 0.1755 0.0970
 Mercury -113096-06-08 08:53 J -39586732.24 -39586732.13 -39586732.03 0.1777 0.1265
 Mercury -113095-04-20 06:14 J -39586416.35 -39586416.24 -39586416.14 0.1736 0.0835
 Mercury -113088-10-05 01:12 J -39583691.52 -39583691.45 -39583691.38 0.1760 0.1440
 Mercury -113087-10-29 09:07 J -39583302.27 -39583302.12 -39583301.97 0.1772 0.0567
 Mercury -113086-09-10 15:07 J -39582985.99 -39582985.87 -39582985.75 0.1741 0.0414
 Mercury -113077-03-20 09:36 J -39579872.25 -39579872.10 -39579871.94 0.1767 0.0122

Mercury -113076-01-31 00:00 J -39579555.62 -39579555.50 -39579555.38 0.1746 0.0019

Venus -113076-09-13 14:38 J -39579329.98 -39579329.89 -39579329.81 0.1655 0.1414

Mercury -113074-01-06 11:46 J -39578850.04 -39578850.01 -39578849.99 0.1727 0.1680

Venus -113074-07-14 22:05 J -39578660.74 -39578660.58 -39578660.41 0.1649 0.0046

Venus -113073-06-18 07:41 J -39578321.36 -39578321.18 -39578321.00 0.1863 0.0499

Venus -113072-05-14 06:58 J -39577991.30 -39577991.21 -39577991.11 0.1646 0.1353

Mercury -113068-08-10 11:02 J -39576442.18 -39576442.04 -39576441.90 0.1762 0.0759

Mercury -113067-06-23 08:38 J -39576125.26 -39576125.14 -39576125.02 0.1750 0.0460

Mercury -113065-05-28 21:07 J -39575419.70 -39575419.62 -39575419.54 0.1732 0.1287

Mercury -113059-12-31 12:43 J -39573012.06 -39573011.97 -39573011.88 0.1757 0.1376

Mercury -113058-11-13 17:02 J -39572694.90 -39572694.79 -39572694.69 0.1755 0.0920

Mercury -113057-12-07 09:22 J -39572305.21 -39572305.11 -39572305.00 0.1777 0.1337

Mercury -113056-10-19 06:14 J -39571989.34 -39571989.24 -39571989.14 0.1736 0.0879

Mercury -113048-04-05 01:12 J -39569264.53 -39569264.45 -39569264.38 0.1760 0.1393

Mercury -113047-04-29 09:36 J -39568875.25 -39568875.10 -39568874.95 0.1772 0.0629

Mercury -113046-03-11 15:07 J -39568558.98 -39568558.87 -39568558.75 0.1741 0.0460

Venus -113042-07-13 12:43 J -39566974.13 -39566973.97 -39566973.82 0.1651 0.0682

Venus -113040-05-12 21:07 J -39566304.77 -39566304.62 -39566304.47 0.1647 0.0705

Venus -113039-04-15 03:07 J -39565967.51 -39565967.37 -39565967.23 0.1866 0.1187

Mercury -113038-09-19 10:19 J -39565445.22 -39565445.07 -39565444.91 0.1767 0.0052

Mercury -113037-08-01 00:00 J -39565128.62 -39565128.50 -39565128.37 0.1745 0.0049

Mercury -113035-07-07 11:46 J -39564423.02 -39564423.01 -39564423.01 0.1727 0.1722

Mercury -113028-02-08 11:31 J -39562015.16 -39562015.02 -39562014.88 0.1762 0.0696

Mercury -113028-12-22 08:38 J -39561698.26 -39561698.14 -39561698.02 0.1750 0.0418

Moon -113027-07-09 00:58 J -39561499.63 -39561499.46 -39561499.29 0.1647 0.0147

Earth -113027-07-09 02:53 J -39561499.57 -39561499.38 -39561499.20 0.1647 0.0078 *

Mercury -113026-11-27 21:07 J -39560992.70 -39560992.62 -39560992.54 0.1732 0.1327

Mercury -113019-07-01 12:58 J -39558585.06 -39558584.96 -39558584.86 0.1757 0.1325

Mercury -113018-05-14 17:02 J -39558267.89 -39558267.79 -39558267.68 0.1755 0.0873

Mercury -113017-06-07 09:50 J -39557878.19 -39557878.09 -39557878.00 0.1777 0.1391

Mercury -113016-04-19 06:14 J -39557562.34 -39557562.24 -39557562.14 0.1736 0.0920

Venus -113010-07-12 03:22 J -39555287.46 -39555287.36 -39555287.27 0.1654 0.1349

Mercury -113009-10-04 01:12 J -39554837.52 -39554837.45 -39554837.37 0.1760 0.1343

Venus -113008-05-11 11:02 J -39554618.20 -39554618.04 -39554617.87 0.1649 0.0068

Mercury -113008-10-28 10:05 J -39554448.22 -39554448.08 -39554447.94 0.1772 0.0692

Venus -113007-04-15 09:07 J -39554279.30 -39554279.12 -39554278.93 0.1864 0.0266

Mercury -113007-09-09 15:22 J -39554131.98 -39554131.86 -39554131.74 0.1741 0.0507

Venus -113006-03-11 19:55 J -39553948.75 -39553948.67 -39553948.59 0.1646 0.1422

113TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 113th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -112998-03-20 11:02 J | -39551018.20 | -39551018.04 | -39551017.89 | 0.1767 | 0.0049 | | |
| Mercury | -112997-01-31 00:14 J | -39550701.62 | -39550701.49 | -39550701.37 | 0.1745 | 0.0093 | | |
| Mercury | -112989-08-09 12:00 J | -39547588.14 | -39547588.00 | -39547587.86 | 0.1762 | 0.0634 | | |
| Mercury | -112988-06-22 08:53 J | -39547271.25 | -39547271.13 | -39547271.01 | 0.1750 | 0.0372 | | |
| Mercury | -112986-05-28 21:07 J | -39546565.69 | -39546565.62 | -39546565.55 | 0.1732 | 0.1368 | | |
| Mercury | -112980-12-30 13:41 J | -39544158.04 | -39544157.93 | -39544157.83 | 0.1757 | 0.1258 | | |
| Mercury | -112979-11-12 17:17 J | -39543840.89 | -39543840.78 | -39543840.68 | 0.1755 | 0.0829 | | |
| Mercury | -112978-12-07 10:34 J | -39543451.15 | -39543451.06 | -39543450.97 | 0.1777 | 0.1463 | | |
| Mercury | -112977-10-18 06:14 J | -39543135.34 | -39543135.24 | -39543135.14 | 0.1736 | 0.0967 | | |

Venus -112976-05-10 01:41 J -39542931.58 -39542931.43 -39542931.27 0.1651 0.0616

Venus -112975-04-15 13:41 J -39542591.00 -39542590.93 -39542590.85 0.1860 0.1677

Venus -112974-03-10 09:50 J -39542262.24 -39542262.09 -39542261.94 0.1647 0.0777

Venus -112973-02-10 05:02 J -39541925.41 -39541925.29 -39541925.17 0.1867 0.1431

Mercury -112969-04-04 01:26 J -39540410.52 -39540410.44 -39540410.36 0.1760 0.1295

Mercury -112968-04-28 10:34 J -39540021.20 -39540021.06 -39540020.91 0.1772 0.0760

Mercury -112967-03-10 15:22 J -39539704.98 -39539704.86 -39539704.75 0.1741 0.0546

Mercury -112959-09-18 11:17 J -39536591.18 -39536591.03 -39536590.87 0.1767 0.0079

Mercury -112958-08-01 00:14 J -39536274.61 -39536274.49 -39536274.37 0.1746 0.0125

Mercury -112949-02-08 12:29 J -39533161.13 -39533160.98 -39533160.84 0.1762 0.0573

Mercury -112949-12-21 08:53 J -39532844.25 -39532844.13 -39532844.01 0.1750 0.0322

Moon -112948-07-10 19:41 J -39532642.78 -39532642.68 -39532642.58 0.1647 0.1342

Earth -112948-07-11 01:26 J -39532642.56 -39532642.44 -39532642.32 0.1647 0.1213

Mercury -112947-11-26 21:22 J -39532138.68 -39532138.61 -39532138.55 0.1732 0.1415

Venus -112944-05-08 16:19 J -39531244.92 -39531244.82 -39531244.71 0.1653 0.1287

Venus -112942-03-09 00:00 J -39530575.66 -39530575.50 -39530575.33 0.1648 0.0120

Venus -112941-02-10 10:34 J -39530237.25 -39530237.06 -39530236.88 0.1865 0.0022

Venus -112940-01-06 09:07 J -39529906.19 -39529906.12 -39529906.06 0.1646 0.1492

Mercury -112940-06-30 14:10 J -39529731.02 -39529730.91 -39529730.80 0.1757 0.1197

Mercury -112939-05-13 17:17 J -39529413.89 -39529413.78 -39529413.67 0.1755 0.0779

Mercury -112938-06-07 11:02 J -39529024.12 -39529024.04 -39529023.96 0.1777 0.1529

Mercury -112937-04-18 06:29 J -39528708.33 -39528708.23 -39528708.14 0.1736 0.1009

Mercury -112930-10-04 01:41 J -39525983.52 -39525983.43 -39525983.35 0.1760 0.1245

Mercury -112929-10-27 11:17 J -39525594.16 -39525594.03 -39525593.89 0.1772 0.0828

Mercury -112928-09-08 15:22 J -39525277.97 -39525277.86 -39525277.74 0.1741 0.0598

Mercury -112920-02-23 09:22 J -39522553.13 -39522553.11 -39522553.08 0.1765 0.1729

Mercury -112919-03-19 11:46 J -39522164.16 -39522164.01 -39522163.85 0.1767 0.0147

Mercury -112918-01-30 00:14 J -39521847.61 -39521847.49 -39521847.37 0.1745 0.0163

Venus -112910-03-07 14:24 J -39518889.06 -39518888.90 -39518888.74 0.1650 0.0548

Mercury -112910-08-09 12:58 J -39518734.11 -39518733.96 -39518733.81 0.1762 0.0511

Venus -112909-02-10 15:07 J -39518548.98 -39518548.87 -39518548.75 0.1862 0.1438

Mercury -112909-06-21 08:53 J -39518417.25 -39518417.13 -39518417.01 0.1750 0.0279

Venus -112908-01-04 23:02 J -39518219.68 -39518219.54 -39518219.39 0.1646 0.0842

Venus -112908-12-07 05:31 J -39517883.34 -39517883.27 -39517883.19 0.1867 0.1693

Mercury -112907-05-27 21:07 J -39517711.68 -39517711.62 -39517711.55 0.1732 0.1453

Mercury -112901-12-29 14:24 J -39515304.01 -39515303.90 -39515303.78 0.1757 0.1139

Mercury -112900-11-11 17:31 J -39514986.88 -39514986.77 -39514986.66 0.1755 0.0726

Mercury -112899-12-06 11:31 J -39514597.08 -39514597.02 -39514596.95 0.1777 0.1594

Mercury -112898-10-18 06:29 J -39514281.32 -39514281.23 -39514281.13 0.1736 0.1053

Mercury -112891-05-21 16:34 J -39511873.83 -39511873.81 -39511873.79 0.1752 0.1735

Mercury -112890-04-04 01:41 J -39511556.52 -39511556.43 -39511556.34 0.1760 0.1199

Mercury -112889-04-27 11:31 J -39511167.15 -39511167.02 -39511166.88 0.1772 0.0883

Mercury -112888-03-09 15:36 J -39510850.97 -39510850.85 -39510850.74 0.1741 0.0639

Mercury -112881-08-24 09:36 J -39508126.13 -39508126.10 -39508126.06 0.1764 0.1675

Mercury -112880-09-17 12:29 J -39507737.13 -39507736.98 -39507736.82 0.1767 0.0212

Mercury -112879-07-31 00:29 J -39507420.61 -39507420.48 -39507420.36 0.1745 0.0216

Venus -112878-03-06 04:48 J -39507202.42 -39507202.30 -39507202.19 0.1652 0.1216

Moon -112877-01-10 22:48 J -39506891.73 -39506891.55 -39506891.36 0.1867 0.0868

Earth -112877-01-11 10:05 J -39506891.29 -39506891.08 -39506890.88 0.1867 0.0566

Venus -112876-01-03 13:12 J -39506533.12 -39506532.95 -39506532.79 0.1647 0.0188

Venus -112876-12-07 11:17 J -39506195.21 -39506195.03 -39506194.85 0.1866 0.0243

Venus -112875-11-03 22:05 J -39505863.63 -39505863.58 -39505863.53 0.1645 0.1561

Mercury -112870-02-07 13:26 J -39504307.09 -39504306.94 -39504306.79 0.1762 0.0447

Mercury -112870-12-21 09:07 J -39503990.24 -39503990.12 -39503990.00 0.1750 0.0232

Mercury -112868-11-25 21:22 J -39503284.67 -39503284.61 -39503284.55 0.1732 0.1497

Mercury -112861-06-29 14:53 J -39500876.99 -39500876.88 -39500876.76 0.1757 0.1078

Mercury -112860-05-12 17:31 J -39500559.89 -39500559.77 -39500559.66 0.1755 0.0686

Mercury -112859-06-06 12:00 J -39500170.05 -39500170.00 -39500169.94 0.1777 0.1657

Mercury -112858-04-18 06:29 J -39499854.32 -39499854.23 -39499854.14 0.1736 0.1093

Mercury -112852-11-19 17:02 J -39497446.83 -39497446.79 -39497446.75 0.1752 0.1677

Mercury -112851-10-03 01:41 J -39497129.52 -39497129.43 -39497129.33 0.1760 0.1150

Mercury -112850-10-27 12:29 J -39496740.11 -39496739.98 -39496739.85 0.1772 0.0954

Mercury -112849-09-07 15:36 J -39496423.96 -39496423.85 -39496423.74 0.1741 0.0680

Venus -112844-01-02 03:22 J -39494846.52 -39494846.36 -39494846.20 0.1649 0.0481

Venus -112844-12-07 16:48 J -39494506.93 -39494506.80 -39494506.66 0.1863 0.1208

Venus -112843-11-02 11:46 J -39494177.14 -39494177.01 -39494176.87 0.1646 0.0914

Mercury -112841-02-23 09:50 J -39493699.14 -39493699.09 -39493699.05 0.1764 0.1625

Mercury -112840-03-18 12:43 J -39493310.12 -39493309.97 -39493309.81 0.1767 0.0269

Mercury -112839-01-29 00:29 J -39492993.60 -39492993.48 -39492993.36 0.1746 0.0256

Mercury -112831-08-08 13:55 J -39489880.07 -39489879.92 -39489879.77 0.1762 0.0386

Mercury -112830-06-21 09:07 J -39489563.24 -39489563.12 -39489562.99 0.1750 0.0186

Mercury -112828-05-26 21:22 J -39488857.66 -39488857.61 -39488857.56 0.1732 0.1540

Earth -112822-07-08 11:31 J -39486624.18 -39486624.02 -39486623.85 0.1646 0.0649

Moon -112822-07-08 12:14 J -39486624.18 -39486623.99 -39486623.81 0.1646 0.0458 *

Mercury -112822-12-29 15:36 J -39486449.97 -39486449.85 -39486449.73 0.1757 0.1012

Mercury -112821-11-10 17:31 J -39486132.88 -39486132.77 -39486132.65 0.1755 0.0638

Mercury -112820-12-05 12:58 J -39485743.00 -39485742.96 -39485742.93 0.1778 0.1729

Mercury -112819-10-17 06:29 J -39485427.32 -39485427.23 -39485427.13 0.1736 0.1140

Venus -112813-12-31 17:46 J -39483159.87 -39483159.76 -39483159.64 0.1651 0.1155

Mercury -112812-05-20 17:31 J -39483019.83 -39483019.77 -39483019.72 0.1752 0.1618

Mercury -112811-04-03 01:55 J -39482702.52 -39482702.42 -39482702.33 0.1760 0.1104

Venus -112811-11-01 02:10 J -39482490.58 -39482490.41 -39482490.25 0.1647 0.0254

Mercury -112810-04-27 12:58 J -39482313.09 -39482312.96 -39482312.84 0.1772 0.1017

Venus -112810-10-04 12:43 J -39482153.14 -39482152.97 -39482152.79 0.1866 0.0490

Mercury -112809-03-08 15:36 J -39481996.96 -39481996.85 -39481996.74 0.1741 0.0724

Venus -112809-08-31 11:02 J -39481821.06 -39481821.04 -39481821.03 0.1645 0.1633

Mercury -112802-08-24 09:50 J -39479272.14 -39479272.09 -39479272.03 0.1765 0.1578

Mercury -112801-09-16 13:26 J -39478883.09 -39478882.94 -39478882.79 0.1767 0.0338

Mercury -112800-07-30 00:29 J -39478566.60 -39478566.48 -39478566.35 0.1745 0.0305

Mercury -112791-02-06 14:24 J -39475453.05 -39475452.90 -39475452.75 0.1762 0.0326

Mercury -112791-12-20 09:07 J -39475136.24 -39475136.12 -39475135.99 0.1750 0.0146

Mercury -112789-11-24 21:22 J -39474430.65 -39474430.61 -39474430.56 0.1732 0.1579

Mercury -112782-06-29 15:50 J -39472022.97 -39472022.84 -39472022.72 0.1757 0.0961

Mercury -112781-05-11 17:46 J -39471705.88 -39471705.76 -39471705.64 0.1755 0.0587

Mercury -112779-04-17 06:43 J -39471000.31 -39471000.22 -39471000.14 0.1736 0.1180

Venus -112779-10-30 16:19 J -39470803.98 -39470803.82 -39470803.66 0.1648 0.0416

Venus -112778-10-04 18:14 J -39470464.89 -39470464.74 -39470464.58 0.1864 0.0969

Venus -112777-08-30 00:58 J -39470134.59 -39470134.46 -39470134.32 0.1646 0.0979

Mercury -112773-11-18 18:00 J -39468592.81 -39468592.75 -39468592.68 0.1752 0.1553

Mercury -112772-10-02 01:55 J -39468275.52 -39468275.42 -39468275.32 0.1760 0.1052

Mercury -112771-10-26 13:26 J -39467886.06 -39467885.94 -39467885.82 0.1772 0.1081

Mercury -112770-09-07 15:50 J -39467569.95 -39467569.84 -39467569.73 0.1741 0.0772

Mercury -112762-02-22 10:05 J -39464845.14 -39464845.08 -39464845.02 0.1765 0.1529

Mercury -112761-03-17 14:10 J -39464456.06 -39464455.91 -39464455.76 0.1767 0.0402

Mercury -112760-01-28 00:43 J -39464139.60 -39464139.47 -39464139.35 0.1746 0.0350

Mercury -112752-08-07 14:53 J -39461026.03 -39461025.88 -39461025.73 0.1762 0.0264

Mercury -112751-06-20 09:22 J -39460709.23 -39460709.11 -39460708.99 0.1750 0.0094

Mercury -112749-05-25 21:22 J -39460003.65 -39460003.61 -39460003.57 0.1732 0.1621

Venus -112747-10-29 06:29 J -39459117.35 -39459117.23 -39459117.10 0.1650 0.1088

Venus -112745-08-28 15:07 J -39458448.03 -39458447.87 -39458447.70 0.1646 0.0317

Venus -112744-07-31 13:41 J -39458111.09 -39458110.93 -39458110.76 0.1867 0.0747

Earth -112743-07-10 10:34 J -39457767.23 -39457767.06 -39457766.89 0.1646 0.0511

Moon -112743-07-10 16:05 J -39457767.01 -39457766.83 -39457766.65 0.1646 0.0372 *

Mercury -112743-12-28 16:34 J -39457595.94 -39457595.81 -39457595.68 0.1757 0.0891

Mercury -112742-11-10 17:46 J -39457278.88 -39457278.76 -39457278.64 0.1755 0.0543

Mercury -112740-10-16 06:43 J -39456573.30 -39456573.22 -39456573.13 0.1736 0.1224

Mercury -112733-05-19 18:14 J -39454165.81 -39454165.74 -39454165.66 0.1752 0.1501

Mercury -112732-04-02 02:10 J -39453848.51 -39453848.41 -39453848.31 0.1760 0.1005

Mercury -112731-04-26 13:55 J -39453459.04 -39453458.92 -39453458.80 0.1772 0.1145

Mercury -112730-03-08 15:50 J -39453142.95 -39453142.84 -39453142.74 0.1741 0.0812

Mercury -112723-08-23 10:19 J -39450418.14 -39450418.07 -39450418.01 0.1764 0.1477

Mercury -112722-09-16 14:24 J -39450029.05 -39450028.90 -39450028.75 0.1767 0.0456

Mercury -112721-07-29 00:43 J -39449712.59 -39449712.47 -39449712.35 0.1745 0.0394

Venus -112713-08-27 05:17 J -39446761.45 -39446761.28 -39446761.12 0.1648 0.0349

Mercury -112712-02-05 15:36 J -39446599.01 -39446598.85 -39446598.70 0.1762 0.0201

Venus -112712-07-31 20:24 J -39446422.82 -39446422.65 -39446422.48 0.1865 0.0734

Mercury -112712-12-19 09:22 J -39446282.23 -39446282.11 -39446281.98 0.1750 0.0052

Venus -112711-06-27 14:10 J -39446092.04 -39446091.91 -39446091.78 0.1645 0.1046

Mercury -112710-11-24 21:36 J -39445576.63 -39445576.60 -39445576.57 0.1732 0.1666

Mercury -112703-06-28 17:02 J -39443168.93 -39443168.79 -39443168.66 0.1757 0.0831

Mercury -112702-05-11 18:00 J -39442851.87 -39442851.75 -39442851.63 0.1755 0.0498

Mercury -112700-04-16 06:43 J -39442146.30 -39442146.22 -39442146.14 0.1736 0.1265

Mercury -112694-11-18 18:58 J -39439738.80 -39439738.71 -39439738.63 0.1752 0.1436

Mercury -112693-10-01 02:10 J -39439421.51 -39439421.41 -39439421.30 0.1760 0.0957

Mercury -112692-10-25 14:38 J -39439032.00 -39439031.89 -39439031.78 0.1772 0.1213

Mercury -112691-09-06 15:50 J -39438715.94 -39438715.84 -39438715.73 0.1741 0.0858

Mercury -112683-02-21 10:05 J -39435991.15 -39435991.08 -39435991.00 0.1765 0.1436

Mercury -112682-03-17 15:07 J -39435602.02 -39435601.87 -39435601.73 0.1767 0.0525

Mercury -112681-01-28 00:43 J -39435285.59 -39435285.47 -39435285.35 0.1746 0.0432

Venus -112681-08-25 19:41 J -39435074.81 -39435074.68 -39435074.55 0.1650 0.1026

Venus -112679-06-26 04:19 J -39434405.48 -39434405.32 -39434405.16 0.1646 0.0382

Venus -112678-05-28 15:50 J -39434068.99 -39434068.84 -39434068.68 0.1867 0.0991

Mercury -112673-08-06 16:05 J -39432171.99 -39432171.83 -39432171.68 0.1762 0.0145

Mercury -112672-06-19 09:36 J -39431855.23 -39431855.10 -39431854.98 0.1750 0.0057

Mercury -112670-05-25 21:36 J -39431149.62 -39431149.60 -39431149.58 0.1732 0.1703

Mercury -112664-12-27 17:17 J -39428741.91 -39428741.78 -39428741.64 0.1757 0.0774

Mercury -112663-11-09 18:00 J -39428424.87 -39428424.75 -39428424.63 0.1755 0.0448

Mercury -112661-10-15 06:58 J -39427719.29 -39427719.21 -39427719.14 0.1736 0.1311

Mercury -112654-05-19 19:26 J -39425311.79 -39425311.69 -39425311.60 0.1752 0.1378

Mercury -112653-04-01 02:10 J -39424994.51 -39424994.41 -39424994.30 0.1760 0.0913

Mercury -112652-04-25 14:53 J -39424604.98 -39424604.88 -39424604.77 0.1772 0.1271

Mercury -112651-03-07 16:05 J -39424288.94 -39424288.83 -39424288.73 0.1741 0.0903

Venus -112647-06-24 18:29 J -39422718.89 -39422718.73 -39422718.56 0.1647 0.0289

Venus -112646-05-28 21:50 J -39422380.77 -39422380.59 -39422380.41 0.1866 0.0487

Venus -112645-04-24 03:36 J -39422049.48 -39422049.35 -39422049.23 0.1645 0.1114

Mercury -112644-08-22 10:19 J -39421564.14 -39421564.07 -39421563.99 0.1764 0.1382

Mercury -112643-09-15 15:36 J -39421174.99 -39421174.85 -39421174.70 0.1767 0.0595

Mercury -112642-07-29 00:58 J -39420858.58 -39420858.46 -39420858.35 0.1745 0.0482

Mercury -112633-02-05 16:34 J -39417744.96 -39417744.81 -39417744.66 0.1762 0.0072

Mercury -112633-12-18 09:36 J -39417428.22 -39417428.10 -39417427.98 0.1750 0.0046

Mercury -112624-06-27 17:46 J -39414314.89 -39414314.76 -39414314.62 0.1757 0.0714

Mercury -112623-05-10 18:00 J -39413997.87 -39413997.75 -39413997.63 0.1755 0.0406

Mercury -112621-04-15 06:58 J -39413292.29 -39413292.21 -39413292.14 0.1736 0.1350

Earth -112617-07-06 20:24 J -39411748.75 -39411748.65 -39411748.55 0.1645 0.1335

Moon -112617-07-06 21:36 J -39411748.66 -39411748.60 -39411748.53 0.1645 0.1515 *

Venus -112615-06-23 08:53 J -39411032.27 -39411032.13 -39411032.00 0.1649 0.0965

Mercury -112615-11-17 19:41 J -39410884.77 -39410884.68 -39410884.58 0.1752 0.1320

Mercury -112614-10-01 02:24 J -39410567.51 -39410567.40 -39410567.29 0.1760 0.0861

Venus -112613-04-22 17:31 J -39410362.93 -39410362.77 -39410362.61 0.1646 0.0449

Mercury -112613-10-24 15:50 J -39410177.94 -39410177.84 -39410177.74 0.1772 0.1342

Venus -112612-03-24 16:48 J -39410026.94 -39410026.80 -39410026.67 0.1868 0.1254

Mercury -112612-09-05 16:05 J -39409861.93 -39409861.83 -39409861.73 0.1741 0.0944

Mercury -112604-02-20 10:34 J -39407137.14 -39407137.06 -39407136.98 0.1764 0.1331

Mercury -112603-03-16 16:05 J -39406747.98 -39406747.83 -39406747.69 0.1767 0.0648

Mercury -112602-01-27 00:58 J -39406431.57 -39406431.46 -39406431.34 0.1746 0.0527

Mercury -112594-08-06 17:02 J -39403317.94 -39403317.79 -39403317.64 0.1762 0.0013

Earth -112593-01-10 03:50 J -39403161.38 -39403161.34 -39403161.30 0.1868 0.1828

Mercury -112593-06-18 09:36 J -39403001.22 -39403001.10 -39403000.97 0.1750 0.0101

Mercury -112585-12-26 18:29 J -39399887.87 -39399887.73 -39399887.59 0.1757 0.0646

Mercury -112584-11-08 18:14 J -39399570.86 -39399570.74 -39399570.62 0.1755 0.0355

Venus -112583-06-21 23:17 J -39399345.54 -39399345.53 -39399345.52 0.1651 0.1641
 Mercury -112582-10-15 06:58 J -39398865.28 -39398865.21 -39398865.14 0.1736 0.1393
 Venus -112581-04-21 07:26 J -39398676.36 -39398676.19 -39398676.03 0.1647 0.0220
 Venus -112580-03-24 23:17 J -39398338.71 -39398338.53 -39398338.35 0.1867 0.0241
 Venus -112579-02-19 16:19 J -39398006.93 -39398006.82 -39398006.70 0.1645 0.1185
 Mercury -112575-05-18 20:10 J -39396457.76 -39396457.66 -39396457.55 0.1752 0.1259
 Mercury -112574-04-01 02:24 J -39396140.51 -39396140.40 -39396140.29 0.1760 0.0817
 Mercury -112573-04-24 16:19 J -39395750.92 -39395750.82 -39395750.73 0.1772 0.1405
 Mercury -112572-03-06 16:05 J -39395434.93 -39395434.83 -39395434.73 0.1741 0.0987
 Mercury -112565-08-21 10:34 J -39392710.14 -39392710.06 -39392709.97 0.1765 0.1286
 Mercury -112564-09-14 16:48 J -39392320.95 -39392320.80 -39392320.66 0.1767 0.0718
 Mercury -112563-07-28 00:58 J -39392004.57 -39392004.46 -39392004.34 0.1745 0.0569
 Mercury -112555-01-11 18:29 J -39389279.73 -39389279.73 -39389279.72 0.1769 0.1768
 Mercury -112554-02-04 17:31 J -39388890.92 -39388890.77 -39388890.62 0.1762 0.0049
 Mercury -112554-12-18 09:50 J -39388574.22 -39388574.09 -39388573.97 0.1750 0.0144
 Venus -112549-04-19 21:50 J -39386989.73 -39386989.59 -39386989.45 0.1648 0.0898
 Venus -112548-03-25 04:19 J -39386650.39 -39386650.32 -39386650.24 0.1864 0.1704
 Venus -112547-02-18 06:14 J -39386320.40 -39386320.24 -39386320.08 0.1645 0.0523
 Venus -112546-01-19 18:29 J -39385984.84 -39385984.73 -39385984.62 0.1868 0.1508
 Mercury -112545-06-26 18:43 J -39385460.86 -39385460.72 -39385460.57 0.1757 0.0593
 Mercury -112544-05-09 18:29 J -39385143.86 -39385143.73 -39385143.61 0.1755 0.0313
 Mercury -112542-04-15 06:58 J -39384438.27 -39384438.21 -39384438.14 0.1736 0.1436
 Moon -112538-07-09 15:36 J -39382892.03 -39382891.85 -39382891.68 0.1645 0.0059
 Earth -112538-07-09 19:55 J -39382891.85 -39382891.67 -39382891.49 0.1645 0.0189 *
 Mercury -112536-11-16 20:53 J -39382030.74 -39382030.63 -39382030.52 0.1752 0.1193
 Mercury -112535-09-30 02:38 J -39381713.50 -39381713.39 -39381713.28 0.1760 0.0765
 Mercury -112534-10-24 16:48 J -39381323.88 -39381323.80 -39381323.71 0.1773 0.1470
 Mercury -112533-09-04 16:19 J -39381007.92 -39381007.82 -39381007.73 0.1741 0.1034
 Mercury -112525-02-20 10:48 J -39378283.14 -39378283.05 -39378282.96 0.1765 0.1238
 Mercury -112524-03-15 17:17 J -39377893.92 -39377893.78 -39377893.64 0.1767 0.0781

Mercury -112523-01-26 01:12 J -39377577.57 -39377577.45 -39377577.34 0.1746 0.0614

Venus -112517-04-18 12:14 J -39375303.04 -39375302.99 -39375302.94 0.1650 0.1578

Mercury -112516-07-12 18:43 J -39374852.75 -39374852.72 -39374852.70 0.1769 0.1720

Venus -112515-02-16 20:24 J -39374633.82 -39374633.65 -39374633.48 0.1646 0.0152

Mercury -112515-08-05 18:00 J -39374463.90 -39374463.75 -39374463.59 0.1762 0.0114

Earth -112514-01-14 02:24 J -39374302.46 -39374302.40 -39374302.35 0.1868 0.1802

Venus -112514-01-20 00:14 J -39374296.67 -39374296.49 -39374296.30 0.1867 0.0039

Mercury -112514-06-18 09:50 J -39374147.21 -39374147.09 -39374146.97 0.1750 0.0182

Venus -112514-12-18 05:31 J -39373964.37 -39373964.27 -39373964.16 0.1645 0.1256

Mercury -112506-12-26 19:26 J -39371033.83 -39371033.69 -39371033.54 0.1757 0.0524

Mercury -112505-11-07 18:29 J -39370716.85 -39370716.73 -39370716.61 0.1755 0.0265

Mercury -112503-10-14 07:12 J -39370011.26 -39370011.20 -39370011.14 0.1736 0.1479

Mercury -112496-05-17 21:07 J -39367603.73 -39367603.62 -39367603.51 0.1752 0.1144

Mercury -112495-03-31 02:38 J -39367286.50 -39367286.39 -39367286.27 0.1760 0.0722

Mercury -112494-04-24 17:17 J -39366896.85 -39366896.78 -39366896.70 0.1772 0.1531

Mercury -112493-03-05 16:05 J -39366580.92 -39366580.83 -39366580.73 0.1741 0.1073

Mercury -112487-10-07 23:31 J -39364173.54 -39364173.52 -39364173.50 0.1747 0.1724

Mercury -112486-08-21 11:02 J -39363856.14 -39363856.04 -39363855.95 0.1764 0.1186

Mercury -112485-09-13 17:31 J -39363466.90 -39363466.77 -39363466.63 0.1767 0.0839

Mercury -112484-07-27 01:12 J -39363150.56 -39363150.45 -39363150.33 0.1745 0.0661

Venus -112483-02-15 10:34 J -39362947.20 -39362947.06 -39362946.91 0.1647 0.0830

Venus -112482-01-20 05:31 J -39362608.38 -39362608.27 -39362608.16 0.1865 0.1453

Venus -112482-12-16 19:41 J -39362277.84 -39362277.68 -39362277.52 0.1645 0.0589

Venus -112481-11-15 19:12 J -39361942.75 -39361942.70 -39361942.65 0.1869 0.1778

Mercury -112476-01-10 18:43 J -39360425.76 -39360425.72 -39360425.68 0.1770 0.1671

Mercury -112475-02-03 18:43 J -39360036.87 -39360036.72 -39360036.57 0.1762 0.0180

Mercury -112475-12-17 10:05 J -39359720.21 -39359720.08 -39359719.96 0.1750 0.0236

Mercury -112466-06-26 19:55 J -39356606.82 -39356606.67 -39356606.52 0.1757 0.0465

Mercury -112465-05-08 18:29 J -39356289.85 -39356289.73 -39356289.61 0.1755 0.0217

Mercury -112463-04-14 07:12 J -39355584.26 -39355584.20 -39355584.15 0.1736 0.1519

Moon -112459-07-11 12:29 J -39354035.14 -39354034.98 -39354034.82 0.1645 0.0785
 Earth -112459-07-11 18:43 J -39354034.86 -39354034.72 -39354034.57 0.1645 0.0953 *
 Mercury -112457-11-15 21:50 J -39353176.71 -39353176.59 -39353176.48 0.1752 0.1078
 Mercury -112456-09-29 02:53 J -39352859.49 -39352859.38 -39352859.27 0.1760 0.0672
 Mercury -112455-10-23 18:00 J -39352469.82 -39352469.75 -39352469.69 0.1772 0.1600
 Mercury -112454-09-04 16:19 J -39352153.91 -39352153.82 -39352153.73 0.1741 0.1117
 Venus -112451-02-14 00:58 J -39351260.53 -39351260.46 -39351260.40 0.1649 0.1509
 Venus -112450-12-15 09:36 J -39350591.27 -39350591.10 -39350590.93 0.1646 0.0086
 Venus -112449-11-16 01:12 J -39350254.63 -39350254.45 -39350254.27 0.1868 0.0285
 Venus -112448-10-14 18:43 J -39349921.82 -39349921.72 -39349921.62 0.1644 0.1327
 Mercury -112447-04-08 00:00 J -39349746.54 -39349746.50 -39349746.46 0.1747 0.1667
 Mercury -112446-02-19 11:02 J -39349429.14 -39349429.04 -39349428.95 0.1765 0.1144
 Mercury -112445-03-14 18:14 J -39349039.87 -39349039.74 -39349039.60 0.1767 0.0907
 Mercury -112444-01-25 01:12 J -39348723.56 -39348723.45 -39348723.34 0.1746 0.0700
 Mercury -112437-07-11 18:58 J -39345998.75 -39345998.71 -39345998.66 0.1769 0.1617
 Mercury -112436-08-04 19:12 J -39345609.86 -39345609.70 -39345609.55 0.1762 0.0242
 Mercury -112435-06-17 10:05 J -39345293.20 -39345293.08 -39345292.96 0.1750 0.0273
 Mercury -112427-12-25 20:24 J -39342179.80 -39342179.65 -39342179.50 0.1757 0.0407
 Mercury -112426-11-07 18:43 J -39341862.84 -39341862.72 -39341862.60 0.1755 0.0167
 Mercury -112424-10-13 07:12 J -39341157.25 -39341157.20 -39341157.15 0.1736 0.1563
 Venus -112418-12-13 23:46 J -39338904.66 -39338904.51 -39338904.36 0.1647 0.0763
 Mercury -112417-05-16 22:19 J -39338749.70 -39338749.57 -39338749.45 0.1752 0.1018
 Venus -112417-11-16 07:26 J -39338566.33 -39338566.19 -39338566.05 0.1866 0.1212
 Mercury -112416-03-30 02:53 J -39338432.49 -39338432.38 -39338432.26 0.1760 0.0627
 Venus -112416-10-13 08:24 J -39338235.30 -39338235.15 -39338234.99 0.1645 0.0661
 Mercury -112415-04-23 18:29 J -39338042.78 -39338042.73 -39338042.68 0.1773 0.1661
 Mercury -112414-03-05 16:19 J -39337726.91 -39337726.82 -39337726.73 0.1741 0.1161
 Mercury -112408-10-07 00:29 J -39335319.54 -39335319.48 -39335319.42 0.1747 0.1604
 Mercury -112407-08-20 11:17 J -39335002.13 -39335002.03 -39335001.94 0.1765 0.1091
 Mercury -112406-09-13 18:58 J -39334612.84 -39334612.71 -39334612.58 0.1767 0.0974

Mercury -112405-07-26 01:26 J -39334296.55 -39334296.44 -39334296.33 0.1745 0.0747

Mercury -112397-01-10 18:58 J -39331571.76 -39331571.71 -39331571.65 0.1770 0.1574

Mercury -112396-02-02 19:41 J -39331182.83 -39331182.68 -39331182.53 0.1762 0.0301

Mercury -112396-12-16 10:05 J -39330866.20 -39330866.08 -39330865.96 0.1750 0.0318

Mercury -112387-06-25 20:53 J -39327752.78 -39327752.63 -39327752.48 0.1757 0.0344

Mercury -112386-05-08 18:43 J -39327435.85 -39327435.72 -39327435.60 0.1755 0.0135

Venus -112386-12-12 14:10 J -39327217.99 -39327217.91 -39327217.84 0.1649 0.1448

Mercury -112384-04-13 07:12 J -39326730.24 -39326730.20 -39326730.15 0.1736 0.1601

Venus -112384-10-11 22:34 J -39326548.73 -39326548.56 -39326548.39 0.1645 0.0017

Venus -112383-09-13 02:38 J -39326212.56 -39326212.39 -39326212.21 0.1868 0.0540

Venus -112382-08-12 07:41 J -39325879.26 -39325879.18 -39325879.09 0.1644 0.1401

Mercury -112378-11-15 22:34 J -39324322.68 -39324322.56 -39324322.43 0.1752 0.0961

Mercury -112377-09-28 03:07 J -39324005.49 -39324005.37 -39324005.25 0.1760 0.0575

Mercury -112376-10-22 19:12 J -39323615.73 -39323615.70 -39323615.67 0.1772 0.1729

Mercury -112375-09-03 16:34 J -39323299.90 -39323299.81 -39323299.73 0.1741 0.1204

Mercury -112368-04-07 00:58 J -39320892.53 -39320892.46 -39320892.40 0.1747 0.1551

Mercury -112367-02-18 11:17 J -39320575.13 -39320575.03 -39320574.93 0.1764 0.1043

Mercury -112366-03-14 19:12 J -39320185.82 -39320185.70 -39320185.57 0.1767 0.1027

Mercury -112365-01-25 01:26 J -39319869.55 -39319869.44 -39319869.33 0.1746 0.0792

Mercury -112358-07-11 19:12 J -39317144.76 -39317144.70 -39317144.64 0.1769 0.1522

Mercury -112357-08-03 20:10 J -39316755.81 -39316755.66 -39316755.51 0.1762 0.0364

Mercury -112356-06-16 10:19 J -39316439.20 -39316439.07 -39316438.95 0.1750 0.0367

Venus -112352-10-10 12:43 J -39314862.12 -39314861.97 -39314861.82 0.1646 0.0697

Venus -112351-09-13 08:38 J -39314524.30 -39314524.14 -39314523.99 0.1867 0.0960

Venus -112350-08-10 21:50 J -39314192.74 -39314192.59 -39314192.44 0.1645 0.0728

Mercury -112348-12-24 21:36 J -39313325.75 -39313325.60 -39313325.45 0.1757 0.0278

Mercury -112347-11-06 18:58 J -39313008.84 -39313008.71 -39313008.59 0.1755 0.0098

Mercury -112345-10-12 07:26 J -39312303.23 -39312303.19 -39312303.16 0.1736 0.1646

Mercury -112338-05-16 23:02 J -39309895.67 -39309895.54 -39309895.41 0.1752 0.0900

Mercury -112337-03-29 03:07 J -39309578.49 -39309578.37 -39309578.25 0.1760 0.0533

Mercury -112335-03-04 16:34 J -39308872.89 -39308872.81 -39308872.73 0.1741 0.1245

Earth -112333-07-08 05:17 J -39308016.44 -39308016.28 -39308016.13 0.1644 0.0865

Moon -112333-07-08 07:55 J -39308016.32 -39308016.17 -39308016.02 0.1644 0.1005 *

Mercury -112329-10-06 01:26 J -39306465.52 -39306465.44 -39306465.37 0.1747 0.1490

Mercury -112328-08-19 11:17 J -39306148.13 -39306148.03 -39306147.92 0.1765 0.0998

Mercury -112327-09-12 19:55 J -39305758.79 -39305758.67 -39305758.55 0.1767 0.1097

Mercury -112326-07-26 01:26 J -39305442.54 -39305442.44 -39305442.33 0.1745 0.0833

Venus -112320-10-09 02:38 J -39303175.47 -39303175.39 -39303175.30 0.1648 0.1381

Mercury -112318-01-09 19:26 J -39302717.76 -39302717.69 -39302717.62 0.1770 0.1472

Venus -112318-08-09 11:46 J -39302506.18 -39302506.01 -39302505.84 0.1645 0.0052

Mercury -112317-02-02 20:38 J -39302328.79 -39302328.64 -39302328.49 0.1762 0.0425

Venus -112317-07-10 03:36 J -39302170.51 -39302170.35 -39302170.18 0.1869 0.0808

Mercury -112317-12-15 10:19 J -39302012.19 -39302012.07 -39302011.95 0.1750 0.0407

Venus -112316-06-08 21:07 J -39301836.69 -39301836.62 -39301836.54 0.1644 0.1466

Mercury -112308-06-24 21:50 J -39298898.74 -39298898.59 -39298898.44 0.1757 0.0223

Mercury -112307-05-07 18:58 J -39298581.83 -39298581.71 -39298581.59 0.1755 0.0034

Mercury -112305-04-12 07:26 J -39297876.21 -39297876.19 -39297876.17 0.1736 0.1687

Mercury -112299-11-14 23:46 J -39295468.64 -39295468.51 -39295468.38 0.1752 0.0834

Mercury -112298-09-28 03:22 J -39295151.48 -39295151.36 -39295151.24 0.1760 0.0484

Mercury -112296-09-02 16:34 J -39294445.89 -39294445.81 -39294445.73 0.1741 0.1291

Mercury -112289-04-06 01:41 J -39292038.51 -39292038.43 -39292038.34 0.1747 0.1433

Mercury -112288-02-17 11:31 J -39291721.13 -39291721.02 -39291720.92 0.1765 0.0949

Mercury -112287-03-13 20:38 J -39291331.76 -39291331.64 -39291331.53 0.1767 0.1163

Mercury -112286-01-24 01:41 J -39291015.54 -39291015.43 -39291015.33 0.1746 0.0878

Venus -112286-08-08 01:41 J -39290819.58 -39290819.43 -39290819.27 0.1646 0.0628

Venus -112285-07-10 10:48 J -39290482.22 -39290482.05 -39290481.88 0.1868 0.0719

Venus -112284-06-07 11:02 J -39290150.19 -39290150.04 -39290149.89 0.1644 0.0794

Mercury -112279-07-10 19:26 J -39288290.76 -39288290.69 -39288290.62 0.1770 0.1425

Mercury -112278-08-03 21:07 J -39287901.76 -39287901.62 -39287901.47 0.1762 0.0490

Mercury -112277-06-15 10:19 J -39287585.18 -39287585.07 -39287584.95 0.1750 0.0456

Mercury -112269-12-23 22:34 J -39284471.71 -39284471.56 -39284471.41 0.1757 0.0157

Mercury -112268-11-05 18:58 J -39284154.83 -39284154.71 -39284154.59 0.1755 0.0024

Mercury -112266-10-12 07:26 J -39283449.20 -39283449.19 -39283449.18 0.1736 0.1728

Mercury -112259-05-16 00:00 J -39281041.64 -39281041.50 -39281041.37 0.1752 0.0785

Mercury -112258-03-29 03:22 J -39280724.48 -39280724.36 -39280724.24 0.1760 0.0439

Mercury -112256-03-03 16:34 J -39280018.88 -39280018.81 -39280018.73 0.1741 0.1329

Earth -112254-07-11 04:05 J -39279159.51 -39279159.33 -39279159.15 0.1644 0.0266

Moon -112254-07-11 10:19 J -39279159.25 -39279159.07 -39279158.89 0.1644 0.0416 *

Venus -112254-08-06 16:05 J -39279132.93 -39279132.83 -39279132.73 0.1647 0.1318

Venus -112252-06-06 01:12 J -39278463.62 -39278463.45 -39278463.29 0.1645 0.0124

Venus -112251-05-07 05:31 J -39278128.42 -39278128.27 -39278128.12 0.1869 0.1060

Venus -112250-04-06 10:19 J -39277794.13 -39277794.07 -39277794.02 0.1644 0.1542

Mercury -112250-10-06 02:24 J -39277611.49 -39277611.40 -39277611.31 0.1747 0.1370

Mercury -112249-08-18 11:46 J -39277294.12 -39277294.01 -39277293.91 0.1764 0.0899

Mercury -112248-09-11 20:53 J -39276904.74 -39276904.63 -39276904.52 0.1767 0.1220

Mercury -112247-07-25 01:41 J -39276588.53 -39276588.43 -39276588.32 0.1745 0.0926

Mercury -112239-01-08 19:41 J -39273863.76 -39273863.68 -39273863.61 0.1770 0.1377

Mercury -112238-02-01 21:50 J -39273474.73 -39273474.59 -39273474.44 0.1762 0.0556

Mercury -112238-12-15 10:34 J -39273158.18 -39273158.06 -39273157.95 0.1750 0.0498

Earth -112230-01-12 20:38 J -39270572.85 -39270572.64 -39270572.44 0.1869 0.0563

Moon -112230-01-12 21:22 J -39270572.82 -39270572.61 -39270572.39 0.1869 0.0812 *

Mercury -112229-06-23 23:02 J -39270044.70 -39270044.54 -39270044.39 0.1757 0.0108

Mercury -112228-05-06 19:12 J -39269727.83 -39269727.70 -39269727.58 0.1755 0.0082

Venus -112220-06-04 15:07 J -39266777.02 -39266776.87 -39266776.71 0.1645 0.0569

Mercury -112220-11-14 00:43 J -39266614.61 -39266614.47 -39266614.33 0.1752 0.0716

Venus -112219-05-07 12:00 J -39266440.18 -39266440.00 -39266439.82 0.1868 0.0462

Mercury -112219-09-27 03:36 J -39266297.47 -39266297.35 -39266297.23 0.1760 0.0392

Venus -112218-04-05 00:14 J -39266107.63 -39266107.49 -39266107.35 0.1644 0.0864

Mercury -112217-09-01 16:48 J -39265591.87 -39265591.80 -39265591.73 0.1741 0.1374

Mercury -112210-04-06 02:38 J -39263184.48 -39263184.39 -39263184.29 0.1747 0.1316

Mercury -112209-02-17 11:46 J -39262867.12 -39262867.01 -39262866.90 0.1765 0.0855
 Mercury -112208-03-12 21:36 J -39262477.70 -39262477.60 -39262477.49 0.1767 0.1289
 Mercury -112207-01-23 01:41 J -39262161.53 -39262161.43 -39262161.33 0.1746 0.0963
 Mercury -112200-07-09 19:55 J -39259436.76 -39259436.67 -39259436.59 0.1769 0.1324
 Mercury -112199-08-02 22:19 J -39259047.72 -39259047.57 -39259047.43 0.1762 0.0611
 Mercury -112198-06-15 10:34 J -39258731.18 -39258731.06 -39258730.94 0.1750 0.0540
 Mercury -112190-12-23 23:31 J -39255617.68 -39255617.52 -39255617.37 0.1757 0.0051
 Mercury -112189-11-04 19:12 J -39255300.82 -39255300.70 -39255300.57 0.1755 0.0119
 Venus -112188-06-03 05:17 J -39255090.39 -39255090.28 -39255090.17 0.1647 0.1255
 Venus -112186-04-03 14:10 J -39254421.07 -39254420.91 -39254420.74 0.1644 0.0186
 Venus -112185-03-03 06:29 J -39254086.36 -39254086.23 -39254086.10 0.1869 0.1332
 Venus -112184-01-31 23:17 J -39253751.55 -39253751.53 -39253751.50 0.1644 0.1614
 Mercury -112180-05-15 01:12 J -39252187.59 -39252187.45 -39252187.31 0.1752 0.0656
 Mercury -112179-03-28 03:36 J -39251870.47 -39251870.35 -39251870.23 0.1760 0.0345
 Mercury -112177-03-02 16:48 J -39251164.87 -39251164.80 -39251164.73 0.1741 0.1416
 Earth -112175-07-13 03:07 J -39250302.46 -39250302.37 -39250302.27 0.1644 0.1399
 Moon -112175-07-13 07:26 J -39250302.27 -39250302.19 -39250302.12 0.1644 0.1472 *
 Mercury -112171-10-05 03:22 J -39248757.47 -39248757.36 -39248757.26 0.1747 0.1253
 Mercury -112170-08-18 12:00 J -39248440.11 -39248440.00 -39248439.89 0.1765 0.0805
 Mercury -112169-09-10 22:19 J -39248050.67 -39248050.57 -39248050.47 0.1767 0.1354
 Mercury -112168-07-24 01:55 J -39247734.52 -39247734.42 -39247734.32 0.1745 0.1008
 Mercury -112160-01-07 19:41 J -39245009.76 -39245009.68 -39245009.59 0.1770 0.1284
 Mercury -112159-01-31 22:48 J -39244620.69 -39244620.55 -39244620.41 0.1762 0.0676
 Mercury -112159-12-14 10:34 J -39244304.17 -39244304.06 -39244303.94 0.1750 0.0588
 Venus -112154-04-02 03:50 J -39242734.49 -39242734.34 -39242734.18 0.1645 0.0500
 Venus -112153-03-03 13:26 J -39242398.13 -39242397.94 -39242397.76 0.1869 0.0207
 Venus -112152-01-30 13:12 J -39242065.09 -39242064.95 -39242064.81 0.1644 0.0937
 Mercury -112151-05-31 03:36 J -39241579.36 -39241579.35 -39241579.34 0.1775 0.1768
 Mercury -112150-06-24 00:00 J -39241190.65 -39241190.50 -39241190.35 0.1757 0.0025
 Mercury -112149-05-05 19:12 J -39240873.82 -39240873.70 -39240873.57 0.1755 0.0150

Mercury -112141-11-13 01:41 J -39237760.58 -39237760.43 -39237760.29 0.1752 0.0602
 Mercury -112140-09-26 03:50 J -39237443.46 -39237443.34 -39237443.22 0.1760 0.0294
 Mercury -112138-09-01 16:48 J -39236737.86 -39236737.80 -39236737.73 0.1741 0.1458
 Mercury -112131-04-05 03:36 J -39234330.46 -39234330.35 -39234330.24 0.1747 0.1198
 Mercury -112130-02-16 12:00 J -39234013.11 -39234013.00 -39234012.89 0.1765 0.0759
 Mercury -112129-03-11 22:34 J -39233623.65 -39233623.56 -39233623.47 0.1767 0.1408
 Mercury -112128-01-22 01:55 J -39233307.51 -39233307.42 -39233307.32 0.1745 0.1052
 Moon -112128-07-07 14:38 J -39233140.97 -39233140.89 -39233140.80 0.1644 0.1387
 Earth -112128-07-07 15:22 J -39233140.93 -39233140.86 -39233140.80 0.1644 0.1525 *
 Venus -112122-03-31 18:14 J -39231047.86 -39231047.74 -39231047.63 0.1646 0.1188
 Venus -112121-03-03 18:58 J -39230709.78 -39230709.71 -39230709.64 0.1867 0.1714
 Mercury -112121-07-08 19:55 J -39230582.76 -39230582.67 -39230582.58 0.1770 0.1231
 Venus -112120-01-29 03:07 J -39230378.54 -39230378.37 -39230378.21 0.1644 0.0259
 Mercury -112120-08-01 23:31 J -39230193.66 -39230193.52 -39230193.38 0.1762 0.0741
 Venus -112120-12-29 07:55 J -39230044.26 -39230044.17 -39230044.07 0.1869 0.1594
 Mercury -112119-06-14 10:48 J -39229877.17 -39229877.05 -39229876.94 0.1750 0.0630
 Mercury -112112-11-29 03:50 J -39227152.37 -39227152.34 -39227152.32 0.1774 0.1719
 Mercury -112111-12-23 00:43 J -39226763.63 -39226763.47 -39226763.32 0.1757 0.0102
 Mercury -112110-11-04 19:26 J -39226446.81 -39226446.69 -39226446.57 0.1755 0.0198
 Mercury -112101-05-14 02:10 J -39223333.56 -39223333.41 -39223333.27 0.1752 0.0542
 Mercury -112100-03-27 03:50 J -39223016.46 -39223016.34 -39223016.22 0.1760 0.0255
 Mercury -112098-03-02 17:02 J -39222310.85 -39222310.79 -39222310.73 0.1741 0.1499
 Mercury -112092-10-04 04:05 J -39219903.44 -39219903.33 -39219903.21 0.1747 0.1139
 Mercury -112091-08-17 12:00 J -39219586.11 -39219586.00 -39219585.88 0.1765 0.0713
 Mercury -112090-09-10 23:17 J -39219196.61 -39219196.53 -39219196.44 0.1767 0.1479
 Mercury -112089-07-23 01:55 J -39218880.51 -39218880.42 -39218880.32 0.1746 0.1092
 Venus -112088-01-27 17:02 J -39218691.95 -39218691.79 -39218691.62 0.1645 0.0433
 Venus -112088-12-29 13:55 J -39218356.10 -39218355.92 -39218355.73 0.1869 0.0077
 Venus -112087-11-28 02:24 J -39218022.53 -39218022.40 -39218022.27 0.1644 0.1010
 Mercury -112082-02-24 06:29 J -39216473.25 -39216473.23 -39216473.21 0.1742 0.1715

Mercury -112081-01-07 20:10 J -39216155.75 -39216155.66 -39216155.57 0.1770 0.1180
 Mercury -112080-01-31 00:00 J -39215766.64 -39215766.50 -39215766.37 0.1762 0.0800
 Mercury -112080-12-13 10:48 J -39215450.16 -39215450.05 -39215449.93 0.1750 0.0676
 Mercury -112072-05-30 03:50 J -39212725.38 -39212725.34 -39212725.30 0.1774 0.1670
 Mercury -112071-06-23 00:58 J -39212336.62 -39212336.46 -39212336.31 0.1757 0.0146
 Mercury -112070-05-05 19:26 J -39212019.81 -39212019.69 -39212019.56 0.1755 0.0247
 Mercury -112062-11-13 02:38 J -39208906.53 -39208906.39 -39208906.24 0.1752 0.0476
 Mercury -112061-09-25 03:50 J -39208589.46 -39208589.34 -39208589.21 0.1760 0.0215
 Mercury -112059-08-31 17:02 J -39207883.84 -39207883.79 -39207883.74 0.1741 0.1542
 Venus -112056-01-26 07:12 J -39207005.32 -39207005.20 -39207005.08 0.1645 0.1122
 Venus -112056-12-29 19:41 J -39206667.80 -39206667.68 -39206667.57 0.1868 0.1452
 Venus -112055-11-26 16:19 J -39206335.98 -39206335.82 -39206335.65 0.1644 0.0327
 Mercury -112052-04-04 04:34 J -39205476.43 -39205476.31 -39205476.19 0.1747 0.1079
 Mercury -112051-02-15 12:14 J -39205159.11 -39205158.99 -39205158.88 0.1765 0.0664
 Mercury -112050-03-12 00:00 J -39204769.58 -39204769.50 -39204769.43 0.1767 0.1544
 Mercury -112049-01-22 02:10 J -39204453.51 -39204453.41 -39204453.32 0.1746 0.1137
 Moon -112049-07-09 09:07 J -39204284.29 -39204284.12 -39204283.95 0.1644 0.0493
 Earth -112049-07-09 14:10 J -39204284.09 -39204283.91 -39204283.74 0.1644 0.0397 *
 Mercury -112043-08-25 07:12 J -39202046.25 -39202046.20 -39202046.16 0.1742 0.1654
 Mercury -112042-07-08 20:10 J -39201728.75 -39201728.66 -39201728.56 0.1770 0.1136
 Mercury -112041-08-01 00:29 J -39201339.62 -39201339.48 -39201339.35 0.1762 0.0862
 Mercury -112040-06-13 10:48 J -39201023.16 -39201023.05 -39201022.93 0.1750 0.0720
 Mercury -112033-11-28 04:05 J -39198298.38 -39198298.33 -39198298.28 0.1775 0.1621
 Mercury -112032-12-22 01:41 J -39197909.59 -39197909.43 -39197909.28 0.1757 0.0214
 Mercury -112031-11-03 19:41 J -39197592.81 -39197592.68 -39197592.56 0.1755 0.0291
 Venus -112023-11-25 06:14 J -39194649.40 -39194649.24 -39194649.08 0.1644 0.0363
 Mercury -112022-05-14 02:53 J -39194479.53 -39194479.38 -39194479.23 0.1752 0.0425
 Venus -112022-10-26 15:07 J -39194314.05 -39194313.87 -39194313.69 0.1870 0.0338
 Mercury -112021-03-26 04:05 J -39194162.45 -39194162.33 -39194162.21 0.1760 0.0158
 Venus -112021-09-24 15:36 J -39193979.98 -39193979.85 -39193979.73 0.1644 0.1083

Mercury -112019-03-01 17:02 J -39193456.84 -39193456.79 -39193456.74 0.1741 0.1581

Mercury -112013-10-03 05:17 J -39191049.41 -39191049.28 -39191049.16 0.1747 0.1018

Mercury -112012-08-16 12:29 J -39190732.10 -39190731.98 -39190731.87 0.1765 0.0616

Mercury -112011-09-10 00:14 J -39190342.55 -39190342.49 -39190342.42 0.1767 0.1601

Mercury -112010-07-23 02:10 J -39190026.49 -39190026.41 -39190026.32 0.1745 0.1183

Mercury -112003-02-23 07:26 J -39187619.24 -39187619.19 -39187619.13 0.1742 0.1597

Mercury -112002-01-06 20:24 J -39187301.75 -39187301.65 -39187301.55 0.1770 0.1089

Mercury -112001-01-31 01:12 J -39186912.58 -39186912.45 -39186912.32 0.1762 0.0930

Mercury -112001-12-12 11:02 J -39186596.15 -39186596.04 -39186595.93 0.1750 0.0761

112TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 112th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -111993-05-29 04:05 J | -39183871.38 | -39183871.33 | -39183871.27 | 0.1774 | 0.1574 | | |
| Mercury | -111992-06-22 01:55 J | -39183482.57 | -39183482.42 | -39183482.26 | 0.1757 | 0.0275 | | |
| Mercury | -111991-05-04 19:41 J | -39183165.80 | -39183165.68 | -39183165.56 | 0.1755 | 0.0329 | | |
| Venus | -111991-11-23 20:10 J | -39182962.78 | -39182962.66 | -39182962.53 | 0.1645 | 0.1054 | | |
| Venus | -111990-10-26 21:36 J | -39182625.74 | -39182625.60 | -39182625.46 | 0.1869 | 0.1203 | | |
| Venus | -111989-09-23 05:17 J | -39182293.44 | -39182293.28 | -39182293.12 | 0.1644 | 0.0400 | | |
| Mercury | -111983-11-12 03:36 J | -39180052.50 | -39180052.35 | -39180052.20 | 0.1752 | 0.0357 | | |
| Mercury | -111982-09-25 04:05 J | -39179735.45 | -39179735.33 | -39179735.20 | 0.1760 | 0.0126 | | |

Mercury -111980-08-30 17:17 J -39179029.82 -39179029.78 -39179029.74 0.1741 0.1626

Mercury -111973-04-03 05:31 J -39176622.40 -39176622.27 -39176622.14 0.1747 0.0964

Mercury -111972-02-14 12:29 J -39176305.10 -39176304.98 -39176304.87 0.1765 0.0573

Mercury -111971-03-11 00:58 J -39175915.51 -39175915.46 -39175915.41 0.1767 0.1668

Mercury -111970-01-21 02:10 J -39175599.50 -39175599.41 -39175599.32 0.1746 0.1219

Moon -111970-07-12 07:26 J -39175427.36 -39175427.19 -39175427.02 0.1644 0.0600

Earth -111970-07-12 12:58 J -39175427.12 -39175426.96 -39175426.80 0.1644 0.0724 *

Mercury -111964-08-24 07:55 J -39173192.24 -39173192.17 -39173192.11 0.1742 0.1544

Mercury -111963-07-07 20:38 J -39172874.74 -39172874.64 -39172874.54 0.1769 0.1036

Mercury -111962-08-01 01:26 J -39172485.57 -39172485.44 -39172485.31 0.1762 0.0982

Mercury -111961-06-12 11:02 J -39172169.15 -39172169.04 -39172168.93 0.1750 0.0805

Venus -111957-09-21 19:12 J -39170606.86 -39170606.70 -39170606.53 0.1644 0.0297

Venus -111956-08-22 16:34 J -39170271.99 -39170271.81 -39170271.64 0.1870 0.0606

Venus -111955-07-23 04:34 J -39169937.43 -39169937.31 -39169937.19 0.1644 0.1158

Mercury -111954-11-28 04:19 J -39169444.38 -39169444.32 -39169444.26 0.1775 0.1524

Mercury -111953-12-21 02:38 J -39169055.54 -39169055.39 -39169055.24 0.1757 0.0333

Mercury -111952-11-02 19:55 J -39168738.79 -39168738.67 -39168738.55 0.1755 0.0380

Moon -111946-01-11 12:43 J -39166843.15 -39166842.97 -39166842.80 0.1869 0.0896

Earth -111946-01-11 13:41 J -39166843.13 -39166842.93 -39166842.73 0.1869 0.0690 *

Mercury -111943-05-13 04:05 J -39165625.48 -39165625.33 -39165625.18 0.1752 0.0298

Mercury -111942-03-26 04:19 J -39165308.45 -39165308.32 -39165308.20 0.1760 0.0085

Mercury -111940-02-28 17:17 J -39164602.82 -39164602.78 -39164602.75 0.1741 0.1666

Mercury -111934-10-03 06:00 J -39162195.38 -39162195.25 -39162195.12 0.1747 0.0902

Mercury -111933-08-15 12:29 J -39161878.09 -39161877.98 -39161877.86 0.1765 0.0526

Mercury -111932-09-09 01:41 J -39161488.46 -39161488.43 -39161488.41 0.1767 0.1733

Mercury -111931-07-22 02:24 J -39161172.49 -39161172.40 -39161172.32 0.1745 0.1265

Venus -111925-09-20 09:22 J -39158920.24 -39158920.11 -39158919.98 0.1645 0.0987

Mercury -111924-02-22 08:24 J -39158765.23 -39158765.15 -39158765.07 0.1742 0.1483

Venus -111924-08-22 22:34 J -39158583.72 -39158583.56 -39158583.40 0.1869 0.0939

Mercury -111923-01-05 20:38 J -39158447.75 -39158447.64 -39158447.54 0.1770 0.0996

Venus -111923-07-21 18:29 J -39158250.89 -39158250.73 -39158250.56 0.1644 0.0470

Mercury -111922-01-30 02:10 J -39158058.54 -39158058.41 -39158058.29 0.1762 0.1051

Mercury -111922-12-12 11:17 J -39157742.14 -39157742.03 -39157741.93 0.1750 0.0850

Mercury -111914-05-29 04:34 J -39155017.38 -39155017.31 -39155017.25 0.1775 0.1475

Mercury -111913-06-21 03:07 J -39154628.52 -39154628.37 -39154628.22 0.1757 0.0392

Mercury -111912-05-03 19:55 J -39154311.79 -39154311.67 -39154311.55 0.1755 0.0421

Mercury -111904-11-11 04:34 J -39151198.46 -39151198.31 -39151198.16 0.1752 0.0244

Mercury -111903-09-24 04:34 J -39150881.44 -39150881.31 -39150881.19 0.1760 0.0069

Mercury -111901-08-29 17:17 J -39150175.80 -39150175.78 -39150175.76 0.1741 0.1706

Mercury -111894-04-03 06:29 J -39147768.36 -39147768.23 -39147768.10 0.1747 0.0845

Mercury -111893-02-14 12:43 J -39147451.09 -39147450.97 -39147450.85 0.1765 0.0480

Mercury -111891-01-20 02:24 J -39146745.48 -39146745.40 -39146745.32 0.1745 0.1308

Venus -111891-07-20 08:24 J -39146564.31 -39146564.15 -39146563.98 0.1644 0.0228

Venus -111890-06-19 17:31 J -39146229.93 -39146229.77 -39146229.61 0.1870 0.0881

Venus -111889-05-19 18:00 J -39145894.86 -39145894.75 -39145894.64 0.1644 0.1228

Mercury -111885-08-23 08:53 J -39144338.21 -39144338.13 -39144338.04 0.1742 0.1423

Mercury -111884-07-06 20:53 J -39144020.74 -39144020.63 -39144020.53 0.1770 0.0945

Mercury -111883-07-31 02:38 J -39143631.51 -39143631.39 -39143631.27 0.1762 0.1115

Mercury -111882-06-12 11:17 J -39143315.14 -39143315.03 -39143314.93 0.1750 0.0891

Mercury -111875-11-27 04:34 J -39140590.38 -39140590.31 -39140590.24 0.1775 0.1427

Mercury -111874-12-21 03:36 J -39140201.50 -39140201.35 -39140201.20 0.1757 0.0458

Mercury -111873-11-01 19:55 J -39139884.79 -39139884.67 -39139884.55 0.1755 0.0466

Mercury -111864-05-12 05:02 J -39136771.44 -39136771.29 -39136771.14 0.1752 0.0181

Mercury -111863-03-25 04:19 J -39136454.44 -39136454.32 -39136454.19 0.1760 0.0049

Venus -111859-07-18 22:19 J -39134877.71 -39134877.57 -39134877.43 0.1644 0.0918

Venus -111858-06-20 00:43 J -39134541.64 -39134541.47 -39134541.30 0.1870 0.0687

Venus -111857-05-18 07:41 J -39134208.33 -39134208.18 -39134208.02 0.1644 0.0540

Mercury -111855-10-02 06:58 J -39133341.34 -39133341.21 -39133341.07 0.1747 0.0786

Mercury -111854-08-15 12:43 J -39133024.09 -39133023.97 -39133023.85 0.1765 0.0432

Mercury -111852-07-21 02:24 J -39132318.47 -39132318.40 -39132318.32 0.1746 0.1347

Mercury -111845-02-22 09:07 J -39129911.21 -39129911.12 -39129911.03 0.1742 0.1372
 Mercury -111844-01-04 20:53 J -39129593.74 -39129593.63 -39129593.52 0.1770 0.0895
 Earth -111844-07-09 00:00 J -39129408.64 -39129408.50 -39129408.36 0.1644 0.1055
 Moon -111844-07-09 03:36 J -39129408.50 -39129408.35 -39129408.20 0.1644 0.0978 *
 Mercury -111843-01-29 03:07 J -39129204.48 -39129204.37 -39129204.25 0.1762 0.1171
 Mercury -111843-12-11 11:17 J -39128888.13 -39128888.03 -39128887.92 0.1750 0.0937
 Mercury -111835-05-28 04:34 J -39126163.38 -39126163.31 -39126163.23 0.1775 0.1381
 Mercury -111834-06-21 04:05 J -39125774.48 -39125774.33 -39125774.19 0.1757 0.0512
 Mercury -111833-05-02 20:10 J -39125457.78 -39125457.66 -39125457.55 0.1755 0.0512
 Venus -111827-07-17 12:29 J -39123191.01 -39123190.98 -39123190.95 0.1645 0.1618
 Venus -111825-05-16 21:50 J -39122521.76 -39122521.59 -39122521.43 0.1644 0.0161
 Mercury -111825-11-10 05:46 J -39122344.41 -39122344.26 -39122344.11 0.1752 0.0116
 Venus -111824-04-15 18:58 J -39122187.85 -39122187.71 -39122187.56 0.1870 0.1146
 Mercury -111824-09-23 04:34 J -39122027.43 -39122027.31 -39122027.19 0.1760 0.0069
 Venus -111823-03-17 06:43 J -39121852.32 -39121852.22 -39121852.12 0.1644 0.1307
 Mercury -111815-04-02 07:26 J -39118914.33 -39118914.19 -39118914.05 0.1747 0.0727
 Mercury -111814-02-13 12:58 J -39118597.08 -39118596.96 -39118596.84 0.1765 0.0387
 Mercury -111812-01-19 02:24 J -39117891.47 -39117891.40 -39117891.32 0.1745 0.1391
 Mercury -111806-08-23 09:50 J -39115484.19 -39115484.09 -39115484.00 0.1742 0.1313
 Mercury -111805-07-05 20:53 J -39115166.74 -39115166.63 -39115166.52 0.1770 0.0852
 Mercury -111804-07-30 03:36 J -39114777.46 -39114777.35 -39114777.24 0.1762 0.1233
 Mercury -111803-06-11 11:17 J -39114461.13 -39114461.03 -39114460.93 0.1750 0.0977
 Mercury -111796-11-26 04:48 J -39111736.38 -39111736.30 -39111736.22 0.1775 0.1330
 Mercury -111795-12-20 04:48 J -39111347.45 -39111347.30 -39111347.16 0.1757 0.0579
 Mercury -111794-11-01 20:10 J -39111030.78 -39111030.66 -39111030.55 0.1755 0.0552
 Venus -111793-05-15 11:46 J -39110835.15 -39110835.01 -39110834.87 0.1644 0.0854
 Venus -111792-04-16 01:26 J -39110499.62 -39110499.44 -39110499.26 0.1870 0.0414
 Venus -111791-03-15 20:53 J -39110165.79 -39110165.63 -39110165.48 0.1644 0.0611
 Mercury -111785-05-11 06:00 J -39107917.41 -39107917.25 -39107917.10 0.1752 0.0074
 Mercury -111784-03-24 04:48 J -39107600.43 -39107600.30 -39107600.18 0.1760 0.0125

Mercury -111776-10-01 07:55 J -39104487.31 -39104487.17 -39104487.03 0.1747 0.0668
 Mercury -111775-08-14 12:58 J -39104170.08 -39104169.96 -39104169.84 0.1765 0.0338
 Mercury -111773-07-20 02:38 J -39103464.46 -39103464.39 -39103464.32 0.1745 0.1434
 Mercury -111766-02-21 10:19 J -39101057.18 -39101057.07 -39101056.97 0.1742 0.1255
 Mercury -111765-01-04 21:07 J -39100739.73 -39100739.62 -39100739.51 0.1770 0.0805
 Earth -111765-07-10 22:19 J -39100551.75 -39100551.57 -39100551.39 0.1644 0.0057
 Moon -111765-07-11 04:05 J -39100551.51 -39100551.33 -39100551.15 0.1644 0.0154 *
 Mercury -111764-01-28 04:19 J -39100350.42 -39100350.32 -39100350.21 0.1762 0.1302
 Mercury -111764-12-10 11:31 J -39100034.12 -39100034.02 -39100033.92 0.1750 0.1020
 Venus -111761-05-14 01:41 J -39099148.48 -39099148.43 -39099148.38 0.1645 0.1552
 Venus -111759-03-14 10:48 J -39098479.22 -39098479.05 -39098478.88 0.1643 0.0085
 Venus -111758-02-10 20:10 J -39098145.78 -39098145.66 -39098145.55 0.1870 0.1427
 Venus -111757-01-12 20:10 J -39097809.75 -39097809.66 -39097809.57 0.1644 0.1380
 Mercury -111756-05-27 04:48 J -39097309.38 -39097309.30 -39097309.21 0.1775 0.1285
 Mercury -111755-06-20 05:02 J -39096920.43 -39096920.29 -39096920.14 0.1757 0.0638
 Mercury -111754-05-02 20:10 J -39096603.77 -39096603.66 -39096603.54 0.1755 0.0595
 Mercury -111747-10-17 12:29 J -39093878.98 -39093878.98 -39093878.97 0.1780 0.1776
 Mercury -111746-11-10 06:43 J -39093490.38 -39093490.22 -39093490.07 0.1752 0.0038
 Mercury -111745-09-22 04:48 J -39093173.43 -39093173.30 -39093173.18 0.1760 0.0161
 Mercury -111736-04-01 08:24 J -39090060.30 -39090060.15 -39090060.01 0.1747 0.0616
 Mercury -111735-02-12 12:58 J -39089743.08 -39089742.96 -39089742.83 0.1765 0.0300
 Mercury -111733-01-19 02:38 J -39089037.46 -39089037.39 -39089037.33 0.1746 0.1471
 Venus -111727-03-13 00:29 J -39086792.63 -39086792.48 -39086792.33 0.1644 0.0781
 Mercury -111727-08-22 10:34 J -39086630.17 -39086630.06 -39086629.95 0.1742 0.1200
 Venus -111726-02-11 02:53 J -39086457.56 -39086457.38 -39086457.19 0.1870 0.0154
 Mercury -111726-07-05 21:22 J -39086312.73 -39086312.61 -39086312.50 0.1770 0.0754
 Venus -111725-01-11 10:05 J -39086123.23 -39086123.08 -39086122.93 0.1644 0.0685
 Mercury -111725-07-29 04:34 J -39085923.40 -39085923.31 -39085923.21 0.1762 0.1354
 Mercury -111724-06-10 11:31 J -39085607.11 -39085607.02 -39085606.92 0.1750 0.1064
 Mercury -111717-11-25 05:02 J -39082882.38 -39082882.29 -39082882.20 0.1775 0.1234

Mercury -111716-12-19 05:45 J -39082493.40 -39082493.26 -39082493.12 0.1757 0.0700
 Mercury -111715-10-31 20:24 J -39082176.77 -39082176.65 -39082176.54 0.1755 0.0643
 Mercury -111707-04-17 12:43 J -39079452.00 -39079451.97 -39079451.95 0.1780 0.1728
 Mercury -111706-05-11 06:57 J -39079063.36 -39079063.21 -39079063.05 0.1752 0.0079
 Mercury -111705-03-23 04:48 J -39078746.42 -39078746.30 -39078746.18 0.1760 0.0201
 Mercury -111697-09-30 08:53 J -39075633.27 -39075633.13 -39075632.98 0.1747 0.0551
 Mercury -111696-08-13 13:12 J -39075316.07 -39075315.95 -39075315.83 0.1765 0.0246
 Venus -111695-03-11 14:24 J -39075105.96 -39075105.90 -39075105.82 0.1644 0.1485
 Venus -111694-02-11 08:38 J -39074769.21 -39074769.14 -39074769.06 0.1870 0.1703
 Mercury -111694-07-20 02:38 J -39074610.45 -39074610.39 -39074610.33 0.1745 0.1515
 Venus -111693-01-09 23:45 J -39074436.67 -39074436.51 -39074436.34 0.1643 0.0035
 Venus -111693-12-07 21:21 J -39074103.68 -39074103.61 -39074103.53 0.1869 0.1696
 Venus -111692-11-09 09:07 J -39073767.20 -39073767.12 -39073767.05 0.1645 0.1458
 Mercury -111687-02-20 11:02 J -39072203.15 -39072203.04 -39072202.92 0.1742 0.1141
 Mercury -111686-01-03 21:21 J -39071885.73 -39071885.61 -39071885.50 0.1770 0.0713
 Earth -111686-07-13 21:21 J -39071694.74 -39071694.61 -39071694.48 0.1644 0.1172
 Moon -111686-07-13 23:31 J -39071694.65 -39071694.52 -39071694.40 0.1644 0.1070 *
 Mercury -111685-01-28 05:17 J -39071496.37 -39071496.28 -39071496.19 0.1762 0.1424
 Mercury -111685-12-09 11:45 J -39071180.11 -39071180.01 -39071179.92 0.1750 0.1107
 Mercury -111678-07-13 13:41 J -39068772.96 -39068772.93 -39068772.91 0.1737 0.1708
 Mercury -111677-05-26 05:17 J -39068455.37 -39068455.28 -39068455.19 0.1775 0.1187
 Mercury -111676-06-19 06:14 J -39068066.38 -39068066.24 -39068066.11 0.1757 0.0757
 Mercury -111675-05-01 20:24 J -39067749.77 -39067749.65 -39067749.54 0.1755 0.0683
 Mercury -111668-10-16 12:57 J -39065025.00 -39065024.96 -39065024.92 0.1779 0.1677
 Mercury -111667-11-09 07:26 J -39064636.34 -39064636.19 -39064636.04 0.1752 0.0117
 Mercury -111666-09-22 05:02 J -39064319.41 -39064319.29 -39064319.17 0.1760 0.0251
 Venus -111661-01-08 13:41 J -39062750.08 -39062749.93 -39062749.78 0.1643 0.0715
 Venus -111661-12-08 03:21 J -39062415.54 -39062415.36 -39062415.17 0.1870 0.0139
 Venus -111660-11-07 23:02 J -39062080.69 -39062080.54 -39062080.39 0.1644 0.0760
 Mercury -111657-03-31 09:21 J -39061206.25 -39061206.11 -39061205.96 0.1747 0.0492

Mercury -111656-02-11 13:12 J -39060889.07 -39060888.95 -39060888.82 0.1765 0.0206

Mercury -111654-01-18 02:53 J -39060183.43 -39060183.38 -39060183.33 0.1745 0.1559

Mercury -111648-08-21 11:31 J -39057776.13 -39057776.02 -39057775.90 0.1742 0.1082

Mercury -111647-07-04 21:21 J -39057458.72 -39057458.61 -39057458.49 0.1770 0.0664

Mercury -111646-07-29 06:00 J -39057069.33 -39057069.25 -39057069.17 0.1762 0.1485

Mercury -111645-06-09 11:45 J -39056753.10 -39056753.01 -39056752.92 0.1750 0.1148

Mercury -111638-01-11 14:09 J -39054345.95 -39054345.91 -39054345.86 0.1737 0.1647

Mercury -111638-11-25 05:17 J -39054028.37 -39054028.28 -39054028.18 0.1775 0.1141

Mercury -111637-12-18 06:43 J -39053639.35 -39053639.22 -39053639.08 0.1757 0.0821

Mercury -111636-10-30 20:24 J -39053322.76 -39053322.65 -39053322.54 0.1755 0.0728

Venus -111629-01-07 03:36 J -39051063.43 -39051063.35 -39051063.26 0.1644 0.1416

Venus -111629-12-08 09:07 J -39050727.23 -39050727.12 -39050727.00 0.1870 0.1426

Mercury -111628-04-16 12:57 J -39050598.01 -39050597.96 -39050597.92 0.1780 0.1633

Venus -111628-11-06 12:57 J -39050394.13 -39050393.96 -39050393.79 0.1643 0.0059

Mercury -111627-05-10 07:55 J -39050209.32 -39050209.17 -39050209.01 0.1752 0.0185

Mercury -111626-03-23 05:02 J -39049892.41 -39049892.29 -39049892.17 0.1760 0.0293

Venus -111626-09-06 22:05 J -39049724.64 -39049724.58 -39049724.52 0.1645 0.1535

Mercury -111618-09-30 09:50 J -39046779.24 -39046779.09 -39046778.94 0.1747 0.0436

Mercury -111617-08-12 13:26 J -39046462.06 -39046461.94 -39046461.82 0.1765 0.0154

Mercury -111615-07-19 02:53 J -39045756.43 -39045756.38 -39045756.34 0.1746 0.1597

Mercury -111608-02-19 12:00 J -39043349.13 -39043349.00 -39043348.88 0.1742 0.1030

Mercury -111607-01-02 21:36 J -39043031.72 -39043031.60 -39043031.48 0.1770 0.0615

Mercury -111606-01-27 06:14 J -39042642.31 -39042642.24 -39042642.16 0.1762 0.1541

Mercury -111606-12-09 11:45 J -39042326.10 -39042326.01 -39042325.92 0.1750 0.1192

Mercury -111599-07-12 14:38 J -39039918.95 -39039918.89 -39039918.83 0.1737 0.1592

Mercury -111598-05-26 05:17 J -39039601.37 -39039601.28 -39039601.18 0.1775 0.1096

Mercury -111597-06-18 07:12 J -39039212.33 -39039212.20 -39039212.07 0.1757 0.0878

Mercury -111596-04-30 20:24 J -39038895.75 -39038895.65 -39038895.54 0.1755 0.0772

Venus -111596-11-05 02:38 J -39038707.54 -39038707.39 -39038707.23 0.1643 0.0643

Venus -111595-10-05 04:19 J -39038373.50 -39038373.32 -39038373.14 0.1871 0.0416

Venus -111594-09-05 12:00 J -39038038.14 -39038038.00 -39038037.85 0.1644 0.0835
 Mercury -111589-10-15 13:12 J -39036171.01 -39036170.95 -39036170.90 0.1780 0.1580
 Mercury -111588-11-08 08:38 J -39035782.29 -39035782.14 -39035781.99 0.1752 0.0245
 Mercury -111587-09-21 05:02 J -39035465.41 -39035465.29 -39035465.16 0.1760 0.0345
 Earth -111583-01-14 05:31 J -39034254.37 -39034254.27 -39034254.17 0.1870 0.1655
 Mercury -111578-03-31 10:19 J -39032352.22 -39032352.07 -39032351.92 0.1747 0.0379
 Mercury -111577-02-11 13:26 J -39032035.06 -39032034.94 -39032034.82 0.1765 0.0112
 Mercury -111575-01-17 02:53 J -39031329.42 -39031329.38 -39031329.34 0.1745 0.1638
 Mercury -111569-08-20 12:29 J -39028922.11 -39028921.98 -39028921.86 0.1742 0.0970
 Mercury -111568-07-03 21:36 J -39028604.72 -39028604.60 -39028604.48 0.1770 0.0572
 Mercury -111567-07-28 06:57 J -39028215.28 -39028215.21 -39028215.15 0.1762 0.1604
 Mercury -111566-06-09 11:45 J -39027899.09 -39027899.01 -39027898.92 0.1750 0.1230
 Venus -111564-11-03 16:33 J -39027020.90 -39027020.81 -39027020.71 0.1644 0.1346
 Venus -111563-10-05 10:48 J -39026685.19 -39026685.05 -39026684.90 0.1870 0.1167
 Venus -111562-09-04 01:55 J -39026351.59 -39026351.42 -39026351.25 0.1643 0.0135
 Venus -111560-07-04 11:17 J -39025682.06 -39025682.03 -39025682.00 0.1645 0.1612
 Moon -111560-07-10 02:38 J -39025676.55 -39025676.39 -39025676.23 0.1644 0.0719
 Earth -111560-07-10 08:24 J -39025676.31 -39025676.15 -39025675.98 0.1644 0.0598 *
 Mercury -111559-01-10 14:53 J -39025491.94 -39025491.88 -39025491.81 0.1737 0.1540
 Mercury -111559-11-24 05:31 J -39025174.37 -39025174.27 -39025174.16 0.1775 0.1044
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 Venus -111530-09-02 15:50 J -39014664.99 -39014664.84 -39014664.68 0.1643 0.0575
 Mercury -111529-02-19 12:57 J -39014495.09 -39014494.96 -39014494.83 0.1742 0.0911

Venus -111529-08-01 05:31 J -39014331.43 -39014331.27 -39014331.09 0.1870 0.0692
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 Mercury -111527-12-08 12:00 J -39013472.09 -39013472.00 -39013471.92 0.1750 0.1275
 Mercury -111520-07-11 15:21 J -39011064.93 -39011064.86 -39011064.78 0.1737 0.1482
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 Mercury -111508-09-20 05:17 J -39006611.40 -39006611.28 -39006611.16 0.1760 0.0424
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 Moon -111481-07-12 02:38 J -38996819.56 -38996819.39 -38996819.21 0.1644 0.0619
 Earth -111481-07-12 06:57 J -38996819.38 -38996819.21 -38996819.04 0.1644 0.0500 *
 Mercury -111480-01-09 16:05 J -38996637.92 -38996637.83 -38996637.75 0.1737 0.1423
 Mercury -111480-11-23 05:45 J -38996320.36 -38996320.26 -38996320.15 0.1775 0.0951
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 Mercury -111478-10-29 20:53 J -38995614.74 -38995614.63 -38995614.53 0.1755 0.0902
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Mercury -111468-03-21 05:17 J -38992184.40 -38992184.28 -38992184.16 0.1760 0.0468

Venus -111464-06-30 05:02 J -38990622.45 -38990622.29 -38990622.13 0.1643 0.0507

Venus -111463-05-29 06:43 J -38990289.38 -38990289.22 -38990289.06 0.1870 0.0975

Venus -111462-04-30 14:38 J -38989953.02 -38989952.89 -38989952.76 0.1644 0.0984

Mercury -111460-09-28 11:45 J -38989071.16 -38989071.01 -38989070.86 0.1747 0.0200

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Mercury -111450-02-18 13:55 J -38985641.06 -38985640.92 -38985640.79 0.1742 0.0799

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Mercury -111448-12-07 12:00 J -38984618.07 -38984618.00 -38984617.92 0.1750 0.1357

Mercury -111441-07-10 16:05 J -38982210.92 -38982210.83 -38982210.74 0.1737 0.1376

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Mercury -111438-04-29 20:53 J -38981187.74 -38981187.63 -38981187.53 0.1755 0.0941

Venus -111432-06-28 18:57 J -38978935.82 -38978935.71 -38978935.60 0.1643 0.1212

Venus -111431-05-29 13:55 J -38978601.10 -38978600.92 -38978600.75 0.1871 0.0630

Mercury -111431-10-14 13:41 J -38978463.01 -38978462.93 -38978462.86 0.1780 0.1389

Venus -111430-04-29 04:19 J -38978266.49 -38978266.32 -38978266.15 0.1643 0.0277

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Mercury -111429-09-19 05:31 J -38977757.39 -38977757.27 -38977757.15 0.1760 0.0517

Mercury -111420-03-29 12:14 J -38974644.14 -38974643.99 -38974643.84 0.1747 0.0142

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Mercury -111411-08-19 14:09 J -38971214.04 -38971213.91 -38971213.77 0.1742 0.0743

Mercury -111410-07-02 22:05 J -38970896.70 -38970896.58 -38970896.46 0.1770 0.0386

Mercury -111408-06-07 12:00 J -38970191.07 -38970191.00 -38970190.93 0.1750 0.1398

Moon -111402-07-15 06:57 J -38967962.31 -38967962.21 -38967962.12 0.1643 0.1405

Earth -111402-07-15 05:31 J -38967962.30 -38967962.27 -38967962.23 0.1643 0.1604 *

Mercury -111401-01-09 16:48 J -38967783.90 -38967783.80 -38967783.70 0.1737 0.1313

Mercury -111401-11-22 06:00 J -38967466.36 -38967466.25 -38967466.14 0.1775 0.0859

Mercury -111400-12-16 09:50 J -38967077.20 -38967077.09 -38967076.97 0.1757 0.1185

Mercury -111399-10-28 20:53 J -38966760.73 -38966760.63 -38966760.53 0.1755 0.0985

Venus -111398-04-27 18:14 J -38966579.90 -38966579.74 -38966579.58 0.1643 0.0434
 Venus -111397-03-25 07:55 J -38966247.30 -38966247.17 -38966247.03 0.1869 0.1250
 Venus -111396-02-25 03:07 J -38965910.49 -38965910.37 -38965910.24 0.1644 0.1067
 Mercury -111391-04-14 13:41 J -38964036.01 -38964035.93 -38964035.85 0.1780 0.1344
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 Mercury -111389-03-20 05:31 J -38963330.39 -38963330.27 -38963330.15 0.1760 0.0554
 Mercury -111381-09-27 12:43 J -38960217.13 -38960216.97 -38960216.82 0.1747 0.0102
 Mercury -111380-08-10 13:55 J -38959900.04 -38959899.92 -38959899.79 0.1765 0.0126
 Mercury -111371-02-17 14:38 J -38956787.03 -38956786.89 -38956786.75 0.1742 0.0686
 Mercury -111371-12-31 22:05 J -38956469.70 -38956469.58 -38956469.45 0.1770 0.0347
 Mercury -111369-12-06 12:14 J -38955764.06 -38955763.99 -38955763.92 0.1750 0.1443
 Venus -111366-04-26 08:09 J -38954893.28 -38954893.16 -38954893.04 0.1643 0.1145
 Venus -111365-03-25 14:24 J -38954559.08 -38954558.90 -38954558.72 0.1871 0.0345
 Venus -111364-02-23 17:17 J -38954223.95 -38954223.78 -38954223.62 0.1644 0.0353
 Mercury -111362-07-10 17:17 J -38953356.88 -38953356.78 -38953356.68 0.1737 0.1257
 Mercury -111361-05-23 06:14 J -38953039.36 -38953039.24 -38953039.13 0.1775 0.0814
 Mercury -111360-06-16 10:19 J -38952650.18 -38952650.07 -38952649.96 0.1757 0.1243
 Mercury -111359-04-28 20:53 J -38952333.72 -38952333.63 -38952333.53 0.1755 0.1028
 Earth -111355-07-09 18:14 J -38950800.86 -38950800.74 -38950800.62 0.1645 0.1243
 Moon -111355-07-10 00:00 J -38950800.64 -38950800.50 -38950800.37 0.1645 0.1124 *
 Mercury -111352-10-13 13:55 J -38949609.01 -38949608.92 -38949608.84 0.1780 0.1293
 Mercury -111351-11-06 11:31 J -38949220.16 -38949220.02 -38949219.87 0.1752 0.0602
 Mercury -111350-09-19 05:45 J -38948903.38 -38948903.26 -38948903.15 0.1760 0.0604
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 Venus -111332-02-22 07:12 J -38942537.36 -38942537.20 -38942537.04 0.1643 0.0360
 Mercury -111332-08-18 15:07 J -38942360.01 -38942359.87 -38942359.73 0.1742 0.0628
 Venus -111331-01-20 08:53 J -38942205.23 -38942205.13 -38942205.02 0.1869 0.1541
 Mercury -111331-07-01 22:19 J -38942042.70 -38942042.57 -38942042.45 0.1770 0.0299
 Venus -111331-12-23 16:33 J -38941867.93 -38941867.81 -38941867.69 0.1645 0.1143

Mercury -111329-06-06 12:14 J -38941337.05 -38941336.99 -38941336.93 0.1750 0.1481
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 Mercury -111312-04-13 13:55 J -38935182.01 -38935181.92 -38935181.83 0.1780 0.1249
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 Mercury -111302-09-27 13:41 J -38931363.08 -38931362.93 -38931362.77 0.1747 0.0042
 Mercury -111301-08-09 14:09 J -38931046.03 -38931045.91 -38931045.79 0.1765 0.0204
 Venus -111300-02-20 20:53 J -38930850.76 -38930850.63 -38930850.50 0.1643 0.1071
 Moon -111299-01-12 10:48 J -38930525.26 -38930525.05 -38930524.83 0.1870 0.0172
 Earth -111299-01-12 21:21 J -38930524.82 -38930524.61 -38930524.39 0.1870 0.0380
 Venus -111299-01-20 15:50 J -38930517.03 -38930516.84 -38930516.66 0.1871 0.0073
 Venus -111299-12-22 06:29 J -38930181.39 -38930181.23 -38930181.07 0.1644 0.0429
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 Mercury -111283-07-09 18:00 J -38924502.86 -38924502.75 -38924502.64 0.1737 0.1148
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 Earth -111276-07-11 16:19 J -38921944.00 -38921943.82 -38921943.64 0.1645 0.0154
 Moon -111276-07-11 21:50 J -38921943.76 -38921943.59 -38921943.42 0.1644 0.0274 *
 Mercury -111274-11-29 20:53 J -38921072.65 -38921072.63 -38921072.60 0.1732 0.1699
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Venus -111235-12-19 10:19 J -38906808.21 -38906808.07 -38906807.94 0.1643 0.1003

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Venus -111234-11-17 16:19 J -38906475.00 -38906474.82 -38906474.63 0.1870 0.0229

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Venus -111233-10-18 19:26 J -38906138.85 -38906138.69 -38906138.53 0.1644 0.0507

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Mercury -111202-06-15 12:29 J -38894942.07 -38894941.98 -38894941.90 0.1757 0.1481

Venus -111202-11-17 22:19 J -38894786.70 -38894786.57 -38894786.45 0.1871 0.1376

Mercury -111201-04-26 21:07 J -38894625.70 -38894625.62 -38894625.53 0.1755 0.1195

Venus -111201-10-17 09:21 J -38894452.28 -38894452.11 -38894451.94 0.1643 0.0212

Venus -111199-08-17 18:29 J -38893782.83 -38893782.73 -38893782.63 0.1646 0.1304

Earth -111197-07-13 15:21 J -38893087.01 -38893086.86 -38893086.71 0.1644 0.0943

Moon -111197-07-13 16:19 J -38893086.94 -38893086.82 -38893086.70 0.1644 0.1157 *

Mercury -111195-11-28 21:50 J -38892218.64 -38892218.59 -38892218.53 0.1732 0.1585

Mercury -111194-10-12 14:24 J -38891901.00 -38891900.90 -38891900.80 0.1780 0.1104

Mercury -111193-11-04 13:26 J -38891512.07 -38891511.94 -38891511.80 0.1752 0.0833

Mercury -111192-09-17 06:00 J -38891195.36 -38891195.25 -38891195.14 0.1760 0.0778

Mercury -111184-03-03 21:50 J -38888470.64 -38888470.59 -38888470.53 0.1785 0.1600

Mercury -111183-03-27 15:07 J -38888082.02 -38888081.87 -38888081.72 0.1747 0.0207

Mercury -111182-02-07 14:24 J -38887765.02 -38887764.90 -38887764.78 0.1765 0.0335

Mercury -111174-08-17 17:02 J -38884651.94 -38884651.79 -38884651.64 0.1742 0.0399

Mercury -111173-06-29 22:48 J -38884334.68 -38884334.55 -38884334.43 0.1770 0.0128

Mercury -111171-06-05 12:29 J -38883629.02 -38883628.98 -38883628.94 0.1750 0.1645

Venus -111169-10-15 23:02 J -38882765.68 -38882765.54 -38882765.40 0.1643 0.0929

Venus -111168-09-13 17:17 J -38882432.96 -38882432.78 -38882432.60 0.1870 0.0513

Venus -111167-08-16 08:38 J -38882096.30 -38882096.14 -38882095.99 0.1644 0.0584

Mercury -111164-01-06 19:26 J -38881221.81 -38881221.69 -38881221.56 0.1737 0.0977

Mercury -111164-11-20 06:43 J -38880904.34 -38880904.22 -38880904.10 0.1775 0.0581

Mercury -111163-12-14 12:57 J -38880515.03 -38880514.96 -38880514.88 0.1757 0.1549

Mercury -111162-10-26 21:21 J -38880198.69 -38880198.61 -38880198.52 0.1755 0.1239

Mercury -111155-05-29 22:05 J -38877791.64 -38877791.58 -38877791.51 0.1732 0.1538

Mercury -111154-04-12 14:24 J -38877474.00 -38877473.90 -38877473.80 0.1780 0.1061

Mercury -111153-05-05 13:55 J -38877085.05 -38877084.92 -38877084.78 0.1752 0.0893

Mercury -111152-03-18 06:00 J -38876768.36 -38876768.25 -38876768.14 0.1760 0.0813

Mercury -111145-09-01 22:05 J -38874043.64 -38874043.58 -38874043.52 0.1785 0.1547

Mercury -111144-09-25 15:21 J -38873655.01 -38873654.86 -38873654.70 0.1747 0.0264

Mercury -111143-08-08 14:38 J -38873338.01 -38873337.89 -38873337.77 0.1765 0.0384

Venus -111136-09-13 23:45 J -38870744.66 -38870744.51 -38870744.36 0.1871 0.1105

Venus -111135-08-14 22:19 J -38870409.74 -38870409.57 -38870409.40 0.1643 0.0135

Mercury -111134-02-15 17:31 J -38870224.92 -38870224.77 -38870224.62 0.1742 0.0341

Mercury -111134-12-29 22:48 J -38869907.67 -38869907.55 -38869907.43 0.1770 0.0068

Venus -111133-06-14 07:41 J -38869740.27 -38869740.18 -38869740.09 0.1646 0.1381

Mercury -111132-12-04 12:43 J -38869202.00 -38869201.97 -38869201.95 0.1750 0.1691

Mercury -111125-07-07 19:55 J -38866794.80 -38866794.67 -38866794.54 0.1737 0.0922

Mercury -111124-05-21 06:43 J -38866477.33 -38866477.22 -38866477.10 0.1775 0.0537

Mercury -111123-06-14 13:26 J -38866088.00 -38866087.94 -38866087.87 0.1758 0.1607

Mercury -111122-04-26 21:21 J -38865771.69 -38865771.61 -38865771.53 0.1755 0.1279

Mercury -111116-11-27 22:33 J -38863364.63 -38863364.56 -38863364.48 0.1732 0.1479

Mercury -111115-10-11 14:38 J -38863046.99 -38863046.89 -38863046.79 0.1780 0.1011

Mercury -111114-11-04 14:38 J -38862658.02 -38862657.89 -38862657.76 0.1752 0.0955

Mercury -111113-09-16 06:14 J -38862341.35 -38862341.24 -38862341.14 0.1760 0.0861

Mercury -111105-03-02 22:05 J -38859616.64 -38859616.58 -38859616.51 0.1785 0.1507

Mercury -111104-03-26 16:05 J -38859227.98 -38859227.83 -38859227.68 0.1747 0.0323

Mercury -111103-02-06 14:38 J -38858911.01 -38858910.89 -38858910.77 0.1765 0.0425

Venus -111103-08-13 12:14 J -38858723.13 -38858722.99 -38858722.85 0.1643 0.0859

Venus -111102-07-11 18:43 J -38858390.89 -38858390.72 -38858390.55 0.1870 0.0794

Venus -111101-06-12 21:36 J -38858053.75 -38858053.60 -38858053.44 0.1644 0.0661

Mercury -111095-08-16 18:00 J -38855797.90 -38855797.75 -38855797.60 0.1742 0.0285

Mercury -111094-06-29 22:48 J -38855480.67 -38855480.55 -38855480.42 0.1770 0.0059

Mercury -111092-06-04 12:29 J -38854774.99 -38854774.98 -38854774.96 0.1750 0.1727

Mercury -111085-01-06 20:09 J -38852367.79 -38852367.66 -38852367.53 0.1737 0.0871

Mercury -111085-11-19 06:57 J -38852050.33 -38852050.21 -38852050.09 0.1775 0.0485

Mercury -111084-12-13 13:55 J -38851660.96 -38851660.92 -38851660.87 0.1757 0.1665

Mercury -111083-10-25 21:36 J -38851344.68 -38851344.60 -38851344.53 0.1755 0.1323

Mercury -111076-05-28 23:02 J -38848937.62 -38848937.54 -38848937.45 0.1732 0.1425

Mercury -111075-04-11 14:38 J -38848619.99 -38848619.89 -38848619.78 0.1780 0.0967

Mercury -111074-05-05 14:53 J -38848231.00 -38848230.88 -38848230.75 0.1752 0.1007

Mercury -111073-03-17 06:14 J -38847914.35 -38847914.24 -38847914.14 0.1760 0.0903

Moon -111071-07-10 20:24 J -38847068.82 -38847068.65 -38847068.49 0.1646 0.0652
 Earth -111071-07-11 02:38 J -38847068.55 -38847068.39 -38847068.23 0.1646 0.0794 *
 Venus -111071-08-12 02:09 J -38847036.45 -38847036.41 -38847036.36 0.1642 0.1578
 Venus -111070-07-12 00:57 J -38846702.63 -38846702.46 -38846702.30 0.1871 0.0823
 Venus -111069-06-11 11:45 J -38846367.18 -38846367.01 -38846366.84 0.1643 0.0068
 Venus -111067-04-11 20:38 J -38845697.71 -38845697.64 -38845697.56 0.1647 0.1463
 Mercury -111066-09-01 22:19 J -38845189.64 -38845189.57 -38845189.50 0.1785 0.1453
 Mercury -111065-09-24 16:33 J -38844800.96 -38844800.81 -38844800.66 0.1747 0.0389
 Mercury -111064-08-07 14:38 J -38844484.01 -38844483.89 -38844483.77 0.1765 0.0471
 Mercury -111055-02-14 18:29 J -38841370.88 -38841370.73 -38841370.58 0.1742 0.0226
 Mercury -111055-12-28 23:02 J -38841053.67 -38841053.54 -38841053.42 0.1770 0.0030
 Mercury -111046-07-07 20:38 J -38837940.77 -38837940.64 -38837940.50 0.1737 0.0813
 Mercury -111045-05-20 06:57 J -38837623.33 -38837623.21 -38837623.09 0.1775 0.0445
 Mercury -111044-06-13 14:38 J -38837233.92 -38837233.89 -38837233.87 0.1757 0.1725
 Mercury -111043-04-25 21:36 J -38836917.68 -38836917.60 -38836917.53 0.1755 0.1362
 Venus -111037-06-10 01:41 J -38834680.58 -38834680.43 -38834680.28 0.1643 0.0790
 Mercury -111037-11-26 23:31 J -38834510.61 -38834510.52 -38834510.43 0.1732 0.1371
 Venus -111036-05-07 19:41 J -38834348.83 -38834348.68 -38834348.53 0.1869 0.1086
 Mercury -111036-10-10 14:53 J -38834192.99 -38834192.88 -38834192.77 0.1780 0.0917
 Venus -111035-04-10 11:02 J -38834011.19 -38834011.04 -38834010.89 0.1645 0.0736
 Mercury -111035-11-03 15:36 J -38833803.97 -38833803.85 -38833803.73 0.1752 0.1075
 Mercury -111034-09-16 06:14 J -38833487.34 -38833487.24 -38833487.14 0.1760 0.0944
 Mercury -111026-03-02 22:33 J -38830762.64 -38830762.56 -38830762.49 0.1785 0.1405
 Mercury -111025-03-25 16:48 J -38830373.94 -38830373.80 -38830373.65 0.1747 0.0438
 Mercury -111024-02-05 14:53 J -38830057.00 -38830056.88 -38830056.76 0.1765 0.0514
 Mercury -111016-08-15 18:57 J -38826943.87 -38826943.71 -38826943.56 0.1742 0.0176
 Earth -111015-01-11 12:43 J -38826795.16 -38826794.97 -38826794.78 0.1868 0.0883
 Moon -111015-01-11 23:17 J -38826794.71 -38826794.53 -38826794.34 0.1869 0.0931
 Mercury -111015-06-28 23:02 J -38826626.66 -38826626.54 -38826626.41 0.1770 0.0080
 Mercury -111006-01-05 21:21 J -38823513.75 -38823513.61 -38823513.48 0.1737 0.0752

Mercury -111006-11-19 07:12 J -38823196.32 -38823196.20 -38823196.08 0.1775 0.0396

Venus -111005-06-08 15:21 J -38822993.92 -38822993.86 -38822993.79 0.1642 0.1510

Venus -111004-05-08 02:38 J -38822660.56 -38822660.39 -38822660.21 0.1871 0.0551

Mercury -111004-10-24 21:36 J -38822490.67 -38822490.60 -38822490.53 0.1755 0.1405

Venus -111003-04-09 00:43 J -38822324.63 -38822324.47 -38822324.30 0.1643 0.0030

Venus -111001-02-07 09:36 J -38821655.15 -38821655.10 -38821655.04 0.1647 0.1546

111TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 111th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -110997-05-28 00:00 J | -38820083.60 | -38820083.50 | -38820083.41 | 0.1732 | 0.1316 | | |
| Mercury | -110996-04-10 14:53 J | -38819765.99 | -38819765.88 | -38819765.77 | 0.1780 | 0.0874 | | |
| Mercury | -110995-05-04 16:05 J | -38819376.94 | -38819376.83 | -38819376.71 | 0.1752 | 0.1132 | | |
| Mercury | -110994-03-17 06:29 J | -38819060.34 | -38819060.23 | -38819060.13 | 0.1760 | 0.0989 | | |
| Moon | -110992-07-12 21:36 J | -38818211.79 | -38818211.60 | -38818211.41 | 0.1645 | 0.0077 | | |
| Earth | -110992-07-13 00:57 J | -38818211.64 | -38818211.46 | -38818211.29 | 0.1645 | 0.0299 | * | |
| Mercury | -110987-08-31 22:33 J | -38816335.64 | -38816335.56 | -38816335.48 | 0.1785 | 0.1361 | | |
| Mercury | -110986-09-24 17:31 J | -38815946.92 | -38815946.77 | -38815946.62 | 0.1747 | 0.0499 | | |
| Mercury | -110985-08-06 14:53 J | -38815630.00 | -38815629.88 | -38815629.76 | 0.1765 | 0.0555 | | |
| Mercury | -110976-02-13 19:26 J | -38812516.85 | -38812516.69 | -38812516.54 | 0.1742 | 0.0119 | | |
| Mercury | -110976-12-27 23:02 J | -38812199.66 | -38812199.54 | -38812199.41 | 0.1770 | 0.0127 | | |

Venus -110971-04-07 14:38 J -38810638.04 -38810637.89 -38810637.74 0.1643 0.0717
 Venus -110970-03-04 21:21 J -38810306.74 -38810306.61 -38810306.49 0.1868 0.1366
 Venus -110969-02-05 23:45 J -38809968.66 -38809968.51 -38809968.37 0.1645 0.0820
 Mercury -110967-07-06 21:36 J -38809086.74 -38809086.60 -38809086.47 0.1737 0.0705
 Mercury -110966-05-20 07:26 J -38808769.32 -38808769.19 -38808769.07 0.1775 0.0352
 Mercury -110964-04-24 21:36 J -38808063.66 -38808063.60 -38808063.53 0.1755 0.1447
 Mercury -110958-11-27 00:29 J -38805656.58 -38805656.48 -38805656.38 0.1732 0.1256
 Mercury -110957-10-09 15:07 J -38805338.98 -38805338.87 -38805338.76 0.1780 0.0823
 Mercury -110956-11-02 16:33 J -38804949.92 -38804949.81 -38804949.70 0.1752 0.1190
 Mercury -110955-09-15 06:29 J -38804633.33 -38804633.23 -38804633.13 0.1760 0.1033
 Mercury -110947-03-01 22:48 J -38801908.64 -38801908.55 -38801908.47 0.1785 0.1314
 Mercury -110946-03-25 18:00 J -38801519.89 -38801519.75 -38801519.60 0.1747 0.0559
 Mercury -110945-02-05 14:53 J -38801202.99 -38801202.88 -38801202.76 0.1765 0.0598
 Venus -110939-04-06 04:33 J -38798951.39 -38798951.31 -38798951.23 0.1642 0.1441
 Venus -110938-03-05 03:21 J -38798618.54 -38798618.36 -38798618.17 0.1871 0.0263
 Venus -110937-02-04 13:41 J -38798282.09 -38798281.93 -38798281.76 0.1644 0.0094
 Mercury -110937-08-14 19:55 J -38798089.83 -38798089.67 -38798089.52 0.1742 0.0062
 Mercury -110936-06-27 23:17 J -38797772.65 -38797772.53 -38797772.40 0.1770 0.0157
 Venus -110936-12-04 22:33 J -38797612.58 -38797612.56 -38797612.54 0.1648 0.1632
 Mercury -110927-01-04 22:05 J -38794659.72 -38794659.58 -38794659.44 0.1737 0.0642
 Mercury -110927-11-18 07:26 J -38794342.32 -38794342.19 -38794342.07 0.1775 0.0307
 Mercury -110925-10-23 21:50 J -38793636.65 -38793636.59 -38793636.53 0.1755 0.1488
 Mercury -110918-05-28 00:43 J -38791229.58 -38791229.47 -38791229.37 0.1732 0.1210
 Mercury -110917-04-09 15:07 J -38790911.98 -38790911.87 -38790911.75 0.1780 0.0781
 Mercury -110916-05-03 17:02 J -38790522.89 -38790522.79 -38790522.68 0.1752 0.1249
 Mercury -110915-03-16 06:29 J -38790206.33 -38790206.23 -38790206.13 0.1760 0.1069
 Earth -110913-07-14 23:31 J -38789354.61 -38789354.52 -38789354.42 0.1644 0.1378
 Moon -110913-07-15 02:38 J -38789354.44 -38789354.39 -38789354.33 0.1644 0.1569 *
 Mercury -110908-08-30 23:02 J -38787481.63 -38787481.54 -38787481.46 0.1785 0.1262
 Mercury -110907-09-23 18:29 J -38787092.88 -38787092.73 -38787092.59 0.1747 0.0612

Mercury -110906-08-06 15:07 J -38786775.98 -38786775.87 -38786775.76 0.1765 0.0645
 Venus -110905-02-03 03:50 J -38786595.50 -38786595.34 -38786595.19 0.1643 0.0644
 Venus -110905-12-29 22:05 J -38786264.66 -38786264.58 -38786264.50 0.1868 0.1662
 Venus -110904-12-03 12:57 J -38785926.10 -38785925.96 -38785925.82 0.1646 0.0898
 Mercury -110898-01-21 06:14 J -38784051.26 -38784051.24 -38784051.22 0.1790 0.1766
 Mercury -110897-02-13 20:24 J -38783662.80 -38783662.65 -38783662.50 0.1742 0.0010
 Mercury -110897-12-26 23:31 J -38783345.65 -38783345.52 -38783345.40 0.1770 0.0206
 Mercury -110888-07-05 22:33 J -38780232.70 -38780232.56 -38780232.42 0.1737 0.0586
 Mercury -110887-05-19 07:26 J -38779915.31 -38779915.19 -38779915.07 0.1775 0.0260
 Mercury -110885-04-23 21:50 J -38779209.65 -38779209.59 -38779209.53 0.1755 0.1527
 Mercury -110879-11-26 01:12 J -38776802.56 -38776802.45 -38776802.34 0.1732 0.1150
 Mercury -110878-10-09 15:21 J -38776484.97 -38776484.86 -38776484.75 0.1780 0.0731
 Mercury -110877-11-01 17:45 J -38776095.86 -38776095.76 -38776095.66 0.1752 0.1313
 Mercury -110876-09-14 06:43 J -38775779.32 -38775779.22 -38775779.13 0.1760 0.1116
 Venus -110873-02-01 17:31 J -38774908.86 -38774908.77 -38774908.68 0.1642 0.1368
 Venus -110873-12-30 04:33 J -38774576.49 -38774576.31 -38774576.12 0.1870 0.0032
 Venus -110872-12-02 02:53 J -38774239.55 -38774239.38 -38774239.21 0.1644 0.0164
 Mercury -110869-04-17 04:19 J -38773372.34 -38773372.32 -38773372.29 0.1727 0.1691
 Mercury -110868-02-28 23:02 J -38773054.63 -38773054.54 -38773054.45 0.1785 0.1221
 Mercury -110867-03-24 18:57 J -38772665.85 -38772665.71 -38772665.57 0.1747 0.0675
 Mercury -110866-02-04 15:07 J -38772348.98 -38772348.87 -38772348.76 0.1765 0.0685
 Earth -110866-07-10 12:00 J -38772193.09 -38772193.00 -38772192.91 0.1647 0.1429
 Moon -110866-07-10 17:45 J -38772192.81 -38772192.76 -38772192.71 0.1647 0.1569
 Mercury -110859-07-22 06:29 J -38769624.26 -38769624.23 -38769624.20 0.1790 0.1712
 Mercury -110858-08-14 20:53 J -38769235.79 -38769235.63 -38769235.48 0.1742 0.0073
 Mercury -110857-06-26 23:31 J -38768918.64 -38768918.52 -38768918.40 0.1770 0.0244
 Mercury -110848-01-03 22:48 J -38765805.69 -38765805.55 -38765805.40 0.1737 0.0536
 Mercury -110848-11-17 07:41 J -38765488.30 -38765488.18 -38765488.06 0.1775 0.0210
 Mercury -110846-10-23 21:50 J -38764782.64 -38764782.59 -38764782.53 0.1755 0.1572
 Venus -110841-12-30 10:33 J -38762888.15 -38762888.06 -38762887.97 0.1872 0.1609

Venus -110840-11-30 16:48 J -38762552.96 -38762552.80 -38762552.64 0.1643 0.0566
 Mercury -110839-05-27 01:41 J -38762375.54 -38762375.43 -38762375.31 0.1732 0.1094
 Mercury -110838-04-09 15:21 J -38762057.97 -38762057.86 -38762057.74 0.1780 0.0688
 Venus -110838-10-01 01:41 J -38761883.56 -38761883.43 -38761883.30 0.1646 0.0982
 Mercury -110837-05-02 18:00 J -38761668.84 -38761668.75 -38761668.65 0.1752 0.1368
 Mercury -110836-03-15 06:43 J -38761352.31 -38761352.22 -38761352.13 0.1760 0.1159
 Mercury -110830-10-17 04:48 J -38758945.34 -38758945.30 -38758945.25 0.1727 0.1634
 Mercury -110829-08-29 23:17 J -38758627.63 -38758627.53 -38758627.44 0.1785 0.1168
 Mercury -110828-09-22 19:41 J -38758238.82 -38758238.68 -38758238.54 0.1747 0.0737
 Mercury -110827-08-05 15:21 J -38757921.98 -38757921.86 -38757921.75 0.1765 0.0733
 Mercury -110819-01-20 06:29 J -38755197.27 -38755197.23 -38755197.19 0.1790 0.1671
 Mercury -110818-02-12 21:21 J -38754808.77 -38754808.61 -38754808.46 0.1742 0.0122
 Mercury -110818-12-26 23:31 J -38754491.64 -38754491.52 -38754491.39 0.1770 0.0292
 Mercury -110809-07-04 23:31 J -38751378.67 -38751378.52 -38751378.38 0.1737 0.0475
 Mercury -110808-05-18 07:41 J -38751061.31 -38751061.18 -38751061.06 0.1775 0.0172
 Venus -110808-11-29 06:43 J -38750866.32 -38750866.22 -38750866.12 0.1642 0.1299
 Venus -110807-10-27 05:45 J -38750534.44 -38750534.26 -38750534.08 0.1870 0.0321
 Mercury -110806-04-23 22:05 J -38750355.63 -38750355.58 -38750355.54 0.1755 0.1611
 Venus -110806-09-29 15:50 J -38750197.00 -38750196.84 -38750196.67 0.1644 0.0245
 Mercury -110800-11-25 02:09 J -38747948.53 -38747948.41 -38747948.29 0.1732 0.1041
 Mercury -110799-10-08 15:36 J -38747630.96 -38747630.85 -38747630.73 0.1780 0.0638
 Mercury -110798-11-01 18:43 J -38747241.80 -38747241.72 -38747241.63 0.1752 0.1433
 Mercury -110797-09-13 06:43 J -38746925.31 -38746925.22 -38746925.13 0.1760 0.1200
 Mercury -110790-04-17 05:02 J -38744518.34 -38744518.29 -38744518.23 0.1727 0.1586
 Mercury -110789-02-28 23:17 J -38744200.63 -38744200.53 -38744200.43 0.1785 0.1121
 Mercury -110788-03-23 19:55 J -38743811.81 -38743811.67 -38743811.53 0.1747 0.0785
 Mercury -110787-02-03 15:21 J -38743494.97 -38743494.86 -38743494.75 0.1765 0.0774
 Earth -110787-07-12 11:02 J -38743336.22 -38743336.04 -38743335.87 0.1646 0.0343
 Moon -110787-07-12 15:07 J -38743336.04 -38743335.87 -38743335.69 0.1646 0.0122 *
 Mercury -110780-07-21 06:43 J -38740770.27 -38740770.22 -38740770.17 0.1790 0.1619

Mercury -110779-08-13 21:50 J -38740381.74 -38740381.59 -38740381.44 0.1742 0.0178
 Mercury -110778-06-26 23:45 J -38740064.63 -38740064.51 -38740064.39 0.1770 0.0334
 Venus -110775-10-27 11:31 J -38738846.15 -38738846.02 -38738845.89 0.1872 0.1317
 Venus -110774-09-28 06:00 J -38738510.41 -38738510.25 -38738510.09 0.1643 0.0493
 Venus -110772-07-28 14:53 J -38737841.01 -38737840.88 -38737840.75 0.1647 0.1063
 Mercury -110769-01-04 00:00 J -38736951.64 -38736951.50 -38736951.35 0.1737 0.0414
 Mercury -110769-11-16 07:55 J -38736634.30 -38736634.17 -38736634.05 0.1775 0.0124
 Mercury -110767-10-22 22:05 J -38735928.62 -38735928.58 -38735928.54 0.1755 0.1654
 Mercury -110760-05-26 02:38 J -38733521.52 -38733521.39 -38733521.27 0.1732 0.0986
 Mercury -110759-04-08 15:36 J -38733203.96 -38733203.85 -38733203.73 0.1780 0.0597
 Mercury -110758-05-02 19:12 J -38732814.78 -38732814.70 -38732814.62 0.1752 0.1489
 Mercury -110757-03-14 06:43 J -38732498.30 -38732498.22 -38732498.13 0.1760 0.1243
 Mercury -110751-10-16 05:45 J -38730091.33 -38730091.26 -38730091.20 0.1727 0.1529
 Mercury -110750-08-29 23:17 J -38729773.62 -38729773.53 -38729773.43 0.1785 0.1078
 Mercury -110749-09-21 20:38 J -38729384.78 -38729384.64 -38729384.51 0.1747 0.0851
 Mercury -110748-08-04 15:21 J -38729067.97 -38729067.86 -38729067.75 0.1765 0.0817
 Venus -110742-09-26 19:41 J -38726823.79 -38726823.68 -38726823.57 0.1642 0.1227
 Venus -110741-08-23 06:43 J -38726492.40 -38726492.22 -38726492.05 0.1869 0.0618
 Mercury -110740-01-19 06:57 J -38726343.27 -38726343.21 -38726343.15 0.1790 0.1570
 Venus -110740-07-27 05:02 J -38726154.45 -38726154.29 -38726154.12 0.1645 0.0324
 Mercury -110739-02-11 22:19 J -38725954.72 -38725954.57 -38725954.42 0.1742 0.0233
 Mercury -110739-12-25 23:45 J -38725637.63 -38725637.51 -38725637.39 0.1770 0.0377
 Mercury -110730-07-05 00:14 J -38722524.64 -38722524.49 -38722524.34 0.1737 0.0366
 Mercury -110729-05-17 07:55 J -38722207.29 -38722207.17 -38722207.04 0.1775 0.0094
 Mercury -110727-04-22 22:05 J -38721501.61 -38721501.58 -38721501.55 0.1755 0.1694
 Mercury -110721-11-24 03:07 J -38719094.50 -38719094.37 -38719094.24 0.1732 0.0926
 Mercury -110720-10-07 15:50 J -38718776.96 -38718776.84 -38718776.72 0.1780 0.0545
 Mercury -110719-10-31 19:41 J -38718387.75 -38718387.68 -38718387.61 0.1753 0.1550
 Mercury -110718-09-13 06:57 J -38718071.29 -38718071.21 -38718071.13 0.1760 0.1286
 Mercury -110711-04-16 06:00 J -38715664.32 -38715664.25 -38715664.17 0.1727 0.1475

Mercury -110710-02-27 23:31 J -38715346.62 -38715346.52 -38715346.42 0.1785 0.1028

Mercury -110709-03-22 21:07 J -38714957.75 -38714957.62 -38714957.49 0.1747 0.0912

Venus -110709-08-23 12:57 J -38714804.11 -38714803.96 -38714803.81 0.1871 0.1037

Mercury -110708-02-02 15:36 J -38714640.96 -38714640.85 -38714640.75 0.1765 0.0861

Moon -110708-07-14 08:24 J -38714479.31 -38714479.15 -38714478.99 0.1645 0.0581

Earth -110708-07-14 09:36 J -38714479.26 -38714479.10 -38714478.94 0.1645 0.0748 *

Venus -110708-07-25 18:57 J -38714467.87 -38714467.71 -38714467.55 0.1643 0.0416

Venus -110706-05-26 04:05 J -38713798.45 -38713798.33 -38713798.21 0.1647 0.1143

Mercury -110701-07-20 06:57 J -38711916.27 -38711916.21 -38711916.14 0.1790 0.1523

Mercury -110700-08-12 22:48 J -38711527.70 -38711527.55 -38711527.40 0.1742 0.0292

Mercury -110699-06-26 00:00 J -38711210.62 -38711210.50 -38711210.38 0.1770 0.0422

Mercury -110690-01-03 00:57 J -38708097.61 -38708097.46 -38708097.31 0.1737 0.0303

Mercury -110690-11-16 07:55 J -38707780.29 -38707780.17 -38707780.04 0.1775 0.0069

Mercury -110688-10-21 22:19 J -38707074.59 -38707074.57 -38707074.56 0.1755 0.1735

Mercury -110681-05-25 03:21 J -38704667.49 -38704667.36 -38704667.23 0.1732 0.0879

Mercury -110680-04-07 16:05 J -38704349.95 -38704349.83 -38704349.71 0.1780 0.0503

Mercury -110679-05-01 20:24 J -38703960.71 -38703960.65 -38703960.59 0.1752 0.1608

Mercury -110678-03-14 06:57 J -38703644.29 -38703644.21 -38703644.13 0.1760 0.1323

Venus -110676-07-24 08:53 J -38702781.24 -38702781.13 -38702781.01 0.1642 0.1157

Venus -110675-06-20 08:24 J -38702450.31 -38702450.15 -38702449.99 0.1868 0.0901

Venus -110674-05-24 18:14 J -38702111.90 -38702111.74 -38702111.57 0.1645 0.0401

Mercury -110672-10-15 06:29 J -38701237.31 -38701237.23 -38701237.15 0.1727 0.1420

Mercury -110671-08-28 23:45 J -38700919.61 -38700919.51 -38700919.40 0.1785 0.0976

Mercury -110670-09-21 21:36 J -38700530.73 -38700530.60 -38700530.48 0.1747 0.0966

Mercury -110669-08-03 15:50 J -38700213.95 -38700213.84 -38700213.74 0.1765 0.0908

Mercury -110661-01-19 07:12 J -38697489.27 -38697489.20 -38697489.13 0.1790 0.1477

Mercury -110660-02-10 23:17 J -38697100.68 -38697100.53 -38697100.38 0.1742 0.0352

Mercury -110660-12-25 00:00 J -38696783.62 -38696783.50 -38696783.38 0.1770 0.0466

Earth -110652-01-14 04:19 J -38694206.46 -38694206.32 -38694206.18 0.1868 0.1410

Moon -110652-01-14 04:19 J -38694206.44 -38694206.32 -38694206.20 0.1868 0.1605 *

Mercury -110651-07-04 01:26 J -38693670.59 -38693670.44 -38693670.29 0.1737 0.0251

Mercury -110650-05-17 08:09 J -38693353.28 -38693353.16 -38693353.04 0.1775 0.0013

Venus -110643-06-20 14:09 J -38690762.07 -38690761.91 -38690761.74 0.1871 0.0749

Venus -110642-05-23 08:24 J -38690425.31 -38690425.15 -38690424.98 0.1644 0.0344

Mercury -110642-11-24 04:05 J -38690240.47 -38690240.33 -38690240.20 0.1732 0.0817

Mercury -110641-10-06 16:05 J -38689922.95 -38689922.83 -38689922.71 0.1780 0.0454

Venus -110640-03-22 17:02 J -38689755.90 -38689755.79 -38689755.68 0.1648 0.1227

Mercury -110640-10-30 20:53 J -38689533.67 -38689533.63 -38689533.58 0.1752 0.1673

Mercury -110639-09-12 07:12 J -38689217.28 -38689217.20 -38689217.13 0.1760 0.1369

Mercury -110632-04-15 06:57 J -38686810.30 -38686810.21 -38686810.12 0.1727 0.1367

Mercury -110631-02-26 23:45 J -38686492.61 -38686492.51 -38686492.40 0.1785 0.0936

Mercury -110630-03-22 22:05 J -38686103.70 -38686103.58 -38686103.45 0.1747 0.1028

Mercury -110629-02-02 15:36 J -38685786.95 -38685786.85 -38685786.74 0.1765 0.0945

Mercury -110622-07-20 07:26 J -38683062.27 -38683062.19 -38683062.12 0.1790 0.1424

Mercury -110621-08-11 23:45 J -38682673.66 -38682673.51 -38682673.36 0.1742 0.0405

Mercury -110620-06-25 00:00 J -38682356.61 -38682356.50 -38682356.38 0.1770 0.0512

Mercury -110611-01-02 01:41 J -38679243.58 -38679243.43 -38679243.27 0.1737 0.0199

Mercury -110611-11-15 08:24 J -38678926.28 -38678926.15 -38678926.03 0.1775 0.0063

Venus -110610-05-21 22:19 J -38678738.69 -38678738.57 -38678738.44 0.1642 0.1084

Venus -110609-04-16 09:21 J -38678408.25 -38678408.11 -38678407.97 0.1868 0.1201

Venus -110608-03-21 07:26 J -38678069.35 -38678069.19 -38678069.03 0.1646 0.0479

Mercury -110602-05-25 04:33 J -38675813.45 -38675813.31 -38675813.18 0.1732 0.0762

Mercury -110601-04-06 16:19 J -38675495.95 -38675495.82 -38675495.70 0.1780 0.0412

Mercury -110600-04-30 21:21 J -38675106.63 -38675106.61 -38675106.59 0.1753 0.1728

Mercury -110599-03-13 07:12 J -38674790.27 -38674790.20 -38674790.13 0.1760 0.1411

Mercury -110593-10-14 07:26 J -38672383.29 -38672383.19 -38672383.10 0.1727 0.1311

Mercury -110592-08-28 00:00 J -38672065.61 -38672065.50 -38672065.39 0.1785 0.0885

Mercury -110591-09-20 22:48 J -38671676.67 -38671676.55 -38671676.43 0.1747 0.1089

Mercury -110590-08-03 15:50 J -38671359.94 -38671359.84 -38671359.74 0.1765 0.0989

Mercury -110582-01-18 07:26 J -38668635.27 -38668635.19 -38668635.11 0.1790 0.1383

Moon -110582-07-11 15:21 J -38668460.99 -38668460.86 -38668460.74 0.1648 0.1210
 Earth -110582-07-11 20:38 J -38668460.79 -38668460.64 -38668460.50 0.1648 0.0971 *
 Mercury -110581-02-11 00:14 J -38668246.64 -38668246.49 -38668246.34 0.1742 0.0466
 Mercury -110581-12-24 00:14 J -38667929.61 -38667929.49 -38667929.37 0.1770 0.0553
 Venus -110577-04-16 16:05 J -38666720.01 -38666719.83 -38666719.65 0.1870 0.0467
 Venus -110576-03-19 21:21 J -38666382.78 -38666382.61 -38666382.44 0.1644 0.0266
 Venus -110574-01-18 06:00 J -38665713.35 -38665713.25 -38665713.15 0.1648 0.1312
 Mercury -110572-07-03 02:24 J -38664816.55 -38664816.40 -38664816.25 0.1737 0.0138
 Mercury -110571-05-16 08:24 J -38664499.28 -38664499.15 -38664499.03 0.1775 0.0105
 Mercury -110563-11-23 04:48 J -38661386.44 -38661386.30 -38661386.16 0.1732 0.0710
 Mercury -110562-10-06 16:19 J -38661068.94 -38661068.82 -38661068.69 0.1780 0.0365
 Mercury -110560-09-11 07:12 J -38660363.26 -38660363.20 -38660363.13 0.1760 0.1451
 Mercury -110553-04-14 07:41 J -38657956.28 -38657956.18 -38657956.08 0.1727 0.1260
 Mercury -110552-02-26 00:00 J -38657638.61 -38657638.50 -38657638.38 0.1785 0.0841
 Mercury -110551-03-21 23:02 J -38657249.66 -38657249.54 -38657249.43 0.1747 0.1139
 Mercury -110550-02-01 15:50 J -38656932.93 -38656932.84 -38656932.74 0.1765 0.1035
 Venus -110544-03-18 11:17 J -38654696.16 -38654696.03 -38654695.89 0.1643 0.1010
 Venus -110543-02-11 11:17 J -38654366.14 -38654366.03 -38654365.92 0.1867 0.1483
 Mercury -110543-07-19 07:41 J -38654208.27 -38654208.18 -38654208.10 0.1790 0.1331
 Venus -110542-01-16 20:24 J -38654026.81 -38654026.65 -38654026.49 0.1646 0.0563
 Mercury -110542-08-12 00:43 J -38653819.61 -38653819.47 -38653819.32 0.1742 0.0526
 Mercury -110541-06-24 00:14 J -38653502.60 -38653502.49 -38653502.37 0.1770 0.0600
 Mercury -110532-01-01 02:53 J -38650389.53 -38650389.38 -38650389.23 0.1737 0.0075
 Mercury -110532-11-14 08:38 J -38650072.27 -38650072.14 -38650072.02 0.1775 0.0157
 Mercury -110523-05-24 05:17 J -38646959.42 -38646959.28 -38646959.14 0.1732 0.0654
 Mercury -110522-04-06 16:33 J -38646641.94 -38646641.81 -38646641.69 0.1780 0.0324
 Mercury -110520-03-12 07:26 J -38645936.26 -38645936.19 -38645936.13 0.1760 0.1493
 Mercury -110514-10-14 08:09 J -38643529.26 -38643529.16 -38643529.05 0.1727 0.1204
 Mercury -110513-08-27 00:14 J -38643211.60 -38643211.49 -38643211.38 0.1785 0.0793
 Mercury -110512-09-19 23:45 J -38642822.62 -38642822.51 -38642822.40 0.1747 0.1206

Venus -110511-02-11 17:02 J -38642677.97 -38642677.79 -38642677.60 0.1870 0.0174

Mercury -110511-08-02 16:05 J -38642505.93 -38642505.83 -38642505.74 0.1765 0.1075

Venus -110510-01-15 10:33 J -38642340.23 -38642340.06 -38642339.89 0.1644 0.0190

Venus -110509-11-14 18:57 J -38641670.79 -38641670.71 -38641670.62 0.1649 0.1401

Mercury -110503-01-17 07:55 J -38639781.26 -38639781.17 -38639781.09 0.1790 0.1282

Moon -110503-07-13 19:26 J -38639603.88 -38639603.69 -38639603.50 0.1647 0.0270

Earth -110503-07-13 19:55 J -38639603.85 -38639603.67 -38639603.49 0.1647 0.0118 *

Mercury -110502-02-10 01:12 J -38639392.59 -38639392.45 -38639392.30 0.1742 0.0581

Mercury -110502-12-24 00:29 J -38639075.60 -38639075.48 -38639075.37 0.1770 0.0641

Mercury -110494-06-09 14:53 J -38636350.88 -38636350.88 -38636350.87 0.1795 0.1791

Mercury -110493-07-02 03:07 J -38635962.52 -38635962.37 -38635962.22 0.1737 0.0026

Mercury -110492-05-15 08:38 J -38635645.26 -38635645.14 -38635645.02 0.1775 0.0195

Mercury -110484-11-22 06:00 J -38632532.40 -38632532.25 -38632532.11 0.1732 0.0593

Mercury -110483-10-05 16:33 J -38632214.93 -38632214.81 -38632214.68 0.1780 0.0272

Mercury -110481-09-10 07:26 J -38631509.24 -38631509.19 -38631509.13 0.1760 0.1537

Venus -110479-02-11 23:02 J -38630989.57 -38630989.54 -38630989.51 0.1872 0.1839

Venus -110478-01-14 00:43 J -38630653.61 -38630653.47 -38630653.34 0.1643 0.0936

Venus -110478-12-09 12:00 J -38630324.05 -38630324.00 -38630323.95 0.1865 0.1784

Venus -110477-11-13 09:36 J -38629984.26 -38629984.10 -38629983.95 0.1647 0.0643

Mercury -110474-04-14 08:38 J -38629102.25 -38629102.14 -38629102.03 0.1727 0.1149

Mercury -110473-02-26 00:29 J -38628784.60 -38628784.48 -38628784.37 0.1785 0.0747

Mercury -110472-03-21 00:14 J -38628395.59 -38628395.49 -38628395.38 0.1747 0.1267

Mercury -110471-01-31 16:05 J -38628078.92 -38628078.83 -38628078.74 0.1765 0.1117

Mercury -110465-09-03 12:00 J -38625672.03 -38625672.00 -38625671.97 0.1722 0.1679

Mercury -110464-07-18 07:55 J -38625354.26 -38625354.17 -38625354.08 0.1790 0.1237

Mercury -110463-08-11 01:41 J -38624965.57 -38624965.43 -38624965.29 0.1742 0.0638

Mercury -110462-06-24 00:29 J -38624648.59 -38624648.48 -38624648.36 0.1770 0.0684

Mercury -110455-12-08 15:07 J -38621923.90 -38621923.87 -38621923.84 0.1795 0.1742

Mercury -110453-01-01 03:50 J -38621535.49 -38621535.34 -38621535.19 0.1737 0.0039

Mercury -110453-11-13 08:38 J -38621218.26 -38621218.14 -38621218.01 0.1775 0.0240

Venus -110446-12-09 18:14 J -38618635.92 -38618635.74 -38618635.56 0.1869 0.0124

Venus -110445-11-11 23:31 J -38618297.68 -38618297.52 -38618297.35 0.1645 0.0115

Mercury -110444-05-23 06:14 J -38618105.39 -38618105.24 -38618105.10 0.1732 0.0547

Mercury -110443-04-05 16:48 J -38617787.92 -38617787.80 -38617787.68 0.1780 0.0223

Venus -110443-09-12 07:55 J -38617628.24 -38617628.17 -38617628.10 0.1650 0.1486

Mercury -110441-03-11 07:26 J -38617082.24 -38617082.19 -38617082.14 0.1760 0.1575

Mercury -110435-10-13 09:07 J -38614675.23 -38614675.12 -38614675.00 0.1727 0.1093

Mercury -110434-08-27 00:29 J -38614357.59 -38614357.48 -38614357.36 0.1785 0.0699

Mercury -110433-09-19 00:43 J -38613968.57 -38613968.47 -38613968.37 0.1747 0.1319

Mercury -110432-08-01 16:19 J -38613651.91 -38613651.82 -38613651.73 0.1765 0.1163

Mercury -110425-03-04 12:29 J -38611245.03 -38611244.98 -38611244.94 0.1722 0.1627

Mercury -110424-01-16 07:55 J -38610927.26 -38610927.17 -38610927.07 0.1790 0.1190

Earth -110424-07-15 18:29 J -38610746.85 -38610746.73 -38610746.60 0.1646 0.1195

Moon -110424-07-15 23:31 J -38610746.65 -38610746.52 -38610746.38 0.1646 0.1145 *

Mercury -110423-02-09 02:24 J -38610538.54 -38610538.40 -38610538.26 0.1742 0.0700

Mercury -110423-12-23 00:43 J -38610221.59 -38610221.47 -38610221.36 0.1770 0.0730

Mercury -110415-06-08 15:21 J -38607496.90 -38607496.86 -38607496.82 0.1795 0.1694

Mercury -110414-07-02 04:19 J -38607108.47 -38607108.32 -38607108.17 0.1737 0.0096

Venus -110414-12-10 00:00 J -38606947.60 -38606947.50 -38606947.40 0.1871 0.1545

Mercury -110413-05-14 08:53 J -38606791.25 -38606791.13 -38606791.01 0.1775 0.0283

Venus -110413-11-10 13:41 J -38606611.08 -38606610.93 -38606610.79 0.1643 0.0858

Venus -110411-09-10 22:19 J -38605941.72 -38605941.57 -38605941.42 0.1647 0.0729

Mercury -110405-11-21 06:43 J -38603678.36 -38603678.22 -38603678.07 0.1732 0.0483

Mercury -110404-10-04 16:48 J -38603360.92 -38603360.80 -38603360.67 0.1780 0.0188

Mercury -110402-09-10 07:41 J -38602655.23 -38602655.18 -38602655.14 0.1760 0.1619

Mercury -110395-04-13 09:36 J -38600248.22 -38600248.10 -38600247.98 0.1727 0.1043

Mercury -110394-02-25 00:29 J -38599930.59 -38599930.48 -38599930.36 0.1785 0.0658

Mercury -110393-03-20 01:12 J -38599541.54 -38599541.45 -38599541.35 0.1747 0.1382

Mercury -110392-01-30 16:19 J -38599224.91 -38599224.82 -38599224.73 0.1765 0.1201

Mercury -110386-09-03 12:43 J -38596818.03 -38596817.97 -38596817.91 0.1722 0.1577

Mercury -110385-07-17 08:24 J -38596500.25 -38596500.15 -38596500.06 0.1790 0.1138

Mercury -110384-08-10 02:38 J -38596111.53 -38596111.39 -38596111.25 0.1742 0.0752

Mercury -110383-06-23 00:43 J -38595794.58 -38595794.47 -38595794.36 0.1770 0.0771

Venus -110381-11-09 03:36 J -38594924.38 -38594924.35 -38594924.32 0.1642 0.1605

Venus -110380-10-05 19:26 J -38594593.87 -38594593.69 -38594593.51 0.1868 0.0421

Venus -110379-09-09 12:43 J -38594255.14 -38594254.97 -38594254.81 0.1645 0.0043

Venus -110377-07-09 20:53 J -38593585.68 -38593585.63 -38593585.58 0.1651 0.1577

Earth -110377-07-10 06:29 J -38593585.27 -38593585.23 -38593585.19 0.1650 0.1604

Moon -110377-07-10 12:14 J -38593585.09 -38593584.99 -38593584.88 0.1650 0.1345

Mercury -110376-12-07 15:21 J -38593069.90 -38593069.86 -38593069.81 0.1795 0.1645

Mercury -110375-12-31 04:48 J -38592681.45 -38592681.30 -38592681.15 0.1737 0.0153

Mercury -110374-11-13 09:07 J -38592364.24 -38592364.12 -38592364.00 0.1775 0.0332

Moon -110368-01-12 19:12 J -38590476.89 -38590476.70 -38590476.51 0.1866 0.0066

Earth -110368-01-12 21:07 J -38590476.83 -38590476.62 -38590476.40 0.1866 0.0234 *

Mercury -110365-05-22 07:12 J -38589251.34 -38589251.20 -38589251.05 0.1732 0.0428

Mercury -110364-04-04 17:02 J -38588933.92 -38588933.79 -38588933.67 0.1780 0.0142

Mercury -110362-03-11 07:41 J -38588228.22 -38588228.18 -38588228.14 0.1760 0.1659

Mercury -110356-10-12 10:05 J -38585821.20 -38585821.08 -38585820.96 0.1727 0.0985

Mercury -110355-08-26 00:43 J -38585503.58 -38585503.47 -38585503.35 0.1785 0.0608

Mercury -110354-09-19 01:55 J -38585114.51 -38585114.42 -38585114.34 0.1747 0.1443

Mercury -110353-07-31 16:19 J -38584797.90 -38584797.82 -38584797.73 0.1765 0.1245

Venus -110348-10-06 00:57 J -38582905.59 -38582905.46 -38582905.32 0.1871 0.1247

Venus -110347-09-08 02:53 J -38582568.53 -38582568.38 -38582568.23 0.1644 0.0784

Mercury -110346-03-04 13:12 J -38582391.01 -38582390.95 -38582390.88 0.1722 0.1520

Mercury -110345-01-16 08:09 J -38582073.25 -38582073.16 -38582073.06 0.1790 0.1098

Venus -110345-07-08 11:31 J -38581899.16 -38581899.02 -38581898.87 0.1648 0.0810

Mercury -110344-02-08 03:21 J -38581684.50 -38581684.36 -38581684.23 0.1742 0.0815

Mercury -110344-12-22 00:57 J -38581367.57 -38581367.46 -38581367.36 0.1770 0.0818

Mercury -110336-06-07 15:36 J -38578642.90 -38578642.85 -38578642.79 0.1795 0.1596

Mercury -110335-07-01 05:17 J -38578254.43 -38578254.28 -38578254.13 0.1737 0.0208

Mercury -110334-05-14 09:07 J -38577937.25 -38577937.12 -38577937.00 0.1775 0.0373

Mercury -110326-11-21 07:41 J -38574824.33 -38574824.18 -38574824.04 0.1732 0.0380

Mercury -110325-10-03 17:17 J -38574506.91 -38574506.78 -38574506.66 0.1780 0.0097

Mercury -110323-09-09 07:41 J -38573801.21 -38573801.18 -38573801.15 0.1760 0.1700

Mercury -110316-04-12 10:19 J -38571394.19 -38571394.07 -38571393.94 0.1727 0.0934

Mercury -110315-02-24 00:57 J -38571076.58 -38571076.46 -38571076.34 0.1785 0.0560

Venus -110315-09-06 16:33 J -38570881.86 -38570881.81 -38570881.75 0.1642 0.1534

Mercury -110314-03-20 02:09 J -38570687.49 -38570687.41 -38570687.33 0.1747 0.1496

Venus -110314-08-02 20:53 J -38570551.80 -38570551.63 -38570551.47 0.1867 0.0719

Mercury -110313-01-30 16:33 J -38570370.89 -38570370.81 -38570370.73 0.1765 0.1289

Venus -110313-07-07 01:55 J -38570212.59 -38570212.42 -38570212.25 0.1646 0.0054

Mercury -110307-09-02 13:41 J -38567964.00 -38567963.93 -38567963.85 0.1722 0.1465

Mercury -110306-07-17 08:38 J -38567646.25 -38567646.14 -38567646.04 0.1790 0.1045

Mercury -110305-08-09 03:50 J -38567257.47 -38567257.34 -38567257.21 0.1742 0.0873

Mercury -110304-06-22 00:57 J -38566940.57 -38566940.46 -38566940.35 0.1770 0.0858

Earth -110298-07-13 05:17 J -38564728.45 -38564728.28 -38564728.10 0.1649 0.0508

Moon -110298-07-13 07:55 J -38564728.33 -38564728.17 -38564728.01 0.1649 0.0636 *

Mercury -110297-12-06 15:50 J -38564215.91 -38564215.84 -38564215.78 0.1795 0.1549

Mercury -110296-12-30 05:45 J -38563827.41 -38563827.26 -38563827.11 0.1737 0.0268

Mercury -110295-11-12 09:07 J -38563510.24 -38563510.12 -38563510.00 0.1775 0.0419

Mercury -110286-05-22 08:09 J -38560397.31 -38560397.16 -38560397.01 0.1732 0.0320

Mercury -110285-04-03 17:17 J -38560079.91 -38560079.78 -38560079.66 0.1780 0.0071

Mercury -110283-03-10 07:55 J -38559374.19 -38559374.17 -38559374.16 0.1760 0.1740

Venus -110282-08-03 02:38 J -38558863.54 -38558863.39 -38558863.23 0.1870 0.0964

Venus -110281-07-05 16:05 J -38558525.98 -38558525.83 -38558525.68 0.1644 0.0709

Venus -110279-05-06 00:43 J -38557856.61 -38557856.47 -38557856.33 0.1649 0.0895

Mercury -110277-10-11 11:02 J -38556967.17 -38556967.04 -38556966.91 0.1727 0.0877

Mercury -110276-08-25 00:57 J -38556649.57 -38556649.46 -38556649.34 0.1785 0.0516

Mercury -110275-09-18 02:53 J -38556260.44 -38556260.38 -38556260.31 0.1747 0.1561

Mercury -110274-07-31 16:33 J -38555943.89 -38555943.81 -38555943.73 0.1765 0.1329

Mercury -110267-03-03 13:55 J -38553537.00 -38553536.92 -38553536.84 0.1722 0.1418

Mercury -110266-01-15 08:38 J -38553219.24 -38553219.14 -38553219.03 0.1790 0.0996

Mercury -110265-02-08 04:19 J -38552830.45 -38552830.32 -38552830.19 0.1742 0.0927

Mercury -110265-12-21 00:57 J -38552513.56 -38552513.46 -38552513.35 0.1770 0.0903

Mercury -110257-06-06 15:50 J -38549788.90 -38549788.84 -38549788.77 0.1795 0.1501

Mercury -110256-06-30 06:00 J -38549400.40 -38549400.25 -38549400.10 0.1737 0.0322

Mercury -110255-05-13 09:21 J -38549083.23 -38549083.11 -38549082.99 0.1775 0.0461

Venus -110249-07-04 06:00 J -38546839.32 -38546839.25 -38546839.17 0.1643 0.1464

Venus -110248-05-29 22:48 J -38546509.71 -38546509.55 -38546509.40 0.1866 0.1009

Venus -110247-05-04 15:07 J -38546170.04 -38546169.87 -38546169.71 0.1646 0.0133

Mercury -110247-11-20 08:38 J -38545970.29 -38545970.14 -38545969.99 0.1732 0.0261

Mercury -110246-10-03 17:17 J -38545652.90 -38545652.78 -38545652.65 0.1780 0.0064

Mercury -110237-04-11 11:17 J -38542540.16 -38542540.03 -38542539.90 0.1727 0.0823

Mercury -110236-02-23 01:12 J -38542222.57 -38542222.45 -38542222.33 0.1785 0.0467

Mercury -110235-03-19 03:21 J -38541833.41 -38541833.36 -38541833.30 0.1747 0.1621

Mercury -110234-01-29 16:33 J -38541516.88 -38541516.81 -38541516.73 0.1765 0.1371

Mercury -110228-09-01 14:24 J -38539109.98 -38539109.90 -38539109.81 0.1722 0.1362

Mercury -110227-07-16 08:38 J -38538792.24 -38538792.14 -38538792.03 0.1790 0.0955

Mercury -110226-08-09 04:48 J -38538403.43 -38538403.30 -38538403.18 0.1742 0.0986

Mercury -110225-06-21 01:12 J -38538086.56 -38538086.45 -38538086.35 0.1770 0.0944

Moon -110219-07-15 01:55 J -38535871.58 -38535871.42 -38535871.26 0.1648 0.0587

Earth -110219-07-15 04:33 J -38535871.48 -38535871.31 -38535871.14 0.1648 0.0568 *

Mercury -110218-12-06 16:05 J -38535361.90 -38535361.83 -38535361.76 0.1795 0.1451

Mercury -110217-12-29 06:43 J -38534973.37 -38534973.22 -38534973.07 0.1737 0.0383

Venus -110216-05-30 04:05 J -38534821.50 -38534821.33 -38534821.16 0.1869 0.0666

Mercury -110216-11-11 09:21 J -38534656.23 -38534656.11 -38534655.99 0.1775 0.0503

Venus -110215-05-03 05:17 J -38534483.44 -38534483.28 -38534483.13 0.1644 0.0633

Venus -110213-03-02 13:26 J -38533814.07 -38533813.94 -38533813.81 0.1649 0.0983

Mercury -110207-05-21 08:53 J -38531543.28 -38531543.13 -38531542.98 0.1732 0.0212

Mercury -110206-04-03 17:31 J -38531225.89 -38531225.77 -38531225.64 0.1780 0.0052

Mercury -110198-10-11 11:45 J -38528113.14 -38528113.01 -38528112.87 0.1727 0.0767

Mercury -110197-08-24 01:26 J -38527795.57 -38527795.44 -38527795.32 0.1785 0.0423

Mercury -110196-09-17 03:50 J -38527406.38 -38527406.34 -38527406.30 0.1747 0.1672

Mercury -110195-07-30 16:48 J -38527089.87 -38527089.80 -38527089.73 0.1765 0.1415

Mercury -110188-03-02 14:53 J -38524682.97 -38524682.88 -38524682.78 0.1722 0.1308

Mercury -110187-01-14 08:53 J -38524365.24 -38524365.13 -38524365.02 0.1790 0.0905

Mercury -110186-02-07 05:31 J -38523976.39 -38523976.27 -38523976.15 0.1742 0.1050

Mercury -110186-12-21 01:12 J -38523659.55 -38523659.45 -38523659.35 0.1770 0.0987

Venus -110183-05-01 19:12 J -38522796.79 -38522796.70 -38522796.61 0.1643 0.1389

Venus -110182-03-26 23:31 J -38522467.65 -38522467.52 -38522467.39 0.1865 0.1314

Venus -110181-03-01 04:05 J -38522127.50 -38522127.33 -38522127.17 0.1647 0.0214

Mercury -110178-06-06 16:19 J -38520934.90 -38520934.82 -38520934.75 0.1795 0.1405

Mercury -110177-06-29 07:12 J -38520546.35 -38520546.20 -38520546.05 0.1737 0.0437

Mercury -110176-05-12 09:36 J -38520229.22 -38520229.10 -38520228.99 0.1775 0.0549

Mercury -110168-11-19 09:36 J -38517116.25 -38517116.10 -38517115.95 0.1732 0.0148

Mercury -110167-10-02 17:31 J -38516798.89 -38516798.77 -38516798.64 0.1780 0.0103

Mercury -110158-04-11 12:14 J -38513686.13 -38513685.99 -38513685.86 0.1727 0.0717

Mercury -110157-02-23 01:26 J -38513368.56 -38513368.44 -38513368.32 0.1785 0.0378

Mercury -110156-03-18 04:33 J -38512979.33 -38512979.31 -38512979.30 0.1747 0.1736

Mercury -110155-01-28 16:48 J -38512662.87 -38512662.80 -38512662.73 0.1765 0.1452

Venus -110150-03-27 05:45 J -38510779.44 -38510779.26 -38510779.08 0.1869 0.0377

Venus -110149-02-28 18:00 J -38510440.91 -38510440.75 -38510440.59 0.1645 0.0552

Mercury -110149-08-31 15:21 J -38510255.96 -38510255.86 -38510255.76 0.1722 0.1257

Mercury -110148-07-15 09:07 J -38509938.23 -38509938.12 -38509938.01 0.1790 0.0853

Venus -110148-12-29 02:24 J -38509771.52 -38509771.40 -38509771.27 0.1650 0.1071

Mercury -110147-08-08 05:45 J -38509549.38 -38509549.26 -38509549.14 0.1742 0.1099

Mercury -110146-06-21 01:26 J -38509232.54 -38509232.44 -38509232.35 0.1770 0.1032

Earth -110140-07-17 03:36 J -38507014.35 -38507014.35 -38507014.34 0.1647 0.1643

Mercury -110139-12-05 16:19 J -38506507.90 -38506507.82 -38506507.74 0.1795 0.1357

Mercury -110138-12-29 07:41 J -38506119.33 -38506119.18 -38506119.03 0.1737 0.0494

Mercury -110137-11-10 09:36 J -38505802.21 -38505802.10 -38505801.98 0.1775 0.0597

Mercury -110128-05-20 10:05 J -38502689.23 -38502689.08 -38502688.93 0.1732 0.0098

Mercury -110127-04-02 17:45 J -38502371.89 -38502371.76 -38502371.64 0.1780 0.0145

Mercury -110119-10-10 12:43 J -38499259.11 -38499258.97 -38499258.83 0.1727 0.0657

Mercury -110118-08-24 01:41 J -38498941.56 -38498941.43 -38498941.31 0.1785 0.0331

Venus -110117-02-27 08:09 J -38498754.26 -38498754.16 -38498754.06 0.1643 0.1312

Venus -110116-01-21 01:41 J -38498425.52 -38498425.43 -38498425.34 0.1864 0.1602

Mercury -110116-07-29 16:48 J -38498235.86 -38498235.80 -38498235.73 0.1765 0.1498

Venus -110116-12-27 17:02 J -38498084.96 -38498084.79 -38498084.63 0.1647 0.0300

Mercury -110109-03-01 15:50 J -38495828.95 -38495828.84 -38495828.73 0.1722 0.1201

Mercury -110108-01-13 09:07 J -38495511.23 -38495511.12 -38495511.01 0.1790 0.0813

Mercury -110107-02-06 06:29 J -38495122.35 -38495122.23 -38495122.12 0.1742 0.1164

Mercury -110107-12-20 01:26 J -38494805.54 -38494805.44 -38494805.34 0.1770 0.1073

Mercury -110099-06-05 16:33 J -38492080.90 -38492080.81 -38492080.72 0.1795 0.1308

Mercury -110098-06-29 08:09 J -38491692.31 -38491692.16 -38491692.02 0.1737 0.0548

Mercury -110097-05-11 09:36 J -38491375.21 -38491375.10 -38491374.98 0.1775 0.0633

Moon -110093-07-11 10:05 J -38489853.22 -38489853.08 -38489852.94 0.1652 0.1079

Earth -110093-07-11 15:07 J -38489853.00 -38489852.87 -38489852.75 0.1652 0.1147 *

Mercury -110089-11-18 10:19 J -38488262.22 -38488262.07 -38488261.91 0.1732 0.0055

Mercury -110088-10-01 18:00 J -38487944.88 -38487944.75 -38487944.63 0.1780 0.0193

Earth -110084-01-11 14:09 J -38486747.10 -38486746.91 -38486746.72 0.1864 0.0911

Moon -110084-01-11 18:14 J -38486746.93 -38486746.74 -38486746.55 0.1864 0.1148 *

Venus -110084-01-21 06:57 J -38486737.39 -38486737.21 -38486737.03 0.1868 0.0072

Venus -110084-12-26 07:26 J -38486398.35 -38486398.19 -38486398.03 0.1645 0.0474

Venus -110082-10-26 15:21 J -38485728.98 -38485728.86 -38485728.74 0.1651 0.1162

Mercury -110079-04-10 13:12 J -38484832.09 -38484831.95 -38484831.81 0.1727 0.0603

Mercury -110078-02-22 01:41 J -38484514.55 -38484514.43 -38484514.31 0.1785 0.0283

Mercury -110076-01-27 17:02 J -38483808.85 -38483808.79 -38483808.73 0.1765 0.1540

Mercury -110070-08-31 16:19 J -38481401.93 -38481401.82 -38481401.71 0.1722 0.1146

Mercury -110069-07-14 09:21 J -38481084.22 -38481084.11 -38481084.00 0.1790 0.0763

Mercury -110068-08-07 06:57 J -38480695.32 -38480695.21 -38480695.10 0.1742 0.1220
 Mercury -110067-06-20 01:26 J -38480378.53 -38480378.44 -38480378.34 0.1770 0.1114
 Mercury -110060-01-20 19:41 J -38477971.71 -38477971.68 -38477971.65 0.1718 0.1669
 Mercury -110060-12-04 16:33 J -38477653.89 -38477653.81 -38477653.72 0.1795 0.1264
 Mercury -110059-12-28 08:38 J -38477265.28 -38477265.14 -38477264.99 0.1737 0.0611
 Mercury -110058-11-10 09:50 J -38476948.20 -38476948.09 -38476947.98 0.1775 0.0679
 Venus -110052-01-21 12:29 J -38475049.04 -38475048.98 -38475048.92 0.1871 0.1771
 Venus -110052-12-24 21:36 J -38474711.71 -38474711.60 -38474711.49 0.1643 0.1237
 Mercury -110050-04-26 23:45 J -38474223.53 -38474223.51 -38474223.50 0.1800 0.1776
 Venus -110050-10-25 06:00 J -38474042.41 -38474042.25 -38474042.09 0.1648 0.0383
 Mercury -110049-05-19 11:02 J -38473835.20 -38473835.04 -38473834.89 0.1732 0.0051
 Mercury -110048-04-01 18:00 J -38473517.88 -38473517.75 -38473517.63 0.1780 0.0234
 Mercury -110040-10-09 13:41 J -38470405.08 -38470404.93 -38470404.79 0.1727 0.0551
 Mercury -110039-08-23 01:55 J -38470087.55 -38470087.42 -38470087.30 0.1785 0.0240
 Mercury -110037-07-28 17:02 J -38469381.84 -38469381.79 -38469381.74 0.1765 0.1578
 Mercury -110030-03-01 16:33 J -38466974.93 -38466974.81 -38466974.70 0.1722 0.1099
 Mercury -110029-01-13 09:36 J -38466657.22 -38466657.10 -38466656.99 0.1790 0.0717
 Mercury -110028-02-05 07:12 J -38466268.30 -38466268.20 -38466268.09 0.1742 0.1275
 Mercury -110028-12-19 01:41 J -38465951.52 -38465951.43 -38465951.34 0.1770 0.1159
 Mercury -110021-07-21 20:09 J -38463544.71 -38463544.66 -38463544.61 0.1718 0.1616
 Mercury -110020-06-04 16:48 J -38463226.89 -38463226.80 -38463226.71 0.1795 0.1214
 Mercury -110019-06-28 09:07 J -38462838.26 -38462838.12 -38462837.98 0.1737 0.0662
 Venus -110019-11-18 08:24 J -38462695.33 -38462695.15 -38462694.97 0.1867 0.0227
 Mercury -110018-05-11 09:50 J -38462521.20 -38462521.09 -38462520.97 0.1775 0.0725
 Venus -110018-10-23 20:09 J -38462355.82 -38462355.66 -38462355.50 0.1646 0.0390
 Venus -110016-08-23 04:19 J -38461686.43 -38461686.32 -38461686.21 0.1652 0.1251
 Earth -110014-07-14 14:09 J -38460996.09 -38460995.91 -38460995.73 0.1651 0.0060
 Moon -110014-07-14 14:38 J -38460996.08 -38460995.89 -38460995.70 0.1651 0.0054 *
 Mercury -110011-10-26 00:00 J -38459796.53 -38459796.50 -38459796.47 0.1800 0.1722
 Mercury -110010-11-18 11:31 J -38459408.17 -38459408.02 -38459407.87 0.1732 0.0078

Mercury -110009-09-30 18:00 J -38459090.87 -38459090.75 -38459090.62 0.1780 0.0280

110TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 110th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -110000-04-09 13:55 J | -38455978.06 | -38455977.92 | -38455977.77 | 0.1727 | 0.0498 | | |
| Mercury | -109999-02-21 01:55 J | -38455660.54 | -38455660.42 | -38455660.30 | 0.1785 | 0.0194 | | |
| Mercury | -109997-01-27 17:02 J | -38454954.83 | -38454954.79 | -38454954.74 | 0.1765 | 0.1620 | | |
| Mercury | -109991-08-30 17:02 J | -38452547.91 | -38452547.79 | -38452547.67 | 0.1722 | 0.1042 | | |
| Mercury | -109990-07-14 09:36 J | -38452230.22 | -38452230.10 | -38452229.99 | 0.1790 | 0.0673 | | |
| Mercury | -109989-08-06 07:55 J | -38451841.27 | -38451841.17 | -38451841.07 | 0.1742 | 0.1334 | | |
| Mercury | -109988-06-19 01:40 J | -38451524.52 | -38451524.43 | -38451524.34 | 0.1770 | 0.1198 | | |
| Venus | -109987-11-18 13:40 J | -38451007.04 | -38451006.93 | -38451006.82 | 0.1870 | 0.1470 | | |
| Venus | -109986-10-22 10:19 J | -38450669.19 | -38450669.07 | -38450668.95 | 0.1644 | 0.1155 | | |
| Venus | -109984-08-21 18:43 J | -38449999.88 | -38449999.72 | -38449999.56 | 0.1649 | 0.0472 | | |
| Mercury | -109981-01-20 20:24 J | -38449117.70 | -38449117.65 | -38449117.59 | 0.1717 | 0.1568 | | |
| Mercury | -109981-12-03 17:02 J | -38448799.88 | -38448799.79 | -38448799.69 | 0.1795 | 0.1164 | | |
| Mercury | -109980-12-27 09:50 J | -38448411.23 | -38448411.09 | -38448410.96 | 0.1737 | 0.0724 | | |
| Mercury | -109979-11-09 10:04 J | -38448094.19 | -38448094.08 | -38448093.97 | 0.1775 | 0.0766 | | |
| Mercury | -109971-04-26 00:00 J | -38445369.54 | -38445369.50 | -38445369.45 | 0.1800 | 0.1676 | | |
| Mercury | -109970-05-19 11:45 J | -38444981.16 | -38444981.01 | -38444980.86 | 0.1732 | 0.0125 | | |

Mercury -109969-03-31 18:14 J -38444663.86 -38444663.74 -38444663.62 0.1780 0.0319

Mercury -109961-10-08 14:38 J -38441551.04 -38441550.89 -38441550.75 0.1727 0.0440

Mercury -109960-08-22 02:09 J -38441233.54 -38441233.41 -38441233.29 0.1785 0.0153

Mercury -109958-07-28 17:16 J -38440527.82 -38440527.78 -38440527.74 0.1765 0.1663

Venus -109953-09-14 09:36 J -38438653.28 -38438653.10 -38438652.93 0.1866 0.0533

Venus -109952-08-20 09:07 J -38438313.28 -38438313.12 -38438312.95 0.1646 0.0309

Mercury -109951-02-28 17:31 J -38438120.89 -38438120.77 -38438120.65 0.1722 0.0987

Mercury -109950-01-12 09:50 J -38437803.21 -38437803.09 -38437802.98 0.1790 0.0627

Venus -109950-06-20 17:02 J -38437643.88 -38437643.79 -38437643.69 0.1653 0.1343

Mercury -109949-02-05 08:38 J -38437414.23 -38437414.14 -38437414.05 0.1742 0.1398

Mercury -109949-12-18 01:40 J -38437097.51 -38437097.43 -38437097.34 0.1770 0.1243

Mercury -109942-07-21 20:52 J -38434690.70 -38434690.63 -38434690.56 0.1717 0.1514

Mercury -109941-06-03 17:02 J -38434372.88 -38434372.79 -38434372.69 0.1795 0.1121

Mercury -109940-06-27 10:04 J -38433984.21 -38433984.08 -38433983.94 0.1737 0.0777

Mercury -109939-05-10 10:04 J -38433667.19 -38433667.08 -38433666.97 0.1775 0.0807

Earth -109935-07-16 12:57 J -38432139.10 -38432138.96 -38432138.82 0.1649 0.1013

Moon -109935-07-16 18:14 J -38432138.89 -38432138.74 -38432138.59 0.1649 0.0991 *

Mercury -109932-10-25 00:14 J -38430942.54 -38430942.49 -38430942.44 0.1800 0.1630

Mercury -109931-11-17 12:28 J -38430554.14 -38430553.98 -38430553.83 0.1732 0.0191

Mercury -109930-09-30 18:14 J -38430236.86 -38430236.74 -38430236.62 0.1780 0.0360

Mercury -109921-04-08 14:52 J -38427124.03 -38427123.88 -38427123.73 0.1727 0.0389

Venus -109921-09-14 14:24 J -38426965.04 -38426964.90 -38426964.75 0.1869 0.1162

Mercury -109920-02-20 02:09 J -38426806.53 -38426806.41 -38426806.29 0.1785 0.0103

Venus -109920-08-18 23:31 J -38426626.65 -38426626.52 -38426626.39 0.1644 0.1080

Mercury -109918-01-26 17:16 J -38426100.81 -38426100.78 -38426100.75 0.1765 0.1700

Venus -109918-06-19 07:55 J -38425957.33 -38425957.17 -38425957.01 0.1650 0.0553

Mercury -109912-08-29 17:45 J -38423693.88 -38423693.76 -38423693.63 0.1722 0.0939

Mercury -109911-07-13 10:04 J -38423376.20 -38423376.08 -38423375.97 0.1790 0.0577

Mercury -109910-08-06 08:52 J -38422987.22 -38422987.13 -38422987.05 0.1742 0.1446

Mercury -109909-06-18 01:55 J -38422670.50 -38422670.42 -38422670.34 0.1770 0.1284

Mercury -109902-01-19 21:21 J -38420263.68 -38420263.61 -38420263.53 0.1718 0.1460

Mercury -109902-12-03 17:16 J -38419945.88 -38419945.78 -38419945.68 0.1795 0.1073

Mercury -109901-12-26 10:33 J -38419557.19 -38419557.06 -38419556.92 0.1737 0.0836

Mercury -109900-11-08 10:19 J -38419240.18 -38419240.07 -38419239.96 0.1775 0.0854

Mercury -109892-04-25 00:28 J -38416515.54 -38416515.48 -38416515.43 0.1800 0.1582

Mercury -109891-05-18 12:43 J -38416127.12 -38416126.97 -38416126.81 0.1732 0.0247

Mercury -109890-03-31 18:14 J -38415809.86 -38415809.74 -38415809.62 0.1780 0.0407

Venus -109887-07-12 11:02 J -38414611.20 -38414611.04 -38414610.88 0.1865 0.0834

Venus -109886-06-17 22:33 J -38414270.73 -38414270.56 -38414270.39 0.1647 0.0230

Venus -109884-04-17 06:14 J -38413601.32 -38413601.24 -38413601.16 0.1654 0.1433

Mercury -109882-10-08 15:21 J -38412697.00 -38412696.86 -38412696.71 0.1727 0.0332

Mercury -109881-08-21 02:24 J -38412379.53 -38412379.40 -38412379.28 0.1785 0.0063

Mercury -109879-07-27 17:16 J -38411673.79 -38411673.78 -38411673.76 0.1765 0.1745

Mercury -109872-02-27 18:28 J -38409266.86 -38409266.73 -38409266.61 0.1722 0.0884

Mercury -109871-01-11 09:50 J -38408949.21 -38408949.09 -38408948.97 0.1790 0.0538

Mercury -109870-02-04 09:21 J -38408560.18 -38408560.11 -38408560.03 0.1742 0.1510

Mercury -109870-12-18 01:55 J -38408243.50 -38408243.42 -38408243.34 0.1770 0.1325

Mercury -109863-07-20 21:36 J -38405836.68 -38405836.60 -38405836.52 0.1717 0.1415

Mercury -109862-06-03 17:31 J -38405518.88 -38405518.77 -38405518.67 0.1795 0.1026

Mercury -109861-06-26 11:02 J -38405130.17 -38405130.04 -38405129.91 0.1737 0.0888

Mercury -109860-05-09 10:19 J -38404813.18 -38404813.07 -38404812.97 0.1775 0.0892

Venus -109855-07-12 16:33 J -38402922.97 -38402922.81 -38402922.65 0.1868 0.0871

Venus -109854-06-16 12:43 J -38402584.10 -38402583.97 -38402583.84 0.1645 0.1003

Mercury -109853-10-24 00:28 J -38402088.54 -38402088.48 -38402088.41 0.1800 0.1531

Venus -109852-04-15 20:52 J -38401914.78 -38401914.63 -38401914.47 0.1651 0.0642

Mercury -109852-11-16 13:12 J -38401700.10 -38401699.95 -38401699.80 0.1732 0.0294

Mercury -109851-09-29 18:28 J -38401382.85 -38401382.73 -38401382.61 0.1780 0.0457

Mercury -109842-04-08 15:50 J -38398269.99 -38398269.84 -38398269.69 0.1727 0.0277

Mercury -109841-02-20 02:24 J -38397952.53 -38397952.40 -38397952.28 0.1785 0.0014

Mercury -109833-08-28 18:43 J -38394839.85 -38394839.72 -38394839.59 0.1722 0.0829

Mercury -109832-07-12 10:04 J -38394522.20 -38394522.08 -38394521.96 0.1790 0.0488

Mercury -109831-08-05 09:50 J -38394133.15 -38394133.09 -38394133.02 0.1742 0.1568

Mercury -109830-06-18 01:55 J -38393816.49 -38393816.42 -38393816.34 0.1770 0.1366

Mercury -109823-01-18 22:04 J -38391409.67 -38391409.58 -38391409.49 0.1718 0.1357

Mercury -109823-12-02 17:31 J -38391091.87 -38391091.77 -38391091.66 0.1795 0.0980

Mercury -109822-12-26 11:45 J -38390703.14 -38390703.01 -38390702.88 0.1737 0.0951

Venus -109821-05-08 12:57 J -38390569.11 -38390568.96 -38390568.82 0.1863 0.1130

Mercury -109821-11-07 10:33 J -38390386.17 -38390386.06 -38390385.96 0.1775 0.0940

Venus -109820-04-14 11:31 J -38390228.19 -38390228.02 -38390227.85 0.1648 0.0145

Venus -109818-02-12 18:43 J -38389558.78 -38389558.72 -38389558.66 0.1655 0.1532

Mercury -109813-04-24 00:43 J -38387661.54 -38387661.47 -38387661.40 0.1800 0.1488

Mercury -109812-05-17 13:40 J -38387273.08 -38387272.93 -38387272.78 0.1732 0.0353

Mercury -109811-03-30 18:28 J -38386955.85 -38386955.73 -38386955.61 0.1780 0.0491

Earth -109809-07-12 23:02 J -38386120.70 -38386120.54 -38386120.38 0.1653 0.0695

Moon -109809-07-13 00:43 J -38386120.63 -38386120.47 -38386120.32 0.1653 0.0701 *

Mercury -109803-10-07 16:19 J -38383842.97 -38383842.82 -38383842.67 0.1727 0.0228

Mercury -109802-08-21 02:38 J -38383525.52 -38383525.39 -38383525.27 0.1785 0.0059

Mercury -109793-02-27 19:12 J -38380412.84 -38380412.70 -38380412.57 0.1722 0.0779

Mercury -109792-01-10 10:19 J -38380095.19 -38380095.07 -38380094.95 0.1790 0.0440

Mercury -109791-02-03 10:19 J -38379706.12 -38379706.07 -38379706.01 0.1742 0.1621

Mercury -109791-12-17 02:09 J -38379389.48 -38379389.41 -38379389.34 0.1770 0.1410

Venus -109789-05-08 17:45 J -38378880.94 -38378880.76 -38378880.59 0.1867 0.0565

Venus -109788-04-13 01:40 J -38378541.56 -38378541.43 -38378541.29 0.1645 0.0927

Venus -109786-02-11 09:36 J -38377872.25 -38377872.10 -38377871.95 0.1651 0.0734

Mercury -109784-07-19 22:33 J -38376982.65 -38376982.56 -38376982.46 0.1718 0.1305

Mercury -109783-06-02 17:45 J -38376664.87 -38376664.76 -38376664.66 0.1795 0.0934

Mercury -109782-06-26 12:00 J -38376276.12 -38376276.00 -38376275.87 0.1737 0.1005

Mercury -109781-05-08 10:33 J -38375959.16 -38375959.06 -38375958.96 0.1775 0.0980

Mercury -109774-10-24 00:57 J -38373234.54 -38373234.46 -38373234.39 0.1800 0.1436

Mercury -109773-11-15 14:24 J -38372846.05 -38372845.90 -38372845.76 0.1732 0.0412

Mercury -109772-09-28 18:43 J -38372528.84 -38372528.72 -38372528.60 0.1780 0.0537

Mercury -109763-04-07 16:48 J -38369415.95 -38369415.80 -38369415.65 0.1727 0.0176

Mercury -109762-02-19 02:38 J -38369098.52 -38369098.39 -38369098.27 0.1785 0.0077

Venus -109755-03-05 13:55 J -38366527.03 -38366526.92 -38366526.80 0.1862 0.1439

Venus -109754-02-10 00:28 J -38366185.65 -38366185.48 -38366185.32 0.1648 0.0066

Mercury -109754-08-28 19:40 J -38365985.82 -38365985.68 -38365985.54 0.1722 0.0722

Mercury -109753-07-11 10:19 J -38365668.19 -38365668.07 -38365667.95 0.1790 0.0397

Venus -109753-12-10 07:26 J -38365516.21 -38365516.19 -38365516.16 0.1656 0.1627

Mercury -109752-08-04 11:02 J -38365279.08 -38365279.04 -38365279.01 0.1742 0.1681

Mercury -109751-06-17 02:09 J -38364962.48 -38364962.41 -38364962.34 0.1770 0.1449

Mercury -109744-01-17 22:48 J -38362555.65 -38362555.55 -38362555.45 0.1717 0.1258

Mercury -109744-12-01 18:00 J -38362237.86 -38362237.75 -38362237.64 0.1795 0.0884

Mercury -109743-12-25 12:43 J -38361849.09 -38361848.97 -38361848.85 0.1737 0.1062

Mercury -109742-11-07 10:33 J -38361532.16 -38361532.06 -38361531.96 0.1775 0.1022

Mercury -109734-04-24 00:57 J -38358807.54 -38358807.46 -38358807.38 0.1800 0.1391

Mercury -109733-05-16 14:24 J -38358419.04 -38358418.90 -38358418.75 0.1732 0.0458

Mercury -109732-03-29 18:43 J -38358101.83 -38358101.72 -38358101.60 0.1780 0.0583

Moon -109730-07-15 18:14 J -38357263.90 -38357263.74 -38357263.57 0.1652 0.0436

Earth -109730-07-15 22:19 J -38357263.74 -38357263.57 -38357263.39 0.1652 0.0391 *

Mercury -109724-10-06 17:16 J -38354988.93 -38354988.78 -38354988.63 0.1727 0.0111

Venus -109723-03-05 19:26 J -38354838.87 -38354838.69 -38354838.51 0.1866 0.0272

Mercury -109723-08-20 02:52 J -38354671.51 -38354671.38 -38354671.26 0.1785 0.0139

Venus -109722-02-08 14:24 J -38354499.04 -38354498.90 -38354498.75 0.1646 0.0843

Moon -109721-01-14 19:55 J -38354158.84 -38354158.67 -38354158.50 0.1863 0.1122

Earth -109721-01-15 06:57 J -38354158.35 -38354158.21 -38354158.06 0.1864 0.1369

Venus -109721-12-08 22:33 J -38353829.71 -38353829.56 -38353829.42 0.1652 0.0825

Mercury -109714-02-26 20:09 J -38351558.80 -38351558.66 -38351558.52 0.1722 0.0669

Mercury -109713-01-10 10:33 J -38351241.18 -38351241.06 -38351240.94 0.1790 0.0350

Mercury -109712-12-16 02:09 J -38350535.47 -38350535.41 -38350535.34 0.1770 0.1493

Mercury -109705-07-18 23:16 J -38348128.63 -38348128.53 -38348128.42 0.1717 0.1204

Mercury -109704-06-01 18:00 J -38347810.87 -38347810.75 -38347810.64 0.1795 0.0845

Mercury -109703-06-25 12:57 J -38347422.07 -38347421.96 -38347421.84 0.1737 0.1116

Mercury -109702-05-08 10:33 J -38347105.15 -38347105.06 -38347104.96 0.1775 0.1064

Mercury -109695-10-23 01:12 J -38344380.54 -38344380.45 -38344380.37 0.1801 0.1344

Mercury -109694-11-15 15:07 J -38343992.01 -38343991.87 -38343991.72 0.1732 0.0522

Mercury -109693-09-27 18:57 J -38343674.83 -38343674.71 -38343674.60 0.1780 0.0625

Venus -109690-02-07 04:33 J -38342812.33 -38342812.31 -38342812.28 0.1644 0.1619

Venus -109690-12-31 15:50 J -38342484.90 -38342484.84 -38342484.77 0.1860 0.1733

Venus -109689-12-07 13:12 J -38342143.12 -38342142.95 -38342142.78 0.1649 0.0033

Mercury -109684-04-06 17:31 J -38340561.92 -38340561.77 -38340561.62 0.1727 0.0065

Mercury -109683-02-18 02:52 J -38340244.50 -38340244.38 -38340244.26 0.1785 0.0166

Mercury -109675-08-27 20:24 J -38337131.79 -38337131.65 -38337131.51 0.1722 0.0619

Mercury -109674-07-11 10:48 J -38336814.18 -38336814.05 -38336813.93 0.1790 0.0309

Mercury -109672-06-16 02:24 J -38336108.46 -38336108.40 -38336108.34 0.1770 0.1533

Mercury -109665-01-17 23:45 J -38333701.62 -38333701.51 -38333701.40 0.1718 0.1149

Mercury -109665-11-30 18:00 J -38333383.86 -38333383.75 -38333383.63 0.1795 0.0795

Mercury -109664-12-24 13:40 J -38332995.04 -38332994.93 -38332994.82 0.1737 0.1177

Mercury -109663-11-06 10:48 J -38332678.15 -38332678.05 -38332677.96 0.1775 0.1108

Venus -109658-12-31 20:24 J -38330796.83 -38330796.65 -38330796.47 0.1865 0.0045

Venus -109657-12-06 03:36 J -38330456.50 -38330456.35 -38330456.20 0.1647 0.0760

Mercury -109656-06-09 03:21 J -38330271.39 -38330271.36 -38330271.33 0.1713 0.1663

Mercury -109655-04-23 01:12 J -38329953.53 -38329953.45 -38329953.36 0.1800 0.1297

Venus -109655-10-06 11:02 J -38329787.18 -38329787.04 -38329786.90 0.1653 0.0923

Mercury -109654-05-16 15:36 J -38329564.99 -38329564.85 -38329564.70 0.1732 0.0575

Mercury -109653-03-28 18:57 J -38329247.82 -38329247.71 -38329247.60 0.1780 0.0666

Moon -109651-07-17 15:21 J -38328406.98 -38328406.86 -38328406.74 0.1651 0.1228

Earth -109651-07-17 21:21 J -38328406.70 -38328406.61 -38328406.53 0.1651 0.1454

Mercury -109645-10-05 18:14 J -38326134.90 -38326134.74 -38326134.59 0.1727 0.0052

Mercury -109644-08-19 02:52 J -38325817.50 -38325817.38 -38325817.25 0.1785 0.0221

Mercury -109635-02-25 20:52 J -38322704.77 -38322704.63 -38322704.49 0.1722 0.0564

Mercury -109634-01-09 10:33 J -38322387.18 -38322387.06 -38322386.93 0.1790 0.0271
 Mercury -109633-12-15 02:24 J -38321681.45 -38321681.40 -38321681.35 0.1770 0.1572
 Mercury -109626-07-19 00:00 J -38319274.61 -38319274.50 -38319274.39 0.1717 0.1104
 Venus -109625-01-01 01:26 J -38319108.52 -38319108.44 -38319108.36 0.1869 0.1680
 Mercury -109625-05-31 18:14 J -38318956.85 -38318956.74 -38318956.62 0.1795 0.0745
 Venus -109625-12-04 18:00 J -38318769.81 -38318769.75 -38318769.70 0.1644 0.1541
 Mercury -109624-06-24 13:55 J -38318568.02 -38318567.92 -38318567.81 0.1737 0.1229
 Mercury -109623-05-07 10:48 J -38318251.14 -38318251.05 -38318250.96 0.1775 0.1147
 Venus -109623-10-05 02:09 J -38318100.58 -38318100.41 -38318100.25 0.1650 0.0125
 Mercury -109617-12-08 03:50 J -38315844.38 -38315844.34 -38315844.29 0.1713 0.1609
 Mercury -109616-10-22 01:26 J -38315526.53 -38315526.44 -38315526.35 0.1800 0.1247
 Mercury -109615-11-14 16:04 J -38315137.97 -38315137.83 -38315137.69 0.1732 0.0627
 Mercury -109614-09-27 19:12 J -38314820.81 -38314820.70 -38314820.59 0.1780 0.0713
 Mercury -109606-03-14 08:24 J -38312096.17 -38312096.15 -38312096.13 0.1805 0.1766
 Mercury -109605-04-05 18:28 J -38311707.88 -38311707.73 -38311707.58 0.1727 0.0060
 Mercury -109604-02-17 03:07 J -38311390.50 -38311390.37 -38311390.25 0.1785 0.0258
 Moon -109604-07-12 03:36 J -38311245.47 -38311245.35 -38311245.24 0.1657 0.1323
 Earth -109604-07-12 07:12 J -38311245.31 -38311245.20 -38311245.10 0.1656 0.1344 *
 Mercury -109596-08-26 21:21 J -38308277.75 -38308277.61 -38308277.47 0.1722 0.0509
 Mercury -109595-07-10 10:48 J -38307960.17 -38307960.05 -38307959.92 0.1790 0.0220
 Mercury -109593-06-15 02:24 J -38307254.44 -38307254.40 -38307254.35 0.1770 0.1614
 Venus -109592-10-27 22:19 J -38306754.75 -38306754.57 -38306754.39 0.1864 0.0346
 Venus -109591-10-03 16:33 J -38306413.97 -38306413.81 -38306413.66 0.1647 0.0675
 Venus -109589-08-03 00:00 J -38305744.63 -38305744.50 -38305744.36 0.1654 0.1016
 Mercury -109586-01-17 00:43 J -38304847.59 -38304847.47 -38304847.36 0.1717 0.1046
 Mercury -109586-11-30 18:14 J -38304529.85 -38304529.74 -38304529.62 0.1795 0.0704
 Mercury -109585-12-23 14:38 J -38304140.99 -38304140.89 -38304140.79 0.1737 0.1290
 Mercury -109584-11-05 11:02 J -38303824.13 -38303824.04 -38303823.95 0.1775 0.1192
 Mercury -109577-06-08 04:04 J -38301417.38 -38301417.33 -38301417.27 0.1713 0.1564
 Mercury -109576-04-22 01:26 J -38301099.53 -38301099.44 -38301099.34 0.1801 0.1206

Mercury -109575-05-15 16:33 J -38300710.95 -38300710.81 -38300710.67 0.1732 0.0683

Mercury -109574-03-28 19:12 J -38300393.82 -38300393.70 -38300393.59 0.1780 0.0752

Mercury -109567-09-12 08:38 J -38297669.17 -38297669.14 -38297669.10 0.1805 0.1712

Mercury -109566-10-05 18:57 J -38297280.86 -38297280.71 -38297280.56 0.1727 0.0102

Mercury -109565-08-18 03:07 J -38296963.49 -38296963.37 -38296963.24 0.1785 0.0307

Venus -109560-10-28 02:52 J -38295066.50 -38295066.38 -38295066.25 0.1868 0.1375

Venus -109559-10-02 06:43 J -38294727.29 -38294727.22 -38294727.14 0.1645 0.1458

Venus -109557-08-01 14:52 J -38294058.05 -38294057.88 -38294057.71 0.1651 0.0211

Mercury -109556-02-24 21:50 J -38293850.74 -38293850.59 -38293850.45 0.1722 0.0459

Mercury -109555-01-08 11:02 J -38293533.17 -38293533.04 -38293532.92 0.1790 0.0168

Mercury -109554-12-15 02:38 J -38292827.43 -38292827.39 -38292827.35 0.1770 0.1658

Mercury -109547-07-18 00:57 J -38290420.58 -38290420.46 -38290420.34 0.1717 0.0994

Mercury -109546-05-31 18:28 J -38290102.85 -38290102.73 -38290102.61 0.1795 0.0656

Mercury -109545-06-23 15:07 J -38289713.97 -38289713.87 -38289713.78 0.1737 0.1344

Mercury -109544-05-06 11:02 J -38289397.13 -38289397.04 -38289396.95 0.1775 0.1232

Mercury -109538-12-08 04:33 J -38286990.37 -38286990.31 -38286990.24 0.1713 0.1510

Mercury -109537-10-21 01:40 J -38286672.52 -38286672.43 -38286672.33 0.1800 0.1155

Mercury -109536-11-13 17:02 J -38286283.92 -38286283.79 -38286283.65 0.1732 0.0743

Mercury -109535-09-26 19:12 J -38285966.81 -38285966.70 -38285966.59 0.1780 0.0798

Mercury -109527-03-13 08:38 J -38283242.19 -38283242.14 -38283242.10 0.1805 0.1673

Mercury -109526-04-05 19:26 J -38282853.84 -38282853.69 -38282853.54 0.1727 0.0158

Venus -109526-08-24 23:31 J -38282712.69 -38282712.52 -38282712.35 0.1862 0.0657

Mercury -109525-02-17 03:21 J -38282536.49 -38282536.36 -38282536.24 0.1785 0.0345

Earth -109525-07-14 06:43 J -38282388.40 -38282388.22 -38282388.04 0.1655 0.0256

Moon -109525-07-14 09:50 J -38282388.28 -38282388.09 -38282387.90 0.1655 0.0315 *

Venus -109525-07-31 05:31 J -38282371.43 -38282371.27 -38282371.12 0.1648 0.0590

Venus -109523-05-31 12:43 J -38281702.09 -38281701.97 -38281701.84 0.1655 0.1112

Mercury -109517-08-25 22:19 J -38279423.72 -38279423.57 -38279423.43 0.1722 0.0404

Mercury -109516-07-09 11:02 J -38279106.16 -38279106.04 -38279105.91 0.1791 0.0128

Mercury -109514-06-15 02:38 J -38278400.42 -38278400.39 -38278400.36 0.1770 0.1694

Mercury -109507-01-16 01:12 J -38275993.57 -38275993.45 -38275993.32 0.1717 0.0948

Mercury -109507-11-29 18:43 J -38275675.84 -38275675.72 -38275675.60 0.1795 0.0607

Mercury -109506-12-23 15:36 J -38275286.94 -38275286.85 -38275286.76 0.1737 0.1400

Mercury -109505-11-04 11:02 J -38274970.12 -38274970.04 -38274969.95 0.1775 0.1275

Mercury -109498-06-08 05:02 J -38272563.37 -38272563.29 -38272563.22 0.1713 0.1459

Mercury -109497-04-21 01:55 J -38272245.52 -38272245.42 -38272245.33 0.1800 0.1111

Mercury -109496-05-14 17:16 J -38271856.91 -38271856.78 -38271856.64 0.1732 0.0792

Mercury -109495-03-27 19:26 J -38271539.80 -38271539.69 -38271539.58 0.1780 0.0840

Venus -109494-08-25 03:50 J -38271024.49 -38271024.34 -38271024.19 0.1867 0.1057

Venus -109493-07-29 19:55 J -38270684.76 -38270684.67 -38270684.58 0.1645 0.1381

Venus -109491-05-30 03:50 J -38270015.50 -38270015.34 -38270015.17 0.1652 0.0298

Mercury -109488-09-11 08:52 J -38268815.18 -38268815.13 -38268815.07 0.1805 0.1619

Mercury -109487-10-04 19:55 J -38268426.82 -38268426.67 -38268426.52 0.1727 0.0222

Mercury -109486-08-18 03:21 J -38268109.48 -38268109.36 -38268109.24 0.1785 0.0390

Mercury -109477-02-24 22:33 J -38264996.70 -38264996.56 -38264996.41 0.1722 0.0352

Mercury -109476-01-07 11:16 J -38264679.16 -38264679.03 -38264678.91 0.1790 0.0092

Mercury -109475-12-14 02:38 J -38263973.41 -38263973.39 -38263973.37 0.1770 0.1737

Mercury -109468-07-17 01:40 J -38261566.55 -38261566.43 -38261566.30 0.1717 0.0893

Mercury -109467-05-30 18:43 J -38261248.84 -38261248.72 -38261248.60 0.1795 0.0568

Mercury -109466-06-23 16:04 J -38260859.91 -38260859.83 -38260859.75 0.1737 0.1456

Mercury -109465-05-05 11:02 J -38260543.12 -38260543.04 -38260542.95 0.1775 0.1316

Venus -109460-06-21 01:12 J -38258670.60 -38258670.45 -38258670.29 0.1861 0.0962

Venus -109459-05-28 18:28 J -38258328.89 -38258328.73 -38258328.57 0.1649 0.0508

Mercury -109459-12-07 05:31 J -38258136.36 -38258136.27 -38258136.19 0.1713 0.1408

Mercury -109458-10-21 01:55 J -38257818.52 -38257818.42 -38257818.31 0.1801 0.1063

Venus -109457-03-28 01:40 J -38257659.55 -38257659.43 -38257659.32 0.1656 0.1205

Mercury -109457-11-12 18:00 J -38257429.88 -38257429.75 -38257429.61 0.1732 0.0855

Mercury -109456-09-25 19:26 J -38257112.80 -38257112.69 -38257112.58 0.1780 0.0880

Mercury -109448-03-12 09:07 J -38254388.18 -38254388.12 -38254388.06 0.1805 0.1571

Mercury -109447-04-04 20:09 J -38253999.81 -38253999.66 -38253999.51 0.1727 0.0265

Mercury -109446-02-16 03:36 J -38253682.47 -38253682.35 -38253682.23 0.1786 0.0433

Earth -109446-07-17 06:14 J -38253531.40 -38253531.24 -38253531.09 0.1653 0.0822

Moon -109446-07-17 12:28 J -38253531.12 -38253530.98 -38253530.84 0.1653 0.1060 *

Mercury -109438-08-25 23:02 J -38250569.69 -38250569.54 -38250569.39 0.1722 0.0298

Earth -109437-01-14 00:00 J -38250428.72 -38250428.50 -38250428.29 0.1860 0.0258

Moon -109437-01-14 09:50 J -38250428.30 -38250428.09 -38250427.88 0.1860 0.0193 *

Mercury -109437-07-08 11:16 J -38250252.15 -38250252.03 -38250251.90 0.1790 0.0060

Mercury -109428-01-15 02:24 J -38247139.53 -38247139.40 -38247139.27 0.1717 0.0835

Venus -109428-06-21 06:00 J -38246982.42 -38246982.25 -38246982.09 0.1866 0.0760

Mercury -109428-11-28 18:57 J -38246821.83 -38246821.71 -38246821.59 0.1796 0.0520

Venus -109427-05-27 08:52 J -38246642.23 -38246642.13 -38246642.03 0.1646 0.1299

Mercury -109427-12-22 16:33 J -38246432.88 -38246432.81 -38246432.73 0.1737 0.1519

Mercury -109426-11-04 11:16 J -38246116.11 -38246116.03 -38246115.95 0.1775 0.1359

Venus -109425-03-26 16:33 J -38245972.97 -38245972.81 -38245972.65 0.1653 0.0390

Mercury -109419-06-07 05:45 J -38243709.35 -38243709.26 -38243709.17 0.1713 0.1358

Mercury -109418-04-21 02:09 J -38243391.51 -38243391.41 -38243391.31 0.1800 0.1016

Mercury -109417-05-13 18:28 J -38243002.86 -38243002.73 -38243002.60 0.1732 0.0907

Mercury -109416-03-26 19:26 J -38242685.79 -38242685.69 -38242685.58 0.1780 0.0924

Mercury -109409-09-10 09:07 J -38239961.18 -38239961.12 -38239961.05 0.1806 0.1528

Mercury -109408-10-03 20:52 J -38239572.78 -38239572.63 -38239572.48 0.1727 0.0324

Mercury -109407-08-17 03:36 J -38239255.47 -38239255.35 -38239255.23 0.1785 0.0473

Mercury -109398-02-23 23:31 J -38236142.67 -38236142.52 -38236142.37 0.1722 0.0243

Mercury -109397-01-07 11:16 J -38235825.15 -38235825.03 -38235824.90 0.1791 0.0052

Venus -109394-04-18 03:07 J -38234628.50 -38234628.37 -38234628.24 0.1859 0.1263

Venus -109393-03-25 07:26 J -38234286.36 -38234286.19 -38234286.03 0.1650 0.0419

Venus -109391-01-23 14:09 J -38233617.01 -38233616.91 -38233616.81 0.1657 0.1306

Mercury -109389-07-16 02:24 J -38232712.53 -38232712.40 -38232712.26 0.1717 0.0792

Mercury -109388-05-29 18:57 J -38232394.83 -38232394.71 -38232394.58 0.1796 0.0473

Mercury -109387-06-22 17:02 J -38232005.86 -38232005.79 -38232005.73 0.1737 0.1568

Mercury -109386-05-05 11:16 J -38231689.10 -38231689.03 -38231688.95 0.1775 0.1398

Mercury -109380-12-06 06:14 J -38229282.33 -38229282.24 -38229282.14 0.1713 0.1304

Mercury -109379-10-20 02:24 J -38228964.51 -38228964.40 -38228964.30 0.1800 0.0969

Mercury -109378-11-12 18:57 J -38228575.84 -38228575.71 -38228575.59 0.1732 0.0961

Mercury -109377-09-24 19:40 J -38228258.78 -38228258.68 -38228258.58 0.1780 0.0969

Mercury -109369-03-11 09:21 J -38225534.18 -38225534.11 -38225534.04 0.1805 0.1480

Mercury -109368-04-03 21:21 J -38225145.76 -38225145.61 -38225145.46 0.1727 0.0379

Mercury -109367-02-15 03:36 J -38224828.47 -38224828.35 -38224828.23 0.1785 0.0517

Venus -109362-04-18 07:12 J -38222940.38 -38222940.20 -38222940.02 0.1864 0.0446

Venus -109361-03-23 21:50 J -38222599.70 -38222599.59 -38222599.48 0.1647 0.1219

Venus -109359-01-22 05:31 J -38221930.43 -38221930.27 -38221930.11 0.1654 0.0485

Mercury -109359-08-25 00:00 J -38221715.65 -38221715.50 -38221715.35 0.1722 0.0189

Mercury -109358-07-08 11:31 J -38221398.14 -38221398.02 -38221397.89 0.1790 0.0069

Mercury -109349-01-15 03:07 J -38218285.51 -38218285.37 -38218285.24 0.1717 0.0732

Mercury -109349-11-27 18:57 J -38217967.83 -38217967.71 -38217967.58 0.1796 0.0433

Mercury -109348-12-21 17:31 J -38217578.82 -38217578.77 -38217578.72 0.1737 0.1629

Mercury -109347-11-03 11:31 J -38217262.09 -38217262.02 -38217261.95 0.1775 0.1441

Mercury -109340-06-06 06:28 J -38214855.33 -38214855.23 -38214855.13 0.1712 0.1259

Mercury -109339-04-20 02:24 J -38214537.51 -38214537.40 -38214537.29 0.1801 0.0925

Mercury -109338-05-13 19:26 J -38214148.82 -38214148.69 -38214148.57 0.1732 0.1017

Mercury -109337-03-25 19:40 J -38213831.78 -38213831.68 -38213831.58 0.1780 0.1005

Mercury -109330-09-10 09:36 J -38211107.18 -38211107.10 -38211107.02 0.1805 0.1426

Mercury -109329-10-02 21:36 J -38210718.74 -38210718.60 -38210718.45 0.1727 0.0430

Venus -109328-02-12 04:33 J -38210586.40 -38210586.31 -38210586.21 0.1858 0.1575

Mercury -109328-08-16 03:50 J -38210401.46 -38210401.34 -38210401.22 0.1785 0.0564

Venus -109327-01-20 20:24 J -38210243.81 -38210243.65 -38210243.48 0.1650 0.0332

Venus -109326-11-21 02:52 J -38209574.46 -38209574.38 -38209574.29 0.1659 0.1405

Moon -109320-07-13 13:55 J -38207513.07 -38207512.92 -38207512.77 0.1658 0.0787

Earth -109320-07-13 14:38 J -38207513.04 -38207512.89 -38207512.74 0.1658 0.0902 *

Mercury -109319-02-23 00:28 J -38207288.63 -38207288.48 -38207288.33 0.1722 0.0141

Mercury -109318-01-06 11:45 J -38206971.14 -38206971.01 -38206970.89 0.1790 0.0105

Mercury -109310-07-16 03:21 J -38203858.49 -38203858.36 -38203858.22 0.1717 0.0684
 Mercury -109309-05-28 19:12 J -38203540.82 -38203540.70 -38203540.58 0.1796 0.0383
 Mercury -109308-06-21 18:00 J -38203151.78 -38203151.75 -38203151.71 0.1737 0.1684
 Mercury -109307-05-04 11:31 J -38202835.09 -38202835.02 -38202834.96 0.1775 0.1480
 Mercury -109301-12-05 06:57 J -38200428.31 -38200428.21 -38200428.10 0.1713 0.1203
 Mercury -109300-10-19 02:38 J -38200110.50 -38200110.39 -38200110.28 0.1800 0.0874
 Mercury -109299-11-11 19:55 J -38199721.79 -38199721.67 -38199721.55 0.1732 0.1078
 Mercury -109298-09-24 19:55 J -38199404.77 -38199404.67 -38199404.57 0.1780 0.1053
 Venus -109296-02-12 09:21 J -38198898.29 -38198898.11 -38198897.93 0.1863 0.0147
 Venus -109295-01-19 10:48 J -38198557.17 -38198557.05 -38198556.93 0.1647 0.1134
 Venus -109294-11-19 18:14 J -38197887.90 -38197887.74 -38197887.58 0.1655 0.0578
 Mercury -109291-04-27 10:48 J -38196998.05 -38196998.05 -38196998.04 0.1708 0.1706
 Mercury -109290-03-11 09:36 J -38196680.18 -38196680.10 -38196680.02 0.1806 0.1388
 Mercury -109289-04-02 22:04 J -38196291.72 -38196291.58 -38196291.43 0.1727 0.0488
 Mercury -109288-02-14 03:50 J -38195974.45 -38195974.34 -38195974.22 0.1785 0.0604
 Mercury -109280-08-24 00:43 J -38192861.62 -38192861.47 -38192861.32 0.1722 0.0095
 Mercury -109279-07-07 11:45 J -38192544.14 -38192544.01 -38192543.89 0.1791 0.0142
 Mercury -109270-01-14 03:50 J -38189431.48 -38189431.34 -38189431.20 0.1717 0.0633
 Mercury -109270-11-27 19:26 J -38189113.81 -38189113.69 -38189113.57 0.1796 0.0332
 Mercury -109268-11-02 11:31 J -38188408.08 -38188408.02 -38188407.96 0.1775 0.1524
 Venus -109262-11-18 09:07 J -38186201.29 -38186201.12 -38186200.96 0.1651 0.0240
 Mercury -109261-06-05 07:26 J -38186001.30 -38186001.19 -38186001.08 0.1713 0.1152
 Mercury -109260-04-19 02:38 J -38185683.50 -38185683.39 -38185683.28 0.1801 0.0830
 Venus -109260-09-17 15:07 J -38185531.94 -38185531.87 -38185531.80 0.1660 0.1511
 Mercury -109259-05-12 20:09 J -38185294.77 -38185294.66 -38185294.54 0.1732 0.1128
 Mercury -109258-03-25 19:55 J -38184977.76 -38184977.67 -38184977.57 0.1780 0.1096
 Mercury -109252-10-26 11:16 J -38182571.06 -38182571.03 -38182570.99 0.1708 0.1653
 Mercury -109251-09-09 09:50 J -38182253.17 -38182253.09 -38182253.01 0.1805 0.1334
 Mercury -109250-10-02 22:48 J -38181864.70 -38181864.55 -38181864.41 0.1727 0.0545
 Mercury -109249-08-15 04:04 J -38181547.45 -38181547.33 -38181547.22 0.1785 0.0649

Moon -109241-07-15 08:52 J -38178656.30 -38178656.13 -38178655.95 0.1657 0.0086
 Earth -109241-07-15 14:09 J -38178656.09 -38178655.91 -38178655.73 0.1657 0.0183 *
 Mercury -109240-02-22 01:12 J -38178434.60 -38178434.45 -38178434.30 0.1722 0.0042
 Mercury -109239-01-05 12:00 J -38178117.13 -38178117.00 -38178116.88 0.1790 0.0197
 Mercury -109231-07-15 04:19 J -38175004.46 -38175004.32 -38175004.18 0.1717 0.0577
 Venus -109231-12-10 10:19 J -38174856.26 -38174856.07 -38174855.89 0.1862 0.0176
 Mercury -109230-05-28 19:26 J -38174686.81 -38174686.69 -38174686.57 0.1796 0.0293
 Venus -109230-11-16 23:45 J -38174514.64 -38174514.51 -38174514.39 0.1648 0.1050
 Mercury -109228-05-03 11:45 J -38173981.07 -38173981.01 -38173980.96 0.1775 0.1564
 Venus -109228-09-16 06:43 J -38173845.38 -38173845.22 -38173845.07 0.1656 0.0678
 Mercury -109222-12-05 07:40 J -38171574.29 -38171574.18 -38171574.06 0.1713 0.1104
 Mercury -109221-10-18 02:52 J -38171256.49 -38171256.38 -38171256.27 0.1801 0.0781
 Mercury -109220-11-10 20:52 J -38170867.74 -38170867.63 -38170867.52 0.1732 0.1189
 Mercury -109219-09-23 19:55 J -38170550.76 -38170550.67 -38170550.57 0.1780 0.1136
 Mercury -109212-04-26 11:31 J -38168144.07 -38168144.02 -38168143.97 0.1708 0.1610
 Mercury -109211-03-10 10:04 J -38167826.17 -38167826.08 -38167826.00 0.1805 0.1289
 Mercury -109210-04-02 23:02 J -38167437.69 -38167437.54 -38167437.40 0.1727 0.0591
 Mercury -109209-02-14 04:04 J -38167120.44 -38167120.33 -38167120.21 0.1786 0.0693
 Mercury -109201-08-23 01:40 J -38164007.58 -38164007.43 -38164007.28 0.1722 0.0030
 Mercury -109200-07-06 12:00 J -38163690.12 -38163690.00 -38163689.88 0.1790 0.0233
 Venus -109199-12-10 14:38 J -38163167.98 -38163167.89 -38163167.79 0.1867 0.1575
 Venus -109196-09-14 21:50 J -38162158.76 -38162158.59 -38162158.42 0.1652 0.0150
 Venus -109194-07-16 03:50 J -38161489.38 -38161489.34 -38161489.30 0.1661 0.1613
 Mercury -109191-01-13 04:48 J -38160577.44 -38160577.30 -38160577.15 0.1717 0.0521
 Mercury -109191-11-26 19:40 J -38160259.81 -38160259.68 -38160259.56 0.1796 0.0244
 Mercury -109189-11-01 11:45 J -38159554.06 -38159554.01 -38159553.96 0.1775 0.1607
 Mercury -109182-06-05 08:09 J -38157147.28 -38157147.16 -38157147.04 0.1713 0.1052
 Mercury -109181-04-18 02:52 J -38156829.49 -38156829.38 -38156829.26 0.1801 0.0739
 Mercury -109180-05-11 21:21 J -38156440.72 -38156440.61 -38156440.51 0.1732 0.1241
 Mercury -109179-03-24 20:09 J -38156123.75 -38156123.66 -38156123.57 0.1780 0.1177

Mercury -109173-10-25 12:00 J -38153717.06 -38153717.00 -38153716.94 0.1708 0.1555

Mercury -109172-09-08 10:04 J -38153399.17 -38153399.08 -38153398.99 0.1806 0.1244

Mercury -109171-10-01 23:31 J -38153010.66 -38153010.52 -38153010.38 0.1727 0.0653

Mercury -109170-08-15 04:19 J -38152693.44 -38152693.32 -38152693.21 0.1785 0.0736

Venus -109165-10-06 12:28 J -38150814.15 -38150813.98 -38150813.80 0.1860 0.0472

Venus -109164-09-13 12:28 J -38150472.11 -38150471.98 -38150471.84 0.1649 0.0963

Mercury -109162-01-29 17:02 J -38149968.82 -38149968.79 -38149968.77 0.1811 0.1762

Venus -109162-07-14 19:40 J -38149802.83 -38149802.68 -38149802.53 0.1657 0.0772

Moon -109162-07-18 08:09 J -38149799.26 -38149799.16 -38149799.06 0.1655 0.1395

Earth -109162-07-18 14:09 J -38149799.03 -38149798.91 -38149798.79 0.1655 0.1253

Mercury -109161-02-22 02:09 J -38149580.56 -38149580.41 -38149580.26 0.1722 0.0081

Mercury -109160-01-04 12:00 J -38149263.12 -38149263.00 -38149262.87 0.1791 0.0279

Moon -109153-01-12 08:09 J -38146699.33 -38146699.16 -38146699.00 0.1856 0.1243

Earth -109153-01-12 18:00 J -38146698.94 -38146698.75 -38146698.55 0.1856 0.0774

Mercury -109152-07-14 05:02 J -38146150.43 -38146150.29 -38146150.15 0.1717 0.0477

Mercury -109151-05-27 19:55 J -38145832.80 -38145832.67 -38145832.55 0.1796 0.0208

Mercury -109149-05-02 11:45 J -38145127.05 -38145127.01 -38145126.97 0.1775 0.1645

Mercury -109143-12-04 08:38 J -38142720.26 -38142720.14 -38142720.02 0.1713 0.0997

Mercury -109142-10-18 03:07 J -38142402.49 -38142402.37 -38142402.25 0.1801 0.0690

Mercury -109141-11-09 21:50 J -38142013.69 -38142013.59 -38142013.49 0.1732 0.1297

Mercury -109140-09-22 20:09 J -38141696.74 -38141696.66 -38141696.57 0.1780 0.1225

Mercury -109133-04-25 12:28 J -38139290.05 -38139289.98 -38139289.91 0.1708 0.1505

Venus -109133-10-06 16:33 J -38139125.94 -38139125.81 -38139125.68 0.1865 0.1266

Mercury -109132-03-09 10:19 J -38138972.17 -38138972.07 -38138971.98 0.1806 0.1197

Mercury -109131-04-02 00:14 J -38138583.63 -38138583.49 -38138583.36 0.1727 0.0710

Mercury -109130-02-13 04:19 J -38138266.43 -38138266.32 -38138266.21 0.1785 0.0777

Venus -109130-07-13 10:48 J -38138116.22 -38138116.05 -38138115.89 0.1653 0.0065

Mercury -109123-07-30 17:02 J -38135541.82 -38135541.79 -38135541.75 0.1810 0.1716

Mercury -109122-08-23 02:38 J -38135153.54 -38135153.39 -38135153.24 0.1722 0.0133

Mercury -109121-07-05 12:14 J -38134836.11 -38134835.99 -38134835.87 0.1790 0.0321

Earth -109115-07-12 22:04 J -38132637.64 -38132637.58 -38132637.52 0.1662 0.1554
 Mercury -109112-01-12 05:31 J -38131723.41 -38131723.27 -38131723.12 0.1717 0.0421
 Mercury -109112-11-25 19:55 J -38131405.80 -38131405.67 -38131405.55 0.1796 0.0166
 Mercury -109110-11-01 12:00 J -38130700.04 -38130700.00 -38130699.97 0.1775 0.1688
 Mercury -109103-06-04 08:52 J -38128293.25 -38128293.13 -38128293.00 0.1712 0.0951
 Mercury -109102-04-18 03:07 J -38127975.48 -38127975.37 -38127975.25 0.1801 0.0649
 Mercury -109101-05-10 22:19 J -38127586.66 -38127586.57 -38127586.47 0.1732 0.1354
 Mercury -109100-03-23 20:09 J -38127269.74 -38127269.66 -38127269.57 0.1780 0.1260
 Venus -109099-08-03 14:09 J -38126772.07 -38126771.91 -38126771.74 0.1858 0.0782
 Venus -109098-07-12 01:40 J -38126429.57 -38126429.43 -38126429.29 0.1650 0.0879
 Venus -109096-05-11 08:24 J -38125760.29 -38125760.15 -38125760.01 0.1658 0.0873
 Mercury -109094-10-25 12:43 J -38124863.04 -38124862.97 -38124862.89 0.1708 0.1456
 Mercury -109093-09-07 10:33 J -38124545.16 -38124545.06 -38124544.96 0.1805 0.1143
 Mercury -109092-10-01 00:28 J -38124156.62 -38124156.48 -38124156.34 0.1727 0.0758
 Mercury -109091-08-14 04:33 J -38123839.42 -38123839.31 -38123839.20 0.1786 0.0824
 Mercury -109083-01-28 17:16 J -38121114.83 -38121114.78 -38121114.74 0.1811 0.1669
 Mercury -109082-02-21 03:07 J -38120726.52 -38120726.37 -38120726.22 0.1722 0.0189
 Mercury -109081-01-04 12:14 J -38120409.11 -38120408.99 -38120408.86 0.1790 0.0369
 Mercury -109073-07-13 06:00 J -38117296.39 -38117296.25 -38117296.10 0.1717 0.0367
 Mercury -109072-05-26 19:55 J -38116978.79 -38116978.67 -38116978.54 0.1796 0.0114
 Mercury -109070-05-02 12:00 J -38116273.03 -38116273.00 -38116272.98 0.1775 0.1727
 Venus -109067-08-03 17:45 J -38115083.92 -38115083.76 -38115083.60 0.1864 0.0948
 Venus -109064-05-09 23:45 J -38114073.68 -38114073.51 -38114073.34 0.1654 0.0039
 Mercury -109064-12-03 09:36 J -38113866.23 -38113866.10 -38113865.98 0.1713 0.0895
 Mercury -109063-10-17 03:21 J -38113548.47 -38113548.36 -38113548.24 0.1801 0.0598
 Mercury -109062-11-09 23:02 J -38113159.63 -38113159.54 -38113159.46 0.1732 0.1415
 Mercury -109061-09-21 20:24 J -38112842.73 -38112842.65 -38112842.57 0.1780 0.1306
 Mercury -109054-04-25 13:12 J -38110436.03 -38110435.95 -38110435.87 0.1708 0.1406
 Mercury -109053-03-08 10:33 J -38110118.16 -38110118.06 -38110117.96 0.1806 0.1106
 Mercury -109052-04-01 00:57 J -38109729.59 -38109729.46 -38109729.33 0.1727 0.0815

Mercury -109051-02-12 04:33 J -38109412.42 -38109412.31 -38109412.21 0.1785 0.0863

Mercury -109044-07-29 17:31 J -38106687.82 -38106687.77 -38106687.71 0.1811 0.1616

Mercury -109043-08-22 03:36 J -38106299.50 -38106299.35 -38106299.20 0.1722 0.0244

Mercury -109042-07-05 12:28 J -38105982.10 -38105981.98 -38105981.86 0.1791 0.0408

Earth -109036-07-14 22:04 J -38103780.76 -38103780.58 -38103780.41 0.1661 0.0469

Moon -109036-07-15 01:26 J -38103780.62 -38103780.44 -38103780.25 0.1660 0.0226 *

Mercury -109033-01-12 06:28 J -38102869.38 -38102869.23 -38102869.08 0.1717 0.0316

Venus -109033-05-30 16:19 J -38102729.97 -38102729.82 -38102729.68 0.1857 0.1088

Mercury -109033-11-24 20:09 J -38102551.78 -38102551.66 -38102551.53 0.1796 0.0074

Venus -109032-05-08 14:38 J -38102387.04 -38102386.89 -38102386.74 0.1651 0.0793

Mercury -109031-10-31 12:14 J -38101846.00 -38101845.99 -38101845.99 0.1775 0.1772

Venus -109030-03-08 20:52 J -38101717.76 -38101717.63 -38101717.49 0.1659 0.0972

Mercury -109024-06-03 09:50 J -38099439.22 -38099439.09 -38099438.96 0.1713 0.0843

Mercury -109023-04-17 03:36 J -38099121.47 -38099121.35 -38099121.23 0.1801 0.0555

Mercury -109022-05-10 23:16 J -38098732.61 -38098732.53 -38098732.45 0.1732 0.1464

Mercury -109021-03-22 20:24 J -38098415.72 -38098415.65 -38098415.57 0.1780 0.1349

Mercury -109015-10-24 13:40 J -38096009.02 -38096008.93 -38096008.84 0.1708 0.1353

Mercury -109014-09-07 10:48 J -38095691.15 -38095691.05 -38095690.95 0.1806 0.1053

Mercury -109013-09-30 01:26 J -38095302.57 -38095302.44 -38095302.30 0.1727 0.0876

Mercury -109012-08-13 04:33 J -38094985.41 -38094985.31 -38094985.20 0.1785 0.0909

Mercury -109004-01-27 17:31 J -38092260.83 -38092260.77 -38092260.71 0.1811 0.1574

Mercury -109003-02-20 04:04 J -38091872.48 -38091872.33 -38091872.18 0.1722 0.0298

Mercury -109002-01-03 12:28 J -38091555.10 -38091554.98 -38091554.86 0.1791 0.0456

Venus -109001-05-30 19:55 J -38091041.84 -38091041.67 -38091041.50 0.1862 0.0648

109TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 109th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Venus | -109000-05-07 05:02 J | -38090700.32 | -38090700.29 | -38090700.25 | 0.1648 | 0.1605 | | |
| Venus | -108998-03-07 12:14 J | -38090031.16 | -38090030.99 | -38090030.82 | 0.1655 | 0.0131 | | |
| Mercury | -108994-07-13 06:57 J | -38088442.36 | -38088442.21 | -38088442.06 | 0.1717 | 0.0260 | | |
| Mercury | -108993-05-25 20:09 J | -38088124.78 | -38088124.66 | -38088124.53 | 0.1796 | 0.0033 | | |
| Mercury | -108985-12-02 10:19 J | -38085012.20 | -38085012.07 | -38085011.94 | 0.1712 | 0.0795 | | |
| Mercury | -108984-10-16 03:36 J | -38084694.47 | -38084694.35 | -38084694.22 | 0.1801 | 0.0509 | | |
| Mercury | -108983-11-09 00:00 J | -38084305.57 | -38084305.50 | -38084305.43 | 0.1732 | 0.1525 | | |
| Mercury | -108982-09-21 20:38 J | -38083988.72 | -38083988.64 | -38083988.57 | 0.1780 | 0.1388 | | |
| Mercury | -108975-04-24 13:55 J | -38081582.01 | -38081581.92 | -38081581.83 | 0.1708 | 0.1307 | | |
| Mercury | -108974-03-08 10:48 J | -38081264.15 | -38081264.05 | -38081263.94 | 0.1806 | 0.1007 | | |
| Mercury | -108973-03-31 01:55 J | -38080875.55 | -38080875.42 | -38080875.30 | 0.1727 | 0.0922 | | |
| Mercury | -108972-02-11 04:48 J | -38080558.40 | -38080558.30 | -38080558.20 | 0.1786 | 0.0951 | | |
| Venus | -108967-03-27 18:14 J | -38078687.86 | -38078687.74 | -38078687.62 | 0.1855 | 0.1391 | | |
| Venus | -108966-03-06 03:07 J | -38078344.52 | -38078344.37 | -38078344.21 | 0.1652 | 0.0702 | | |
| Mercury | -108965-07-28 17:45 J | -38077833.82 | -38077833.76 | -38077833.69 | 0.1811 | 0.1522 | | |
| Venus | -108964-01-03 09:21 J | -38077675.23 | -38077675.11 | -38077674.98 | 0.1661 | 0.1076 | | |
| Mercury | -108964-08-21 04:33 J | -38077445.46 | -38077445.31 | -38077445.17 | 0.1722 | 0.0353 | | |
| Mercury | -108963-07-04 12:43 J | -38077128.09 | -38077127.97 | -38077127.85 | 0.1790 | 0.0498 | | |
| Earth | -108957-07-16 21:50 J | -38074923.76 | -38074923.59 | -38074923.42 | 0.1659 | 0.0618 | | |
| Moon | -108957-07-17 03:50 J | -38074923.51 | -38074923.34 | -38074923.17 | 0.1659 | 0.0483 | * | |
| Mercury | -108954-01-11 07:26 J | -38074015.34 | -38074015.19 | -38074015.04 | 0.1717 | 0.0204 | | |
| Mercury | -108954-11-24 20:24 J | -38073697.77 | -38073697.65 | -38073697.52 | 0.1796 | 0.0028 | | |

Mercury -108945-06-02 10:33 J -38070585.19 -38070585.06 -38070584.92 0.1713 0.0743
 Mercury -108944-04-16 03:50 J -38070267.46 -38070267.34 -38070267.22 0.1801 0.0463
 Mercury -108943-05-10 00:14 J -38069878.55 -38069878.49 -38069878.43 0.1732 0.1580
 Mercury -108942-03-22 20:38 J -38069561.71 -38069561.64 -38069561.57 0.1780 0.1429
 Mercury -108936-10-23 14:24 J -38067155.00 -38067154.90 -38067154.80 0.1708 0.1252
 Venus -108935-03-27 21:21 J -38066999.79 -38066999.61 -38066999.43 0.1861 0.0333
 Mercury -108935-09-06 11:02 J -38066837.15 -38066837.04 -38066836.94 0.1806 0.0961
 Venus -108934-03-04 18:00 J -38066657.81 -38066657.75 -38066657.69 0.1649 0.1522
 Mercury -108934-09-30 02:24 J -38066448.52 -38066448.40 -38066448.27 0.1727 0.0985
 Mercury -108933-08-12 04:48 J -38066131.40 -38066131.30 -38066131.20 0.1785 0.0994
 Venus -108932-01-02 00:57 J -38065988.62 -38065988.46 -38065988.29 0.1657 0.0229
 Mercury -108925-01-27 18:00 J -38063406.82 -38063406.75 -38063406.68 0.1811 0.1473
 Mercury -108924-02-19 05:02 J -38063018.44 -38063018.29 -38063018.15 0.1722 0.0406
 Mercury -108923-01-02 12:43 J -38062701.09 -38062700.97 -38062700.85 0.1791 0.0541
 Mercury -108915-07-12 07:40 J -38059588.33 -38059588.18 -38059588.03 0.1717 0.0160
 Mercury -108914-05-25 20:38 J -38059270.77 -38059270.64 -38059270.52 0.1796 0.0085
 Mercury -108906-12-02 11:16 J -38056158.17 -38056158.03 -38056157.89 0.1713 0.0684
 Mercury -108905-10-15 04:04 J -38055840.46 -38055840.33 -38055840.21 0.1801 0.0417
 Mercury -108904-11-08 00:57 J -38055451.51 -38055451.46 -38055451.42 0.1732 0.1638
 Mercury -108903-09-20 20:52 J -38055134.70 -38055134.63 -38055134.56 0.1780 0.1475
 Venus -108901-01-22 20:09 J -38054645.73 -38054645.66 -38054645.59 0.1853 0.1702
 Venus -108901-12-31 16:19 J -38054301.97 -38054301.82 -38054301.66 0.1653 0.0614
 Venus -108899-10-31 22:04 J -38053632.69 -38053632.58 -38053632.46 0.1662 0.1178
 Mercury -108896-04-23 14:52 J -38052727.99 -38052727.88 -38052727.78 0.1708 0.1202
 Mercury -108895-03-07 11:16 J -38052410.14 -38052410.03 -38052409.93 0.1806 0.0914
 Mercury -108894-03-31 03:07 J -38052021.50 -38052021.37 -38052021.25 0.1727 0.1041
 Mercury -108893-02-11 05:02 J -38051704.39 -38051704.29 -38051704.19 0.1786 0.1037
 Mercury -108887-09-13 18:57 J -38049297.72 -38049297.71 -38049297.70 0.1703 0.1695
 Mercury -108886-07-28 18:00 J -38048979.82 -38048979.75 -38048979.67 0.1811 0.1429
 Mercury -108885-08-20 05:16 J -38048591.42 -38048591.28 -38048591.13 0.1722 0.0458

Mercury -108884-07-03 12:57 J -38048274.08 -38048273.96 -38048273.84 0.1791 0.0584

Mercury -108875-01-10 08:24 J -38045161.30 -38045161.15 -38045161.00 0.1717 0.0105

Mercury -108875-11-23 20:38 J -38044843.77 -38044843.64 -38044843.52 0.1796 0.0117

Earth -108869-01-11 13:55 J -38042968.99 -38042968.92 -38042968.84 0.1851 0.1711

Moon -108869-01-11 23:31 J -38042968.64 -38042968.52 -38042968.39 0.1851 0.1447

Venus -108869-01-23 00:00 J -38042957.68 -38042957.50 -38042957.32 0.1859 0.0029

Venus -108869-12-30 06:57 J -38042615.29 -38042615.21 -38042615.13 0.1649 0.1437

Venus -108867-10-30 13:40 J -38041946.09 -38041945.93 -38041945.76 0.1658 0.0327

Mercury -108866-06-02 11:31 J -38041731.16 -38041731.02 -38041730.88 0.1712 0.0640

Mercury -108865-04-15 04:04 J -38041413.45 -38041413.33 -38041413.21 0.1801 0.0368

Mercury -108864-05-09 01:26 J -38041024.47 -38041024.44 -38041024.41 0.1732 0.1693

Mercury -108863-03-21 20:52 J -38040707.69 -38040707.63 -38040707.57 0.1781 0.1512

Mercury -108857-10-22 15:07 J -38038300.97 -38038300.87 -38038300.76 0.1708 0.1153

Mercury -108856-09-05 11:31 J -38037983.14 -38037983.02 -38037982.91 0.1806 0.0864

Mercury -108855-09-29 03:21 J -38037594.48 -38037594.36 -38037594.24 0.1727 0.1089

Mercury -108854-08-12 05:02 J -38037277.38 -38037277.29 -38037277.19 0.1786 0.1084

Mercury -108847-03-14 19:12 J -38034870.73 -38034870.70 -38034870.66 0.1703 0.1646

Mercury -108846-01-26 18:14 J -38034552.82 -38034552.74 -38034552.66 0.1811 0.1382

Mercury -108845-02-19 05:45 J -38034164.40 -38034164.26 -38034164.11 0.1722 0.0518

Mercury -108844-01-01 12:57 J -38033847.07 -38033846.96 -38033846.84 0.1790 0.0629

Venus -108837-01-23 04:04 J -38031269.38 -38031269.33 -38031269.29 0.1865 0.1799

Mercury -108836-07-11 08:38 J -38030734.29 -38030734.14 -38030733.98 0.1717 0.0068

Mercury -108835-05-24 20:52 J -38030416.76 -38030416.63 -38030416.51 0.1796 0.0174

Venus -108835-10-29 05:02 J -38030259.45 -38030259.29 -38030259.13 0.1654 0.0517

Venus -108833-08-28 10:33 J -38029590.17 -38029590.06 -38029589.96 0.1663 0.1285

Moon -108831-07-14 04:33 J -38028905.41 -38028905.31 -38028905.21 0.1665 0.1328

Earth -108831-07-14 05:31 J -38028905.40 -38028905.27 -38028905.14 0.1665 0.1111 *

Mercury -108827-12-01 12:00 J -38027304.14 -38027304.00 -38027303.86 0.1713 0.0582

Mercury -108826-10-15 04:19 J -38026986.44 -38026986.32 -38026986.20 0.1801 0.0321

Mercury -108824-09-19 20:52 J -38026280.68 -38026280.63 -38026280.57 0.1780 0.1559

Mercury -108817-04-22 15:36 J -38023873.96 -38023873.85 -38023873.74 0.1708 0.1103

Mercury -108816-03-06 11:16 J -38023556.14 -38023556.03 -38023555.91 0.1806 0.0825

Mercury -108815-03-30 03:50 J -38023167.45 -38023167.34 -38023167.23 0.1727 0.1148

Mercury -108814-02-10 05:02 J -38022850.38 -38022850.29 -38022850.19 0.1786 0.1120

Mercury -108808-09-12 19:40 J -38020443.73 -38020443.68 -38020443.64 0.1703 0.1599

Mercury -108807-07-27 18:28 J -38020125.81 -38020125.73 -38020125.64 0.1811 0.1329

Mercury -108806-08-20 06:14 J -38019737.38 -38019737.24 -38019737.09 0.1722 0.0566

Mercury -108805-07-02 13:12 J -38019420.07 -38019419.95 -38019419.84 0.1791 0.0672

Venus -108804-11-19 01:26 J -38018915.62 -38018915.44 -38018915.26 0.1857 0.0292

Venus -108803-10-27 19:40 J -38018572.77 -38018572.68 -38018572.58 0.1650 0.1351

Venus -108801-08-27 02:24 J -38017903.57 -38017903.40 -38017903.24 0.1659 0.0426

Mercury -108796-01-09 09:07 J -38016307.27 -38016307.12 -38016306.97 0.1717 0.0006

Mercury -108796-11-22 21:07 J -38015989.75 -38015989.62 -38015989.50 0.1796 0.0217

Moon -108790-01-15 08:52 J -38014110.27 -38014110.13 -38014109.98 0.1855 0.1239

Earth -108790-01-15 10:19 J -38014110.21 -38014110.07 -38014109.93 0.1855 0.1412 *

Mercury -108787-06-01 12:28 J -38012877.12 -38012876.98 -38012876.84 0.1713 0.0532

Mercury -108786-04-15 04:19 J -38012559.44 -38012559.32 -38012559.20 0.1801 0.0278

Mercury -108784-03-20 21:07 J -38011853.67 -38011853.62 -38011853.57 0.1780 0.1598

Mercury -108778-10-22 16:04 J -38009446.94 -38009446.83 -38009446.71 0.1708 0.1048

Mercury -108777-09-04 11:45 J -38009129.13 -38009129.01 -38009128.90 0.1806 0.0772

Mercury -108776-09-28 04:33 J -38008740.42 -38008740.31 -38008740.20 0.1727 0.1208

Mercury -108775-08-11 05:16 J -38008423.37 -38008423.28 -38008423.19 0.1785 0.1165

Venus -108772-11-19 05:02 J -38007227.40 -38007227.29 -38007227.18 0.1863 0.1473

Venus -108769-08-25 17:45 J -38006216.92 -38006216.76 -38006216.59 0.1655 0.0427

Mercury -108768-03-13 20:09 J -38006016.72 -38006016.66 -38006016.60 0.1703 0.1546

Mercury -108767-01-25 18:28 J -38005698.81 -38005698.73 -38005698.64 0.1811 0.1288

Venus -108767-06-25 23:02 J -38005547.63 -38005547.54 -38005547.45 0.1665 0.1389

Mercury -108766-02-18 06:43 J -38005310.36 -38005310.22 -38005310.07 0.1722 0.0626

Mercury -108765-01-01 13:12 J -38004993.06 -38004992.95 -38004992.83 0.1791 0.0719

Mercury -108758-06-18 01:12 J -38002268.45 -38002268.45 -38002268.44 0.1816 0.1814

Mercury -108757-07-10 09:36 J -38001880.25 -38001880.10 -38001879.95 0.1717 0.0060

Mercury -108756-05-23 20:52 J -38001562.75 -38001562.63 -38001562.50 0.1796 0.0251

Moon -108752-07-16 00:14 J -38000048.67 -38000048.49 -38000048.32 0.1663 0.0096

Earth -108752-07-16 05:45 J -38000048.45 -38000048.26 -38000048.08 0.1663 0.0052 *

Mercury -108748-11-30 12:43 J -37998450.11 -37998449.97 -37998449.82 0.1712 0.0483

Mercury -108747-10-14 04:33 J -37998132.43 -37998132.31 -37998132.18 0.1801 0.0228

Mercury -108745-09-18 21:07 J -37997426.66 -37997426.62 -37997426.57 0.1780 0.1638

Mercury -108738-04-22 16:33 J -37995019.93 -37995019.81 -37995019.69 0.1708 0.1000

Venus -108738-09-16 03:50 J -37994873.52 -37994873.34 -37994873.17 0.1856 0.0592

Mercury -108737-03-05 11:45 J -37994702.12 -37994702.01 -37994701.89 0.1806 0.0725

Venus -108737-08-24 08:38 J -37994530.25 -37994530.14 -37994530.03 0.1651 0.1262

Mercury -108736-03-29 04:48 J -37994313.40 -37994313.30 -37994313.20 0.1727 0.1256

Mercury -108735-02-09 05:31 J -37993996.36 -37993996.27 -37993996.18 0.1786 0.1210

Venus -108735-06-24 15:21 J -37993861.02 -37993860.86 -37993860.70 0.1660 0.0520

Mercury -108729-09-11 20:38 J -37991589.71 -37991589.64 -37991589.58 0.1703 0.1494

Mercury -108728-07-26 18:43 J -37991271.81 -37991271.72 -37991271.62 0.1811 0.1237

Mercury -108727-08-19 07:12 J -37990883.34 -37990883.20 -37990883.06 0.1722 0.0680

Mercury -108726-07-02 13:26 J -37990566.05 -37990565.94 -37990565.83 0.1791 0.0760

Mercury -108719-12-17 01:26 J -37987841.47 -37987841.44 -37987841.41 0.1816 0.1765

Mercury -108717-01-09 10:04 J -37987453.23 -37987453.08 -37987452.93 0.1717 0.0120

Mercury -108717-11-21 21:07 J -37987135.74 -37987135.62 -37987135.49 0.1796 0.0299

Mercury -108708-05-31 13:12 J -37984023.09 -37984022.95 -37984022.80 0.1712 0.0429

Mercury -108707-04-14 04:33 J -37983705.43 -37983705.31 -37983705.18 0.1801 0.0189

Venus -108706-09-16 06:57 J -37983185.35 -37983185.21 -37983185.07 0.1862 0.1161

Mercury -108705-03-19 21:21 J -37982999.65 -37982999.61 -37982999.58 0.1780 0.1681

Venus -108703-06-23 06:43 J -37982174.39 -37982174.22 -37982174.06 0.1656 0.0335

Venus -108701-04-22 11:45 J -37981505.08 -37981505.01 -37981504.94 0.1666 0.1496

Mercury -108699-10-21 17:02 J -37980592.92 -37980592.79 -37980592.67 0.1708 0.0946

Mercury -108698-09-04 12:00 J -37980275.12 -37980275.00 -37980274.89 0.1806 0.0679

Mercury -108697-09-27 05:31 J -37979886.37 -37979886.27 -37979886.18 0.1727 0.1319

Mercury -108696-08-10 05:31 J -37979569.36 -37979569.27 -37979569.18 0.1785 0.1250
 Mercury -108689-03-12 20:38 J -37977162.71 -37977162.64 -37977162.56 0.1703 0.1452
 Mercury -108688-01-24 18:57 J -37976844.80 -37976844.71 -37976844.61 0.1811 0.1187
 Mercury -108687-02-17 07:40 J -37976456.32 -37976456.18 -37976456.04 0.1722 0.0730
 Mercury -108687-12-31 13:26 J -37976139.05 -37976138.94 -37976138.83 0.1791 0.0803
 Mercury -108679-06-17 01:40 J -37973414.47 -37973414.43 -37973414.39 0.1816 0.1716
 Mercury -108678-07-10 10:19 J -37973026.22 -37973026.07 -37973025.92 0.1717 0.0169
 Mercury -108677-05-22 21:21 J -37972708.73 -37972708.61 -37972708.49 0.1796 0.0343
 Moon -108673-07-18 01:12 J -37971191.60 -37971191.45 -37971191.29 0.1661 0.0906
 Earth -108673-07-18 05:45 J -37971191.40 -37971191.26 -37971191.12 0.1661 0.1057 *
 Venus -108672-07-13 06:00 J -37970831.41 -37970831.25 -37970831.09 0.1854 0.0899
 Venus -108671-06-21 21:50 J -37970487.71 -37970487.59 -37970487.47 0.1652 0.1179
 Venus -108669-04-21 03:50 J -37969818.49 -37969818.34 -37969818.18 0.1662 0.0624
 Mercury -108669-11-29 13:55 J -37969596.07 -37969595.92 -37969595.78 0.1713 0.0370
 Mercury -108668-10-13 04:48 J -37969278.42 -37969278.30 -37969278.17 0.1801 0.0139
 Mercury -108666-09-18 21:21 J -37968572.63 -37968572.61 -37968572.58 0.1780 0.1726
 Mercury -108659-04-21 17:16 J -37966165.90 -37966165.78 -37966165.65 0.1708 0.0896
 Mercury -108658-03-05 12:00 J -37965848.11 -37965848.00 -37965847.88 0.1806 0.0635
 Mercury -108657-03-28 06:00 J -37965459.34 -37965459.25 -37965459.16 0.1727 0.1374
 Mercury -108656-02-08 05:31 J -37965142.35 -37965142.27 -37965142.18 0.1786 0.1292
 Mercury -108650-09-11 21:21 J -37962735.70 -37962735.61 -37962735.53 0.1703 0.1397
 Mercury -108649-07-25 19:12 J -37962417.80 -37962417.70 -37962417.61 0.1811 0.1144
 Mercury -108648-08-18 08:09 J -37962029.29 -37962029.16 -37962029.02 0.1722 0.0786
 Mercury -108647-07-01 13:40 J -37961712.04 -37961711.93 -37961711.82 0.1791 0.0847
 Venus -108640-07-13 08:52 J -37959143.29 -37959143.13 -37959142.97 0.1860 0.0843
 Mercury -108640-12-16 01:55 J -37958987.47 -37958987.42 -37958987.38 0.1816 0.1668
 Mercury -108638-01-08 11:02 J -37958599.19 -37958599.04 -37958598.89 0.1717 0.0226
 Mercury -108638-11-21 21:21 J -37958281.73 -37958281.61 -37958281.49 0.1796 0.0386
 Venus -108637-04-19 19:40 J -37958131.85 -37958131.68 -37958131.52 0.1657 0.0242
 Venus -108635-02-18 00:00 J -37957462.54 -37957462.50 -37957462.46 0.1668 0.1608

Mercury -108629-05-30 14:09 J -37955169.06 -37955168.91 -37955168.77 0.1712 0.0328

Mercury -108628-04-13 05:02 J -37954851.42 -37954851.29 -37954851.17 0.1801 0.0097

Mercury -108626-03-19 21:21 J -37954145.62 -37954145.61 -37954145.60 0.1781 0.1762

Moon -108626-07-13 10:33 J -37954030.11 -37954030.06 -37954030.01 0.1670 0.1600

Mercury -108620-10-20 17:45 J -37951738.89 -37951738.76 -37951738.63 0.1708 0.0843

Mercury -108619-09-03 12:14 J -37951421.11 -37951420.99 -37951420.87 0.1806 0.0584

Mercury -108618-09-27 06:14 J -37951032.32 -37951032.24 -37951032.15 0.1727 0.1424

Mercury -108617-08-09 05:45 J -37950715.34 -37950715.26 -37950715.18 0.1786 0.1338

Mercury -108610-03-12 21:36 J -37948308.68 -37948308.60 -37948308.51 0.1703 0.1346

Mercury -108609-01-24 19:12 J -37947990.80 -37947990.70 -37947990.60 0.1811 0.1095

Mercury -108608-02-16 08:52 J -37947602.26 -37947602.13 -37947602.00 0.1722 0.0846

Mercury -108608-12-30 13:40 J -37947285.03 -37947284.93 -37947284.82 0.1791 0.0891

Venus -108606-05-10 08:24 J -37946789.29 -37946789.15 -37946789.01 0.1852 0.1203

Venus -108605-04-18 10:48 J -37946445.17 -37946445.05 -37946444.92 0.1653 0.1090

Venus -108603-02-16 16:33 J -37945775.96 -37945775.81 -37945775.66 0.1663 0.0725

Mercury -108600-06-16 01:55 J -37944560.47 -37944560.42 -37944560.36 0.1816 0.1620

Mercury -108599-07-09 11:31 J -37944172.17 -37944172.02 -37944171.87 0.1717 0.0277

Mercury -108598-05-22 21:36 J -37943854.72 -37943854.60 -37943854.48 0.1796 0.0431

Mercury -108590-11-29 14:38 J -37940742.04 -37940741.89 -37940741.74 0.1713 0.0267

Mercury -108589-10-12 05:02 J -37940424.41 -37940424.29 -37940424.16 0.1801 0.0054

Mercury -108580-04-20 18:14 J -37937311.88 -37937311.74 -37937311.61 0.1708 0.0796

Mercury -108579-03-04 12:14 J -37936994.11 -37936993.99 -37936993.87 0.1806 0.0545

Mercury -108578-03-28 06:57 J -37936605.29 -37936605.21 -37936605.14 0.1727 0.1485

Mercury -108577-02-08 05:45 J -37936288.34 -37936288.26 -37936288.18 0.1786 0.1376

Venus -108574-05-10 11:16 J -37935101.21 -37935101.03 -37935100.86 0.1858 0.0540

Venus -108571-02-15 08:09 J -37934089.33 -37934089.16 -37934088.99 0.1658 0.0144

Mercury -108571-09-10 22:04 J -37933881.68 -37933881.58 -37933881.49 0.1703 0.1299

Mercury -108570-07-25 19:40 J -37933563.79 -37933563.68 -37933563.58 0.1811 0.1042

Mercury -108569-08-17 09:07 J -37933175.25 -37933175.12 -37933174.99 0.1722 0.0895

Mercury -108568-06-30 13:55 J -37932858.03 -37932857.92 -37932857.82 0.1791 0.0935

Mercury -108561-12-15 02:09 J -37930133.47 -37930133.41 -37930133.35 0.1816 0.1571
 Mercury -108559-01-07 12:00 J -37929745.15 -37929745.00 -37929744.86 0.1717 0.0333
 Mercury -108559-11-20 21:50 J -37929427.71 -37929427.59 -37929427.47 0.1796 0.0481
 Mercury -108550-05-30 15:07 J -37926315.02 -37926314.87 -37926314.72 0.1713 0.0216
 Mercury -108549-04-12 05:16 J -37925997.41 -37925997.28 -37925997.16 0.1801 0.0057
 Earth -108547-07-15 12:28 J -37925173.14 -37925172.98 -37925172.81 0.1667 0.0678
 Moon -108547-07-15 17:31 J -37925172.94 -37925172.77 -37925172.61 0.1667 0.0804 *
 Mercury -108541-10-19 18:43 J -37922884.86 -37922884.72 -37922884.59 0.1708 0.0739
 Venus -108540-03-06 10:48 J -37922747.15 -37922747.05 -37922746.95 0.1850 0.1505
 Mercury -108540-09-02 12:43 J -37922567.10 -37922566.97 -37922566.85 0.1806 0.0493
 Venus -108539-02-13 23:31 J -37922402.66 -37922402.52 -37922402.39 0.1654 0.0997
 Mercury -108539-09-26 07:26 J -37922178.25 -37922178.19 -37922178.12 0.1727 0.1545
 Mercury -108538-08-09 06:00 J -37921861.32 -37921861.25 -37921861.18 0.1786 0.1422
 Venus -108538-12-15 04:48 J -37921733.44 -37921733.30 -37921733.15 0.1664 0.0835
 Mercury -108531-03-11 22:33 J -37919454.66 -37919454.56 -37919454.46 0.1703 0.1246
 Mercury -108530-01-23 19:40 J -37919136.79 -37919136.68 -37919136.58 0.1811 0.1003
 Mercury -108529-02-16 09:50 J -37918748.22 -37918748.09 -37918747.97 0.1722 0.0955
 Mercury -108529-12-29 13:55 J -37918431.02 -37918430.92 -37918430.81 0.1791 0.0978
 Mercury -108521-06-15 02:24 J -37915706.47 -37915706.40 -37915706.33 0.1816 0.1523
 Mercury -108520-07-08 12:14 J -37915318.13 -37915317.99 -37915317.84 0.1717 0.0385
 Mercury -108519-05-21 21:36 J -37915000.71 -37915000.60 -37915000.48 0.1796 0.0519
 Mercury -108511-11-28 15:21 J -37911888.00 -37911887.86 -37911887.71 0.1712 0.0173
 Mercury -108510-10-12 05:31 J -37911570.40 -37911570.27 -37911570.15 0.1801 0.0061
 Venus -108508-03-06 12:57 J -37911059.14 -37911058.96 -37911058.77 0.1856 0.0226
 Earth -108506-01-14 08:24 J -37910380.35 -37910380.15 -37910379.94 0.1850 0.0526
 Moon -108506-01-14 11:31 J -37910380.25 -37910380.02 -37910379.78 0.1850 0.0273 *
 Venus -108506-12-13 20:52 J -37910046.80 -37910046.63 -37910046.46 0.1660 0.0046
 Mercury -108501-04-19 18:57 J -37908457.84 -37908457.71 -37908457.57 0.1708 0.0690
 Mercury -108500-03-03 12:43 J -37908140.09 -37908139.97 -37908139.85 0.1806 0.0445
 Mercury -108499-03-27 07:40 J -37907751.23 -37907751.18 -37907751.12 0.1727 0.1594

Mercury -108498-02-07 06:00 J -37907434.31 -37907434.25 -37907434.18 0.1786 0.1466
 Mercury -108492-09-09 23:02 J -37905027.65 -37905027.54 -37905027.44 0.1703 0.1195
 Mercury -108491-07-24 19:40 J -37904709.78 -37904709.68 -37904709.57 0.1811 0.0953
 Mercury -108490-08-17 10:04 J -37904321.20 -37904321.08 -37904320.95 0.1722 0.1009
 Mercury -108489-06-29 14:09 J -37904004.02 -37904003.91 -37904003.81 0.1791 0.1021
 Mercury -108482-01-31 03:07 J -37901597.39 -37901597.37 -37901597.35 0.1699 0.1681
 Mercury -108482-12-15 02:38 J -37901279.47 -37901279.39 -37901279.32 0.1816 0.1476
 Mercury -108480-01-06 12:57 J -37900891.11 -37900890.96 -37900890.81 0.1717 0.0441
 Mercury -108480-11-19 21:50 J -37900573.70 -37900573.59 -37900573.47 0.1796 0.0568
 Venus -108474-01-01 12:43 J -37898705.00 -37898704.97 -37898704.94 0.1847 0.1818
 Venus -108474-12-12 12:28 J -37898360.12 -37898359.98 -37898359.84 0.1655 0.0906
 Venus -108472-10-11 17:16 J -37897690.92 -37897690.78 -37897690.64 0.1666 0.0942
 Mercury -108471-05-29 15:50 J -37897460.99 -37897460.84 -37897460.69 0.1712 0.0121
 Mercury -108470-04-12 05:31 J -37897143.40 -37897143.27 -37897143.15 0.1801 0.0093
 Earth -108468-07-17 13:12 J -37896316.12 -37896315.95 -37896315.77 0.1665 0.0416
 Moon -108468-07-17 18:43 J -37896315.89 -37896315.72 -37896315.56 0.1665 0.0596 *
 Mercury -108462-10-19 19:26 J -37894030.83 -37894030.69 -37894030.55 0.1708 0.0638
 Mercury -108461-09-01 12:57 J -37893713.09 -37893712.96 -37893712.84 0.1806 0.0404
 Mercury -108460-09-25 08:24 J -37893324.19 -37893324.15 -37893324.11 0.1727 0.1654
 Mercury -108459-08-08 06:00 J -37893007.31 -37893007.25 -37893007.18 0.1786 0.1504
 Mercury -108452-03-10 23:02 J -37890600.64 -37890600.54 -37890600.43 0.1703 0.1151
 Mercury -108451-01-22 19:55 J -37890282.78 -37890282.67 -37890282.56 0.1811 0.0904
 Mercury -108450-02-15 10:33 J -37889894.18 -37889894.06 -37889893.94 0.1722 0.1061
 Mercury -108450-12-29 14:09 J -37889577.01 -37889576.91 -37889576.81 0.1791 0.1064
 Mercury -108443-08-01 03:36 J -37887170.39 -37887170.35 -37887170.31 0.1699 0.1631
 Venus -108442-01-01 15:36 J -37887017.04 -37887016.85 -37887016.67 0.1854 0.0091
 Mercury -108442-06-15 02:38 J -37886852.46 -37886852.39 -37886852.31 0.1816 0.1427
 Mercury -108441-07-07 13:12 J -37886464.09 -37886463.95 -37886463.80 0.1717 0.0490
 Mercury -108440-05-20 22:04 J -37886146.70 -37886146.58 -37886146.46 0.1796 0.0609
 Venus -108440-10-10 09:21 J -37886004.28 -37886004.11 -37886003.94 0.1661 0.0060

Mercury -108432-11-27 16:33 J -37883033.96 -37883033.81 -37883033.66 0.1713 0.0055
 Mercury -108431-10-11 05:45 J -37882716.39 -37882716.26 -37882716.14 0.1801 0.0146
 Mercury -108422-04-19 19:55 J -37879603.81 -37879603.67 -37879603.53 0.1708 0.0588
 Mercury -108421-03-02 12:57 J -37879286.08 -37879285.96 -37879285.84 0.1806 0.0355
 Mercury -108420-03-26 08:52 J -37878897.14 -37878897.13 -37878897.11 0.1727 0.1711
 Mercury -108419-02-06 06:14 J -37878580.30 -37878580.24 -37878580.18 0.1786 0.1546
 Mercury -108413-09-08 23:45 J -37876173.62 -37876173.51 -37876173.40 0.1703 0.1094
 Mercury -108412-07-23 20:09 J -37875855.77 -37875855.66 -37875855.55 0.1811 0.0859
 Mercury -108411-08-16 11:02 J -37875467.15 -37875467.04 -37875466.92 0.1722 0.1119
 Venus -108410-01-01 18:43 J -37875328.79 -37875328.72 -37875328.65 0.1861 0.1700
 Mercury -108410-06-29 14:24 J -37875150.00 -37875149.90 -37875149.81 0.1791 0.1108
 Venus -108408-10-09 00:57 J -37874317.61 -37874317.46 -37874317.31 0.1657 0.0806
 Venus -108406-08-09 05:45 J -37873648.39 -37873648.26 -37873648.13 0.1667 0.1052
 Mercury -108403-01-30 03:50 J -37872743.39 -37872743.34 -37872743.29 0.1699 0.1585
 Mercury -108403-12-14 02:52 J -37872425.46 -37872425.38 -37872425.30 0.1816 0.1377
 Mercury -108401-01-06 13:55 J -37872037.07 -37872036.92 -37872036.78 0.1717 0.0549
 Mercury -108401-11-18 22:04 J -37871719.69 -37871719.58 -37871719.46 0.1796 0.0653
 Mercury -108392-05-28 16:48 J -37868606.96 -37868606.80 -37868606.65 0.1712 0.0050
 Mercury -108391-04-11 05:45 J -37868289.38 -37868289.26 -37868289.13 0.1801 0.0182
 Earth -108389-07-19 13:26 J -37867459.02 -37867458.94 -37867458.86 0.1663 0.1490
 Moon -108389-07-19 13:55 J -37867458.99 -37867458.92 -37867458.84 0.1663 0.1485 *
 Mercury -108383-10-18 20:24 J -37865176.79 -37865176.65 -37865176.51 0.1708 0.0532
 Mercury -108382-09-01 13:12 J -37864859.07 -37864858.95 -37864858.83 0.1806 0.0305
 Mercury -108380-08-07 06:28 J -37864153.29 -37864153.23 -37864153.18 0.1785 0.1592
 Venus -108377-10-28 17:31 J -37862974.94 -37862974.77 -37862974.59 0.1852 0.0401
 Venus -108374-08-07 22:04 J -37861961.75 -37861961.58 -37861961.42 0.1662 0.0170
 Mercury -108373-03-10 00:14 J -37861746.61 -37861746.49 -37861746.38 0.1703 0.1044
 Mercury -108372-01-21 20:09 J -37861428.77 -37861428.66 -37861428.54 0.1811 0.0812
 Mercury -108371-02-14 11:45 J -37861040.12 -37861040.01 -37861039.90 0.1722 0.1177
 Mercury -108371-12-28 14:24 J -37860722.99 -37860722.90 -37860722.80 0.1791 0.1151

Mercury -108364-07-31 04:19 J -37858316.38 -37858316.32 -37858316.26 0.1699 0.1535

Mercury -108363-06-14 03:07 J -37857998.46 -37857998.37 -37857998.29 0.1816 0.1331

Mercury -108362-07-07 14:09 J -37857610.05 -37857609.91 -37857609.76 0.1717 0.0601

Mercury -108361-05-19 22:19 J -37857292.69 -37857292.57 -37857292.46 0.1796 0.0695

Mercury -108353-11-26 17:16 J -37854179.93 -37854179.78 -37854179.63 0.1713 0.0058

Mercury -108352-10-10 06:00 J -37853862.38 -37853862.25 -37853862.13 0.1801 0.0231

Venus -108345-10-28 20:24 J -37851286.77 -37851286.65 -37851286.53 0.1859 0.1377

Mercury -108343-04-18 20:38 J -37850749.78 -37850749.64 -37850749.49 0.1708 0.0485

Mercury -108342-03-02 13:12 J -37850432.07 -37850431.95 -37850431.82 0.1806 0.0266

Moon -108342-07-14 15:07 J -37850297.99 -37850297.87 -37850297.76 0.1672 0.1203

Earth -108342-07-14 19:12 J -37850297.81 -37850297.70 -37850297.59 0.1672 0.1338 *

Venus -108342-08-06 13:55 J -37850275.07 -37850274.92 -37850274.77 0.1658 0.0714

Mercury -108340-02-05 06:28 J -37849726.28 -37849726.23 -37849726.19 0.1786 0.1630

Venus -108340-06-05 18:14 J -37849605.86 -37849605.74 -37849605.62 0.1669 0.1160

Mercury -108334-09-09 00:28 J -37847319.60 -37847319.48 -37847319.36 0.1703 0.0996

Mercury -108333-07-22 20:38 J -37847001.76 -37847001.64 -37847001.53 0.1811 0.0759

Mercury -108332-08-15 12:00 J -37846613.10 -37846613.00 -37846612.89 0.1722 0.1224

Mercury -108331-06-28 14:38 J -37846295.99 -37846295.89 -37846295.80 0.1791 0.1195

Mercury -108324-01-29 04:48 J -37843889.37 -37843889.30 -37843889.23 0.1699 0.1484

Mercury -108324-12-13 03:07 J -37843571.46 -37843571.37 -37843571.28 0.1816 0.1284

Mercury -108322-01-05 14:38 J -37843183.03 -37843182.89 -37843182.75 0.1718 0.0654

Mercury -108322-11-18 22:33 J -37842865.68 -37842865.56 -37842865.45 0.1796 0.0744

Mercury -108314-05-05 09:50 J -37840141.10 -37840141.09 -37840141.09 0.1821 0.1818

Mercury -108313-05-27 17:45 J -37839752.91 -37839752.76 -37839752.61 0.1713 0.0105

Mercury -108312-04-10 06:00 J -37839435.37 -37839435.25 -37839435.13 0.1801 0.0269

Venus -108311-08-25 20:09 J -37838932.83 -37838932.66 -37838932.49 0.1850 0.0701

Venus -108310-08-05 05:02 J -37838588.34 -37838588.29 -37838588.25 0.1654 0.1572

Venus -108308-06-04 10:48 J -37837919.21 -37837919.05 -37837918.88 0.1664 0.0262

Mercury -108304-10-17 21:07 J -37836322.76 -37836322.62 -37836322.47 0.1708 0.0431

Mercury -108303-08-31 13:26 J -37836005.06 -37836004.94 -37836004.81 0.1806 0.0218

Mercury -108301-08-06 06:28 J -37835299.27 -37835299.23 -37835299.19 0.1786 0.1674

Mercury -108294-03-10 00:57 J -37832892.59 -37832892.46 -37832892.34 0.1703 0.0944

Mercury -108293-01-21 20:24 J -37832574.76 -37832574.65 -37832574.53 0.1811 0.0722

Mercury -108292-02-13 12:43 J -37832186.07 -37832185.97 -37832185.87 0.1722 0.1285

Mercury -108292-12-27 14:38 J -37831868.98 -37831868.89 -37831868.80 0.1791 0.1235

Mercury -108285-07-30 05:02 J -37829462.37 -37829462.29 -37829462.22 0.1699 0.1440

Mercury -108284-06-13 03:21 J -37829144.45 -37829144.36 -37829144.26 0.1816 0.1235

Mercury -108283-07-06 15:07 J -37828756.01 -37828755.87 -37828755.73 0.1717 0.0708

Mercury -108282-05-19 22:33 J -37828438.68 -37828438.56 -37828438.45 0.1796 0.0783

Venus -108279-08-25 22:19 J -37827244.71 -37827244.57 -37827244.42 0.1857 0.1062

Venus -108276-06-03 02:24 J -37826232.55 -37826232.40 -37826232.24 0.1659 0.0618

Mercury -108275-11-03 10:04 J -37825714.11 -37825714.08 -37825714.05 0.1821 0.1764

Venus -108274-04-03 06:28 J -37825563.33 -37825563.23 -37825563.12 0.1670 0.1272

Mercury -108274-11-26 18:14 J -37825325.89 -37825325.74 -37825325.59 0.1712 0.0158

Mercury -108273-10-09 06:14 J -37825008.36 -37825008.24 -37825008.11 0.1801 0.0321

Mercury -108264-04-17 21:35 J -37821895.75 -37821895.60 -37821895.45 0.1708 0.0379

Mercury -108263-03-01 13:40 J -37821578.06 -37821577.93 -37821577.81 0.1806 0.0183

Moon -108263-07-16 13:11 J -37821441.12 -37821440.95 -37821440.77 0.1670 0.0418

Earth -108263-07-16 19:40 J -37821440.86 -37821440.68 -37821440.50 0.1670 0.0243 *

Mercury -108261-02-05 06:43 J -37820872.25 -37820872.22 -37820872.19 0.1785 0.1716

Mercury -108255-09-08 01:26 J -37818465.57 -37818465.44 -37818465.32 0.1703 0.0893

Mercury -108254-07-22 20:52 J -37818147.75 -37818147.63 -37818147.52 0.1811 0.0671

Mercury -108253-08-14 13:11 J -37817759.05 -37817758.95 -37817758.86 0.1722 0.1340

Mercury -108252-06-27 14:38 J -37817441.97 -37817441.89 -37817441.80 0.1791 0.1278

Mercury -108245-01-29 05:31 J -37815035.35 -37815035.27 -37815035.19 0.1699 0.1385

Venus -108245-06-21 22:48 J -37814890.70 -37814890.55 -37814890.40 0.1848 0.1009

Mercury -108245-12-12 03:35 J -37814717.45 -37814717.35 -37814717.26 0.1816 0.1187

Venus -108244-06-01 17:45 J -37814545.83 -37814545.76 -37814545.68 0.1655 0.1484

Mercury -108243-01-04 15:50 J -37814328.98 -37814328.84 -37814328.71 0.1717 0.0767

Mercury -108243-11-17 22:48 J -37814011.66 -37814011.55 -37814011.44 0.1796 0.0831

Venus -108242-04-01 23:02 J -37813876.70 -37813876.54 -37813876.37 0.1665 0.0372

Mercury -108235-05-04 10:04 J -37811287.12 -37811287.08 -37811287.04 0.1821 0.1724

Mercury -108234-05-27 18:43 J -37810898.87 -37810898.72 -37810898.57 0.1712 0.0211

Mercury -108233-04-09 06:14 J -37810581.36 -37810581.24 -37810581.12 0.1801 0.0357

Mercury -108225-10-16 22:04 J -37807468.73 -37807468.58 -37807468.44 0.1708 0.0330

Mercury -108224-08-30 13:40 J -37807151.05 -37807150.93 -37807150.80 0.1806 0.0129

Moon -108222-01-13 00:00 J -37806650.68 -37806650.50 -37806650.31 0.1845 0.0677

Earth -108222-01-13 07:11 J -37806650.41 -37806650.20 -37806649.99 0.1845 0.0312 *

Mercury -108222-08-06 06:43 J -37806445.24 -37806445.22 -37806445.20 0.1786 0.1754

Mercury -108215-03-09 01:40 J -37804038.56 -37804038.43 -37804038.30 0.1703 0.0845

Mercury -108214-01-20 20:52 J -37803720.75 -37803720.63 -37803720.51 0.1811 0.0622

Mercury -108213-02-13 13:40 J -37803332.02 -37803331.93 -37803331.85 0.1722 0.1393

Venus -108213-06-22 00:28 J -37803202.64 -37803202.48 -37803202.31 0.1855 0.0739

Mercury -108213-12-26 14:52 J -37803014.96 -37803014.88 -37803014.80 0.1791 0.1323

Venus -108210-03-31 15:07 J -37802190.03 -37802189.87 -37802189.71 0.1661 0.0521

Venus -108208-01-28 18:57 J -37801520.81 -37801520.71 -37801520.62 0.1672 0.1388

Mercury -108206-07-30 05:45 J -37800608.34 -37800608.26 -37800608.17 0.1699 0.1337

Mercury -108205-06-12 03:50 J -37800290.44 -37800290.34 -37800290.25 0.1816 0.1141

Mercury -108204-07-05 16:04 J -37799901.96 -37799901.83 -37799901.70 0.1717 0.0815

Mercury -108203-05-18 22:48 J -37799584.66 -37799584.55 -37799584.44 0.1796 0.0872

Mercury -108196-11-02 10:19 J -37796860.12 -37796860.07 -37796860.02 0.1821 0.1671

Mercury -108195-11-25 19:11 J -37796471.85 -37796471.70 -37796471.55 0.1713 0.0264

Mercury -108194-10-09 06:28 J -37796154.35 -37796154.23 -37796154.11 0.1801 0.0406

Mercury -108185-04-16 22:19 J -37793041.71 -37793041.57 -37793041.42 0.1708 0.0280

Mercury -108184-02-28 13:55 J -37792724.05 -37792723.92 -37792723.80 0.1806 0.0086

Moon -108184-07-18 18:00 J -37792583.92 -37792583.75 -37792583.58 0.1668 0.0828

Earth -108184-07-18 20:09 J -37792583.81 -37792583.66 -37792583.50 0.1668 0.0843 *

Venus -108179-04-19 01:11 J -37790848.57 -37790848.45 -37790848.32 0.1846 0.1317

Venus -108178-03-30 06:43 J -37790503.31 -37790503.22 -37790503.13 0.1656 0.1391

Venus -108176-01-27 11:45 J -37789834.17 -37789834.01 -37789833.85 0.1667 0.0475

Mercury -108176-09-07 02:09 J -37789611.54 -37789611.41 -37789611.28 0.1703 0.0791
 Mercury -108175-07-21 21:07 J -37789293.74 -37789293.62 -37789293.50 0.1811 0.0580
 Mercury -108174-08-14 14:09 J -37788904.99 -37788904.91 -37788904.83 0.1722 0.1449
 Mercury -108173-06-26 14:52 J -37788587.96 -37788587.88 -37788587.80 0.1791 0.1363
 Mercury -108166-01-28 06:14 J -37786181.34 -37786181.24 -37786181.15 0.1699 0.1292
 Mercury -108166-12-12 03:50 J -37785863.44 -37785863.34 -37785863.23 0.1816 0.1093
 Mercury -108164-01-03 16:33 J -37785474.94 -37785474.81 -37785474.68 0.1717 0.0872
 Mercury -108164-11-16 22:48 J -37785157.65 -37785157.55 -37785157.44 0.1796 0.0913
 Mercury -108156-05-03 10:33 J -37782433.12 -37782433.06 -37782433.01 0.1821 0.1624
 Mercury -108155-05-26 19:26 J -37782044.84 -37782044.69 -37782044.54 0.1712 0.0309
 Mercury -108154-04-09 06:28 J -37781727.35 -37781727.23 -37781727.10 0.1801 0.0455
 Venus -108147-04-19 03:07 J -37779160.55 -37779160.37 -37779160.20 0.1853 0.0431
 Mercury -108146-10-16 23:02 J -37778614.69 -37778614.54 -37778614.39 0.1708 0.0222
 Mercury -108145-08-29 14:09 J -37778297.04 -37778296.91 -37778296.79 0.1806 0.0071
 Venus -108144-01-26 03:50 J -37778147.51 -37778147.34 -37778147.18 0.1662 0.0420
 Venus -108143-11-26 07:26 J -37777478.26 -37777478.19 -37777478.12 0.1673 0.1503
 Mercury -108136-03-08 02:38 J -37775184.53 -37775184.39 -37775184.26 0.1703 0.0741
 Mercury -108135-01-19 21:07 J -37774866.74 -37774866.62 -37774866.50 0.1811 0.0532
 Mercury -108134-02-12 14:38 J -37774477.96 -37774477.89 -37774477.82 0.1722 0.1508
 Mercury -108134-12-26 15:07 J -37774160.95 -37774160.87 -37774160.80 0.1791 0.1406
 Mercury -108127-07-29 06:28 J -37771754.33 -37771754.23 -37771754.13 0.1699 0.1241
 Mercury -108126-06-12 04:04 J -37771436.44 -37771436.33 -37771436.23 0.1816 0.1047
 Mercury -108125-07-04 17:02 J -37771047.92 -37771047.79 -37771047.66 0.1717 0.0924
 Mercury -108124-05-17 23:02 J -37770730.65 -37770730.54 -37770730.44 0.1796 0.0957
 Mercury -108117-11-01 10:33 J -37768006.12 -37768006.06 -37768005.99 0.1821 0.1578
 Mercury -108116-11-24 20:09 J -37767617.81 -37767617.66 -37767617.52 0.1713 0.0372
 Mercury -108115-10-08 06:43 J -37767300.34 -37767300.22 -37767300.10 0.1801 0.0494
 Venus -108113-02-14 04:04 J -37766806.41 -37766806.33 -37766806.24 0.1844 0.1617
 Venus -108112-01-24 19:26 J -37766460.80 -37766460.69 -37766460.59 0.1657 0.1295
 Venus -108111-11-25 00:00 J -37765791.65 -37765791.50 -37765791.34 0.1668 0.0589

Mercury -108106-04-16 23:16 J -37764187.68 -37764187.53 -37764187.38 0.1708 0.0174
 Mercury -108105-02-28 14:09 J -37763870.04 -37763869.91 -37763869.79 0.1806 0.0018
 Mercury -108097-09-06 02:52 J -37760757.52 -37760757.38 -37760757.25 0.1703 0.0694
 Mercury -108096-07-20 21:21 J -37760439.73 -37760439.61 -37760439.49 0.1811 0.0481
 Mercury -108095-08-13 14:52 J -37760050.94 -37760050.88 -37760050.82 0.1722 0.1553
 Mercury -108094-06-26 15:07 J -37759733.94 -37759733.87 -37759733.80 0.1791 0.1448
 Mercury -108087-01-27 06:57 J -37757327.31 -37757327.21 -37757327.10 0.1699 0.1189
 Mercury -108087-12-11 04:19 J -37757009.43 -37757009.32 -37757009.22 0.1816 0.1000
 Mercury -108085-01-03 17:31 J -37756620.89 -37756620.77 -37756620.64 0.1718 0.0981
 Mercury -108085-11-15 23:02 J -37756303.64 -37756303.54 -37756303.43 0.1796 0.1005
 Venus -108081-02-14 05:16 J -37755118.47 -37755118.28 -37755118.10 0.1851 0.0118
 Venus -108079-11-23 16:19 J -37754104.99 -37754104.82 -37754104.66 0.1663 0.0315
 Mercury -108078-06-19 11:16 J -37753897.05 -37753897.03 -37753897.00 0.1694 0.1669
 Mercury -108077-05-02 10:48 J -37753579.11 -37753579.05 -37753578.98 0.1821 0.1528
 Venus -108077-09-22 18:57 J -37753435.74 -37753435.71 -37753435.67 0.1675 0.1630
 Mercury -108076-05-25 20:24 J -37753190.79 -37753190.65 -37753190.50 0.1712 0.0423
 Mercury -108075-04-08 06:43 J -37752873.34 -37752873.22 -37752873.10 0.1801 0.0539
 Mercury -108067-10-15 23:45 J -37749760.66 -37749760.51 -37749760.36 0.1708 0.0119
 Mercury -108066-08-29 14:24 J -37749443.03 -37749442.90 -37749442.78 0.1806 0.0079
 Earth -108058-07-16 01:11 J -37746565.60 -37746565.45 -37746565.29 0.1675 0.0914
 Moon -108058-07-16 07:40 J -37746565.34 -37746565.18 -37746565.01 0.1675 0.0726 *
 Mercury -108057-03-07 03:21 J -37746330.50 -37746330.36 -37746330.22 0.1703 0.0641
 Mercury -108056-01-18 21:21 J -37746012.73 -37746012.61 -37746012.49 0.1811 0.0442
 Mercury -108055-02-11 15:35 J -37745623.90 -37745623.85 -37745623.80 0.1722 0.1616
 Mercury -108055-12-25 15:07 J -37745306.93 -37745306.87 -37745306.80 0.1791 0.1491
 Mercury -108048-07-28 07:11 J -37742900.30 -37742900.20 -37742900.09 0.1699 0.1145
 Mercury -108047-06-11 04:19 J -37742582.42 -37742582.32 -37742582.21 0.1816 0.0952
 Venus -108047-11-22 08:09 J -37742418.27 -37742418.16 -37742418.05 0.1658 0.1201
 Mercury -108046-07-04 18:00 J -37742193.87 -37742193.75 -37742193.63 0.1717 0.1032
 Mercury -108045-05-16 23:02 J -37741876.64 -37741876.54 -37741876.44 0.1796 0.1043

Venus -108045-09-21 12:14 J -37741749.15 -37741748.99 -37741748.84 0.1670 0.0702

Mercury -108039-12-18 11:45 J -37739470.05 -37739470.01 -37739469.97 0.1695 0.1619

Mercury -108038-11-01 11:02 J -37739152.11 -37739152.04 -37739151.96 0.1821 0.1477

Mercury -108037-11-23 20:52 J -37738763.78 -37738763.63 -37738763.49 0.1712 0.0471

Mercury -108036-10-07 06:57 J -37738446.32 -37738446.21 -37738446.09 0.1801 0.0588

Mercury -108027-04-16 00:14 J -37735333.64 -37735333.49 -37735333.34 0.1708 0.0081

Mercury -108026-02-27 14:24 J -37735016.03 -37735015.90 -37735015.78 0.1806 0.0104

Mercury -108018-09-06 03:50 J -37731903.48 -37731903.34 -37731903.20 0.1703 0.0588

Mercury -108017-07-19 21:35 J -37731585.72 -37731585.60 -37731585.47 0.1811 0.0391

Mercury -108016-08-12 16:04 J -37731196.86 -37731196.83 -37731196.80 0.1722 0.1671

Venus -108016-12-11 07:40 J -37731076.36 -37731076.18 -37731076.00 0.1849 0.0199

Mercury -108015-06-25 15:21 J -37730879.92 -37730879.86 -37730879.80 0.1791 0.1532

Venus -108013-09-20 04:33 J -37730062.48 -37730062.31 -37730062.14 0.1665 0.0208

Mercury -108008-01-26 07:40 J -37728473.29 -37728473.18 -37728473.06 0.1699 0.1091

Mercury -108008-12-10 04:33 J -37728155.42 -37728155.31 -37728155.20 0.1816 0.0904

Mercury -108006-01-02 18:28 J -37727766.84 -37727766.73 -37727766.61 0.1717 0.1090

Mercury -108006-11-15 23:16 J -37727449.62 -37727449.53 -37727449.43 0.1796 0.1090

108TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 108th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|--------|-------------------------|---|-------|-----|-----|--------|-------|---|
|--------|-------------------------|---|-------|-----|-----|--------|-------|---|

Mercury -107999-06-18 12:00 J -37725043.05 -37725043.00 -37725042.95 0.1694 0.1575
 Mercury -107998-05-02 11:02 J -37724725.11 -37724725.04 -37724724.96 0.1821 0.1436
 Mercury -107997-05-24 21:21 J -37724336.76 -37724336.61 -37724336.47 0.1712 0.0526
 Mercury -107996-04-07 06:57 J -37724019.33 -37724019.21 -37724019.09 0.1801 0.0622
 Mercury -107988-10-15 00:28 J -37720906.63 -37720906.48 -37720906.33 0.1708 0.0044
 Mercury -107987-08-28 14:38 J -37720589.02 -37720588.89 -37720588.77 0.1806 0.0155
 Venus -107984-12-11 09:50 J -37719388.18 -37719388.09 -37719388.00 0.1856 0.1593
 Venus -107981-09-18 20:24 J -37718375.77 -37718375.65 -37718375.52 0.1660 0.1099
 Earth -107979-07-18 01:55 J -37717708.60 -37717708.42 -37717708.24 0.1673 0.0186
 Moon -107979-07-18 05:02 J -37717708.46 -37717708.29 -37717708.12 0.1673 0.0190 *
 Venus -107979-07-20 00:28 J -37717706.63 -37717706.48 -37717706.34 0.1671 0.0816
 Mercury -107978-03-07 04:04 J -37717476.47 -37717476.33 -37717476.19 0.1703 0.0541
 Mercury -107977-01-18 21:50 J -37717158.71 -37717158.59 -37717158.47 0.1811 0.0342
 Mercury -107976-12-24 15:35 J -37716452.91 -37716452.85 -37716452.80 0.1791 0.1577
 Mercury -107969-07-27 08:09 J -37714046.27 -37714046.16 -37714046.04 0.1699 0.1041
 Mercury -107968-06-10 04:33 J -37713728.42 -37713728.31 -37713728.19 0.1816 0.0860
 Mercury -107967-07-03 18:57 J -37713339.83 -37713339.71 -37713339.60 0.1717 0.1141
 Mercury -107966-05-16 23:16 J -37713022.62 -37713022.53 -37713022.43 0.1796 0.1131
 Mercury -107960-12-17 12:28 J -37710616.04 -37710615.98 -37710615.92 0.1694 0.1523
 Mercury -107959-10-31 11:16 J -37710298.11 -37710298.03 -37710297.94 0.1821 0.1385
 Mercury -107958-11-23 21:50 J -37709909.73 -37709909.59 -37709909.45 0.1713 0.0582
 Mercury -107957-10-06 07:11 J -37709592.32 -37709592.20 -37709592.09 0.1801 0.0671
 Venus -107950-10-08 10:04 J -37707034.26 -37707034.08 -37707033.91 0.1847 0.0513
 Mercury -107948-04-15 00:57 J -37706479.61 -37706479.46 -37706479.31 0.1708 0.0039
 Mercury -107947-02-26 14:38 J -37706162.01 -37706161.89 -37706161.76 0.1806 0.0193
 Venus -107947-07-18 17:02 J -37706019.95 -37706019.79 -37706019.62 0.1666 0.0107
 Mercury -107939-09-05 04:33 J -37703049.45 -37703049.31 -37703049.17 0.1703 0.0488
 Earth -107938-01-12 06:14 J -37702920.41 -37702920.24 -37702920.07 0.1839 0.1086
 Moon -107938-01-12 16:19 J -37702920.01 -37702919.82 -37702919.62 0.1840 0.0851
 Mercury -107938-07-19 21:50 J -37702731.71 -37702731.59 -37702731.46 0.1811 0.0301

Mercury -107936-06-24 15:21 J -37702025.91 -37702025.86 -37702025.80 0.1791 0.1615
 Mercury -107929-01-26 08:24 J -37699619.27 -37699619.15 -37699619.03 0.1699 0.0996
 Mercury -107929-12-09 04:48 J -37699301.41 -37699301.30 -37699301.18 0.1816 0.0811
 Mercury -107927-01-01 19:26 J -37698912.80 -37698912.69 -37698912.58 0.1717 0.1196
 Mercury -107927-11-14 23:31 J -37698595.61 -37698595.52 -37698595.43 0.1796 0.1172
 Mercury -107920-06-17 12:57 J -37696189.03 -37696188.96 -37696188.89 0.1694 0.1477
 Mercury -107919-05-01 11:31 J -37695871.11 -37695871.02 -37695870.93 0.1821 0.1337
 Mercury -107918-05-24 22:04 J -37695482.72 -37695482.58 -37695482.44 0.1712 0.0627
 Venus -107918-10-08 12:00 J -37695346.14 -37695346.00 -37695345.87 0.1854 0.1268
 Mercury -107917-04-06 07:26 J -37695165.31 -37695165.19 -37695165.08 0.1801 0.0718
 Venus -107915-07-17 09:21 J -37694333.24 -37694333.11 -37694332.97 0.1661 0.1005
 Venus -107913-05-16 12:57 J -37693664.10 -37693663.96 -37693663.82 0.1673 0.0931
 Mercury -107909-10-14 01:26 J -37692052.59 -37692052.44 -37692052.29 0.1708 0.0098
 Mercury -107908-08-27 14:52 J -37691735.01 -37691734.88 -37691734.76 0.1806 0.0242
 Moon -107900-07-19 23:31 J -37688851.64 -37688851.52 -37688851.40 0.1671 0.1186
 Earth -107900-07-20 02:24 J -37688851.52 -37688851.40 -37688851.28 0.1671 0.1257 *
 Mercury -107899-03-06 05:02 J -37688622.44 -37688622.29 -37688622.15 0.1703 0.0439
 Mercury -107898-01-17 22:04 J -37688304.71 -37688304.58 -37688304.46 0.1811 0.0256
 Mercury -107897-12-23 15:35 J -37687598.89 -37687598.85 -37687598.81 0.1791 0.1657
 Mercury -107890-07-27 08:52 J -37685192.25 -37685192.13 -37685192.01 0.1699 0.0943
 Mercury -107889-06-09 05:02 J -37684874.41 -37684874.29 -37684874.18 0.1816 0.0767
 Mercury -107888-07-02 19:55 J -37684485.78 -37684485.67 -37684485.57 0.1717 0.1250
 Mercury -107887-05-15 23:31 J -37684168.61 -37684168.52 -37684168.43 0.1796 0.1215
 Venus -107884-08-04 12:57 J -37682992.12 -37682991.96 -37682991.79 0.1844 0.0815
 Venus -107881-05-15 05:45 J -37681977.43 -37681977.26 -37681977.09 0.1667 0.0022
 Mercury -107881-12-16 13:11 J -37681762.02 -37681761.95 -37681761.87 0.1694 0.1427
 Mercury -107880-10-30 11:45 J -37681444.10 -37681444.01 -37681443.92 0.1821 0.1290
 Mercury -107879-11-22 22:48 J -37681055.69 -37681055.55 -37681055.41 0.1713 0.0688
 Mercury -107878-10-06 07:26 J -37680738.30 -37680738.19 -37680738.08 0.1801 0.0758
 Mercury -107869-04-14 01:40 J -37677625.58 -37677625.43 -37677625.28 0.1708 0.0139

Mercury -107868-02-25 14:52 J -37677308.00 -37677307.88 -37677307.76 0.1807 0.0282
 Mercury -107860-09-04 05:16 J -37674195.42 -37674195.28 -37674195.13 0.1703 0.0389
 Earth -107859-01-16 00:43 J -37674061.49 -37674061.47 -37674061.44 0.1844 0.1825
 Moon -107859-01-16 07:26 J -37674061.20 -37674061.19 -37674061.17 0.1845 0.1834
 Mercury -107859-07-18 22:19 J -37673877.70 -37673877.57 -37673877.45 0.1811 0.0207
 Mercury -107857-06-23 15:50 J -37673171.88 -37673171.84 -37673171.81 0.1791 0.1700
 Earth -107853-07-14 05:02 J -37671690.33 -37671690.29 -37671690.24 0.1681 0.1626
 Venus -107852-08-04 14:09 J -37671304.07 -37671303.91 -37671303.75 0.1852 0.0949
 Mercury -107850-01-25 09:21 J -37670765.23 -37670765.11 -37670764.98 0.1699 0.0890
 Mercury -107850-12-09 05:02 J -37670447.40 -37670447.29 -37670447.17 0.1816 0.0720
 Venus -107849-05-13 21:50 J -37670290.73 -37670290.59 -37670290.45 0.1663 0.0902
 Mercury -107849-12-31 20:24 J -37670058.75 -37670058.65 -37670058.55 0.1718 0.1307
 Mercury -107848-11-13 23:45 J -37669741.60 -37669741.51 -37669741.42 0.1796 0.1260
 Venus -107847-03-14 00:43 J -37669621.60 -37669621.47 -37669621.33 0.1675 0.1051
 Mercury -107841-06-16 13:40 J -37667335.02 -37667334.93 -37667334.85 0.1694 0.1381
 Mercury -107840-04-30 11:45 J -37667017.10 -37667017.01 -37667016.91 0.1821 0.1244
 Mercury -107839-05-23 23:02 J -37666628.67 -37666628.54 -37666628.40 0.1712 0.0739
 Mercury -107838-04-06 07:26 J -37666311.30 -37666311.19 -37666311.08 0.1801 0.0800
 Mercury -107831-09-20 18:14 J -37663586.76 -37663586.74 -37663586.72 0.1826 0.1784
 Mercury -107830-10-14 02:09 J -37663198.55 -37663198.41 -37663198.26 0.1708 0.0200
 Mercury -107829-08-26 15:07 J -37662881.00 -37662880.87 -37662880.75 0.1806 0.0329
 Mercury -107820-03-05 05:45 J -37659768.40 -37659768.26 -37659768.11 0.1703 0.0337
 Mercury -107819-01-16 22:19 J -37659450.70 -37659450.57 -37659450.45 0.1812 0.0171
 Venus -107818-06-01 15:35 J -37658949.99 -37658949.85 -37658949.70 0.1842 0.1125
 Mercury -107818-12-23 15:50 J -37658744.87 -37658744.84 -37658744.82 0.1791 0.1740
 Venus -107815-03-12 17:45 J -37657934.93 -37657934.76 -37657934.59 0.1669 0.0119
 Mercury -107811-07-26 09:35 J -37656338.23 -37656338.10 -37656337.97 0.1698 0.0848
 Mercury -107810-06-09 05:16 J -37656020.39 -37656020.28 -37656020.16 0.1817 0.0671
 Mercury -107809-07-01 20:38 J -37655631.73 -37655631.64 -37655631.54 0.1717 0.1357
 Mercury -107808-05-14 23:45 J -37655314.59 -37655314.51 -37655314.43 0.1796 0.1298

Mercury -107802-12-16 13:55 J -37652908.01 -37652907.92 -37652907.83 0.1694 0.1331

Mercury -107801-10-29 12:00 J -37652590.09 -37652590.00 -37652589.90 0.1821 0.1193

Mercury -107800-11-21 23:31 J -37652201.66 -37652201.52 -37652201.39 0.1712 0.0788

Mercury -107799-10-05 07:40 J -37651884.29 -37651884.18 -37651884.07 0.1801 0.0848

Mercury -107791-03-21 18:28 J -37649159.77 -37649159.73 -37649159.70 0.1826 0.1736

Mercury -107790-04-14 02:38 J -37648771.53 -37648771.39 -37648771.24 0.1708 0.0250

Mercury -107789-02-25 15:07 J -37648453.99 -37648453.87 -37648453.75 0.1806 0.0370

Venus -107786-06-01 16:19 J -37647261.99 -37647261.82 -37647261.65 0.1850 0.0624

Venus -107783-03-11 10:04 J -37646248.22 -37646248.08 -37646247.93 0.1664 0.0800

Venus -107781-01-09 12:57 J -37645579.08 -37645578.96 -37645578.84 0.1677 0.1172

Mercury -107781-09-03 06:14 J -37645341.39 -37645341.24 -37645341.09 0.1703 0.0283

Mercury -107780-07-17 22:33 J -37645023.69 -37645023.56 -37645023.44 0.1811 0.0119

Mercury -107778-06-23 15:50 J -37644317.85 -37644317.84 -37644317.83 0.1791 0.1781

Moon -107774-07-17 01:55 J -37642833.60 -37642833.42 -37642833.24 0.1678 0.0572

Earth -107774-07-17 06:57 J -37642833.38 -37642833.21 -37642833.04 0.1678 0.0497 *

Mercury -107771-01-24 10:04 J -37641911.21 -37641911.08 -37641910.95 0.1699 0.0794

Mercury -107771-12-08 05:31 J -37641593.39 -37641593.27 -37641593.16 0.1816 0.0628

Mercury -107770-12-31 21:21 J -37641204.70 -37641204.61 -37641204.53 0.1717 0.1414

Mercury -107769-11-13 00:00 J -37640887.58 -37640887.50 -37640887.42 0.1796 0.1344

Mercury -107762-06-16 14:09 J -37638481.00 -37638480.91 -37638480.81 0.1694 0.1287

Mercury -107761-04-29 12:00 J -37638163.09 -37638163.00 -37638162.90 0.1822 0.1152

Mercury -107760-05-23 00:00 J -37637774.63 -37637774.50 -37637774.37 0.1712 0.0844

Mercury -107759-04-05 07:40 J -37637457.29 -37637457.18 -37637457.07 0.1801 0.0885

Venus -107752-03-28 18:28 J -37634907.85 -37634907.73 -37634907.62 0.1840 0.1431

Mercury -107752-09-19 18:43 J -37634732.77 -37634732.72 -37634732.67 0.1826 0.1680

Mercury -107751-10-13 03:07 J -37634344.52 -37634344.37 -37634344.22 0.1708 0.0295

Mercury -107750-08-26 15:21 J -37634026.98 -37634026.86 -37634026.74 0.1807 0.0419

Venus -107749-01-08 06:14 J -37633892.40 -37633892.24 -37633892.07 0.1671 0.0231

Mercury -107741-03-04 06:28 J -37630914.37 -37630914.23 -37630914.08 0.1703 0.0239

Mercury -107740-01-15 22:33 J -37630596.68 -37630596.56 -37630596.43 0.1811 0.0081

Mercury -107732-07-25 10:33 J -37627484.20 -37627484.06 -37627483.93 0.1699 0.0745
 Mercury -107731-06-08 05:31 J -37627166.39 -37627166.27 -37627166.15 0.1817 0.0580
 Mercury -107730-07-01 21:35 J -37626777.67 -37626777.60 -37626777.52 0.1717 0.1466
 Mercury -107729-05-14 00:00 J -37626460.58 -37626460.50 -37626460.42 0.1796 0.1384
 Mercury -107723-12-15 14:52 J -37624053.98 -37624053.88 -37624053.78 0.1694 0.1233
 Mercury -107722-10-29 12:28 J -37623736.09 -37623735.98 -37623735.88 0.1821 0.1100
 Mercury -107721-11-21 00:28 J -37623347.60 -37623347.48 -37623347.35 0.1712 0.0902
 Venus -107720-03-28 18:57 J -37623219.89 -37623219.71 -37623219.53 0.1847 0.0316
 Mercury -107720-10-04 07:55 J -37623030.28 -37623030.17 -37623030.07 0.1801 0.0934
 Venus -107717-01-06 22:33 J -37622205.71 -37622205.56 -37622205.40 0.1665 0.0693
 Venus -107716-11-06 01:11 J -37621536.56 -37621536.45 -37621536.35 0.1678 0.1293
 Mercury -107712-03-20 18:43 J -37620305.77 -37620305.72 -37620305.67 0.1826 0.1642
 Mercury -107711-04-13 03:35 J -37619917.50 -37619917.35 -37619917.21 0.1708 0.0349
 Mercury -107710-02-24 15:21 J -37619599.98 -37619599.86 -37619599.74 0.1806 0.0460
 Mercury -107702-09-03 06:57 J -37616487.36 -37616487.21 -37616487.06 0.1703 0.0185
 Mercury -107701-07-16 22:33 J -37616169.68 -37616169.56 -37616169.43 0.1812 0.0063
 Earth -107695-07-19 07:26 J -37613976.36 -37613976.19 -37613976.02 0.1676 0.0589
 Moon -107695-07-19 08:52 J -37613976.31 -37613976.13 -37613975.95 0.1676 0.0663 *
 Mercury -107692-01-23 10:48 J -37613057.19 -37613057.05 -37613056.92 0.1699 0.0698
 Mercury -107692-12-07 05:45 J -37612739.38 -37612739.26 -37612739.14 0.1817 0.0530
 Mercury -107691-12-30 22:19 J -37612350.64 -37612350.57 -37612350.50 0.1717 0.1522
 Mercury -107690-11-13 00:00 J -37612033.57 -37612033.50 -37612033.42 0.1796 0.1429
 Venus -107686-01-23 21:35 J -37610865.66 -37610865.60 -37610865.54 0.1837 0.1733
 Venus -107685-01-05 14:38 J -37610518.93 -37610518.89 -37610518.85 0.1661 0.1594
 Venus -107684-11-04 18:14 J -37609849.90 -37609849.74 -37609849.57 0.1672 0.0350
 Mercury -107683-06-15 15:07 J -37609626.97 -37609626.87 -37609626.77 0.1694 0.1186
 Mercury -107682-04-29 12:28 J -37609309.08 -37609308.98 -37609308.88 0.1821 0.1053
 Mercury -107681-05-22 00:43 J -37608920.59 -37608920.47 -37608920.34 0.1712 0.0946
 Mercury -107680-04-04 07:55 J -37608603.27 -37608603.17 -37608603.06 0.1801 0.0979
 Mercury -107674-11-05 19:40 J -37606196.70 -37606196.68 -37606196.65 0.1690 0.1656

Mercury -107673-09-18 18:57 J -37605878.77 -37605878.71 -37605878.65 0.1826 0.1589

Mercury -107672-10-12 04:04 J -37605490.48 -37605490.33 -37605490.18 0.1708 0.0403

Mercury -107671-08-25 15:35 J -37605172.97 -37605172.85 -37605172.73 0.1806 0.0508

Mercury -107662-03-04 07:26 J -37602060.34 -37602060.19 -37602060.04 0.1703 0.0132

Mercury -107661-01-15 22:48 J -37601742.67 -37601742.55 -37601742.42 0.1811 0.0032

Moon -107654-01-10 22:33 J -37599190.66 -37599190.56 -37599190.46 0.1833 0.1596

Earth -107654-01-11 07:55 J -37599190.23 -37599190.17 -37599190.12 0.1834 0.1758

Venus -107654-01-23 21:21 J -37599177.79 -37599177.61 -37599177.42 0.1845 0.0037

Mercury -107653-07-24 11:16 J -37598630.17 -37598630.03 -37598629.89 0.1699 0.0645

Mercury -107652-06-07 05:45 J -37598312.38 -37598312.26 -37598312.13 0.1817 0.0490

Venus -107652-11-03 11:02 J -37598163.20 -37598163.04 -37598162.89 0.1667 0.0585

Mercury -107651-06-30 22:33 J -37597923.61 -37597923.56 -37597923.50 0.1717 0.1575

Mercury -107650-05-14 00:14 J -37597606.56 -37597606.49 -37597606.42 0.1796 0.1469

Venus -107650-09-03 12:43 J -37597494.05 -37597493.97 -37597493.88 0.1680 0.1426

Mercury -107644-12-14 15:21 J -37595199.96 -37595199.86 -37595199.75 0.1694 0.1139

Mercury -107643-10-28 12:43 J -37594882.08 -37594881.97 -37594881.87 0.1822 0.1007

Mercury -107642-11-21 01:26 J -37594493.56 -37594493.44 -37594493.32 0.1712 0.1006

Mercury -107641-10-03 07:55 J -37594176.27 -37594176.17 -37594176.06 0.1801 0.1018

Mercury -107634-05-06 19:55 J -37591769.71 -37591769.67 -37591769.63 0.1690 0.1615

Mercury -107633-03-19 19:11 J -37591451.77 -37591451.70 -37591451.63 0.1826 0.1541

Mercury -107632-04-12 04:19 J -37591063.47 -37591063.32 -37591063.18 0.1708 0.0448

Mercury -107631-02-23 15:35 J -37590745.97 -37590745.85 -37590745.73 0.1807 0.0549

Mercury -107623-09-02 07:55 J -37587633.32 -37587633.17 -37587633.02 0.1703 0.0094

Venus -107622-01-23 23:45 J -37587489.54 -37587489.51 -37587489.48 0.1853 0.1813

Mercury -107622-07-16 23:02 J -37587315.67 -37587315.54 -37587315.41 0.1811 0.0067

Venus -107620-11-02 03:07 J -37586476.44 -37586476.37 -37586476.29 0.1662 0.1496

Venus -107618-09-02 06:28 J -37585807.39 -37585807.23 -37585807.07 0.1674 0.0465

Earth -107616-07-21 08:24 J -37585119.15 -37585119.15 -37585119.14 0.1674 0.1671

Moon -107616-07-21 14:38 J -37585118.95 -37585118.89 -37585118.83 0.1673 0.1578

Mercury -107613-01-23 11:45 J -37584203.15 -37584203.01 -37584202.87 0.1699 0.0592

Mercury -107613-12-06 06:00 J -37583885.37 -37583885.25 -37583885.13 0.1817 0.0439

Mercury -107612-12-29 23:16 J -37583496.58 -37583496.53 -37583496.49 0.1718 0.1633

Mercury -107611-11-12 00:14 J -37583179.55 -37583179.49 -37583179.42 0.1796 0.1513

Mercury -107604-06-14 15:50 J -37580772.95 -37580772.84 -37580772.73 0.1694 0.1090

Mercury -107603-04-28 12:43 J -37580455.08 -37580454.97 -37580454.86 0.1821 0.0962

Mercury -107602-05-22 01:40 J -37580066.54 -37580066.43 -37580066.31 0.1712 0.1058

Mercury -107601-04-03 08:09 J -37579749.26 -37579749.16 -37579749.06 0.1801 0.1060

Mercury -107595-11-04 20:24 J -37577342.70 -37577342.65 -37577342.60 0.1690 0.1562

Mercury -107594-09-18 19:11 J -37577024.77 -37577024.70 -37577024.63 0.1826 0.1496

Mercury -107593-10-11 04:48 J -37576636.44 -37576636.30 -37576636.15 0.1708 0.0507

Mercury -107592-08-24 15:50 J -37576318.96 -37576318.84 -37576318.73 0.1806 0.0595

Venus -107589-11-20 00:14 J -37575135.67 -37575135.49 -37575135.31 0.1843 0.0320

Venus -107586-08-31 23:16 J -37574120.70 -37574120.53 -37574120.37 0.1669 0.0476

Venus -107584-07-01 00:57 J -37573451.52 -37573451.46 -37573451.39 0.1682 0.1547

Mercury -107583-03-03 08:09 J -37573206.31 -37573206.16 -37573206.01 0.1703 0.0060

Mercury -107582-01-14 23:02 J -37572888.66 -37572888.54 -37572888.41 0.1812 0.0107

Moon -107575-01-14 19:26 J -37570331.90 -37570331.69 -37570331.47 0.1838 0.0644

Earth -107575-01-15 00:43 J -37570331.64 -37570331.47 -37570331.29 0.1838 0.1052 *

Mercury -107574-07-24 12:00 J -37569776.15 -37569776.00 -37569775.86 0.1698 0.0553

Mercury -107573-06-06 06:14 J -37569458.36 -37569458.24 -37569458.12 0.1817 0.0392

Mercury -107572-06-29 23:31 J -37569069.55 -37569069.52 -37569069.49 0.1717 0.1680

Mercury -107571-05-13 00:14 J -37568752.55 -37568752.49 -37568752.43 0.1796 0.1552

Earth -107569-07-15 09:21 J -37567958.23 -37567958.11 -37567957.99 0.1684 0.1228

Moon -107569-07-15 14:52 J -37567958.01 -37567957.88 -37567957.75 0.1684 0.1167 *

Mercury -107565-12-13 16:19 J -37566345.94 -37566345.82 -37566345.71 0.1694 0.1038

Mercury -107564-10-27 12:57 J -37566028.07 -37566027.96 -37566027.85 0.1821 0.0911

Mercury -107563-11-20 02:09 J -37565639.52 -37565639.41 -37565639.29 0.1713 0.1108

Mercury -107562-10-03 08:24 J -37565322.25 -37565322.15 -37565322.06 0.1801 0.1108

Venus -107557-11-20 01:11 J -37563447.55 -37563447.45 -37563447.34 0.1851 0.1475

Mercury -107555-05-05 20:52 J -37562915.70 -37562915.63 -37562915.57 0.1690 0.1515

Mercury -107554-03-19 19:26 J -37562597.77 -37562597.69 -37562597.61 0.1826 0.1447

Venus -107554-08-30 15:21 J -37562433.95 -37562433.86 -37562433.77 0.1664 0.1390

Mercury -107553-04-11 05:16 J -37562209.42 -37562209.28 -37562209.14 0.1708 0.0559

Mercury -107552-02-22 15:50 J -37561891.96 -37561891.84 -37561891.72 0.1806 0.0636

Venus -107552-06-29 18:28 J -37561764.89 -37561764.73 -37561764.57 0.1676 0.0582

Mercury -107544-09-01 08:38 J -37558779.29 -37558779.14 -37558778.99 0.1703 0.0030

Mercury -107543-07-15 23:16 J -37558461.66 -37558461.53 -37558461.41 0.1812 0.0155

Mercury -107534-01-22 12:28 J -37555349.12 -37555348.98 -37555348.84 0.1699 0.0495

Mercury -107534-12-06 06:14 J -37555031.36 -37555031.24 -37555031.11 0.1817 0.0350

Mercury -107532-11-11 00:28 J -37554325.53 -37554325.48 -37554325.43 0.1796 0.1596

Mercury -107525-06-13 16:33 J -37551918.93 -37551918.81 -37551918.69 0.1694 0.0993

Mercury -107524-04-27 12:57 J -37551601.07 -37551600.96 -37551600.85 0.1822 0.0869

Mercury -107523-05-21 02:38 J -37551212.50 -37551212.39 -37551212.28 0.1712 0.1165

Venus -107523-09-17 02:38 J -37551093.56 -37551093.39 -37551093.22 0.1840 0.0636

Mercury -107522-04-03 08:09 J -37550895.25 -37550895.16 -37550895.06 0.1801 0.1146

Venus -107520-06-28 11:31 J -37550078.18 -37550078.02 -37550077.85 0.1670 0.0367

Venus -107518-04-28 12:43 J -37549408.97 -37549408.97 -37549408.96 0.1684 0.1680

Mercury -107516-11-03 21:07 J -37548488.69 -37548488.62 -37548488.55 0.1690 0.1469

Mercury -107515-09-17 19:40 J -37548170.76 -37548170.68 -37548170.59 0.1826 0.1394

Mercury -107514-10-11 05:45 J -37547782.40 -37547782.26 -37547782.12 0.1708 0.0608

Mercury -107513-08-23 16:04 J -37547464.95 -37547464.83 -37547464.72 0.1807 0.0684

Mercury -107504-03-02 09:07 J -37544352.27 -37544352.12 -37544351.97 0.1703 0.0082

Mercury -107503-01-13 23:16 J -37544034.65 -37544034.53 -37544034.40 0.1811 0.0208

Mercury -107495-07-23 12:57 J -37540922.11 -37540921.96 -37540921.82 0.1698 0.0446

Mercury -107494-06-06 06:28 J -37540604.36 -37540604.23 -37540604.11 0.1817 0.0305

Mercury -107492-05-12 00:28 J -37539898.53 -37539898.48 -37539898.43 0.1796 0.1636

Venus -107491-09-17 03:35 J -37539405.49 -37539405.35 -37539405.21 0.1849 0.1149

Earth -107490-07-18 11:45 J -37539101.19 -37539101.01 -37539100.83 0.1681 0.0101

Moon -107490-07-18 12:28 J -37539101.15 -37539100.98 -37539100.81 0.1681 0.0190 *

Venus -107488-06-27 04:19 J -37538391.42 -37538391.32 -37538391.22 0.1665 0.1295

Venus -107486-04-27 06:43 J -37537722.37 -37537722.22 -37537722.07 0.1678 0.0702

Mercury -107486-12-13 17:02 J -37537491.91 -37537491.79 -37537491.67 0.1694 0.0940

Mercury -107485-10-26 13:11 J -37537174.06 -37537173.95 -37537173.83 0.1821 0.0819

Mercury -107484-11-19 03:21 J -37536785.47 -37536785.36 -37536785.26 0.1712 0.1222

Mercury -107483-10-02 08:24 J -37536468.24 -37536468.15 -37536468.05 0.1801 0.1194

Mercury -107476-05-04 21:21 J -37534061.68 -37534061.61 -37534061.53 0.1690 0.1422

Mercury -107475-03-18 19:40 J -37533743.76 -37533743.68 -37533743.60 0.1827 0.1356

Mercury -107474-04-11 06:00 J -37533355.39 -37533355.25 -37533355.11 0.1708 0.0662

Mercury -107473-02-22 16:04 J -37533037.95 -37533037.83 -37533037.72 0.1806 0.0723

Mercury -107465-08-31 09:35 J -37529925.25 -37529925.10 -37529924.95 0.1703 0.0132

Mercury -107464-07-14 23:31 J -37529607.65 -37529607.52 -37529607.40 0.1812 0.0246

Venus -107457-07-14 06:28 J -37527051.39 -37527051.23 -37527051.08 0.1838 0.0929

Mercury -107455-01-21 13:11 J -37526495.10 -37526494.95 -37526494.81 0.1698 0.0397

Mercury -107455-12-05 06:43 J -37526177.35 -37526177.22 -37526177.10 0.1817 0.0251

Venus -107454-04-26 00:14 J -37526035.66 -37526035.49 -37526035.33 0.1672 0.0257

Mercury -107453-11-10 00:43 J -37525471.51 -37525471.47 -37525471.43 0.1796 0.1681

Mercury -107446-06-13 17:16 J -37523064.90 -37523064.78 -37523064.65 0.1694 0.0894

Mercury -107445-04-26 13:26 J -37522747.06 -37522746.94 -37522746.83 0.1822 0.0774

Mercury -107444-05-20 03:21 J -37522358.46 -37522358.36 -37522358.25 0.1712 0.1268

Mercury -107443-04-02 08:38 J -37522041.23 -37522041.14 -37522041.05 0.1801 0.1234

Mercury -107437-11-02 21:50 J -37519634.67 -37519634.59 -37519634.50 0.1690 0.1371

Mercury -107436-09-16 19:55 J -37519316.75 -37519316.67 -37519316.58 0.1826 0.1303

Mercury -107435-10-10 06:43 J -37518928.36 -37518928.22 -37518928.09 0.1708 0.0718

Mercury -107434-08-23 16:19 J -37518610.94 -37518610.82 -37518610.71 0.1806 0.0772

Mercury -107425-03-01 10:04 J -37515498.23 -37515498.08 -37515497.94 0.1703 0.0184

Venus -107425-07-14 06:28 J -37515363.39 -37515363.23 -37515363.07 0.1846 0.0835

Mercury -107424-01-12 23:31 J -37515180.64 -37515180.52 -37515180.39 0.1812 0.0297

Venus -107422-04-24 16:33 J -37514348.92 -37514348.81 -37514348.69 0.1666 0.1189

Venus -107420-02-21 18:43 J -37513679.87 -37513679.72 -37513679.58 0.1680 0.0827

Mercury -107416-07-22 13:40 J -37512068.08 -37512067.93 -37512067.79 0.1698 0.0346

Mercury -107415-06-05 06:43 J -37511750.35 -37511750.22 -37511750.10 0.1817 0.0213

Mercury -107413-05-11 00:43 J -37511044.50 -37511044.47 -37511044.44 0.1796 0.1720

Moon -107411-07-20 08:09 J -37510244.28 -37510244.16 -37510244.03 0.1679 0.1143

Earth -107411-07-20 12:57 J -37510244.11 -37510243.96 -37510243.82 0.1679 0.0992 *

Mercury -107407-12-12 17:45 J -37508637.89 -37508637.76 -37508637.63 0.1694 0.0846

Mercury -107406-10-26 13:40 J -37508320.05 -37508319.93 -37508319.82 0.1822 0.0728

Mercury -107405-11-18 04:04 J -37507931.42 -37507931.33 -37507931.23 0.1712 0.1327

Mercury -107404-10-01 08:38 J -37507614.23 -37507614.14 -37507614.05 0.1801 0.1274

Mercury -107397-05-03 22:04 J -37505207.67 -37505207.58 -37505207.49 0.1690 0.1327

Mercury -107396-03-17 20:09 J -37504889.75 -37504889.66 -37504889.57 0.1826 0.1254

Mercury -107395-04-10 06:57 J -37504501.35 -37504501.21 -37504501.08 0.1708 0.0763

Mercury -107394-02-21 16:19 J -37504183.93 -37504183.82 -37504183.71 0.1807 0.0814

Venus -107391-05-11 09:21 J -37503009.24 -37503009.11 -37503008.98 0.1835 0.1237

Venus -107388-02-20 12:00 J -37501993.16 -37501993.00 -37501992.83 0.1674 0.0142

Mercury -107387-08-08 02:24 J -37501459.42 -37501459.40 -37501459.38 0.1831 0.1801

Mercury -107386-08-31 10:19 J -37501071.22 -37501071.07 -37501070.92 0.1703 0.0228

Mercury -107385-07-13 23:45 J -37500753.63 -37500753.51 -37500753.38 0.1811 0.0338

Mercury -107376-01-20 14:09 J -37497641.06 -37497640.91 -37497640.77 0.1698 0.0293

Mercury -107376-12-04 06:57 J -37497323.34 -37497323.21 -37497323.09 0.1817 0.0172

Mercury -107374-11-10 00:57 J -37496617.48 -37496617.46 -37496617.44 0.1796 0.1764

Mercury -107367-06-12 18:00 J -37494210.88 -37494210.75 -37494210.62 0.1694 0.0797

Mercury -107366-04-26 13:40 J -37493893.05 -37493892.93 -37493892.81 0.1822 0.0680

Mercury -107365-05-19 04:33 J -37493504.40 -37493504.31 -37493504.22 0.1712 0.1379

Mercury -107364-04-01 08:38 J -37493187.22 -37493187.14 -37493187.05 0.1801 0.1320

Venus -107359-05-11 08:38 J -37491321.31 -37491321.14 -37491320.96 0.1844 0.0508

Mercury -107358-11-02 22:33 J -37490780.65 -37490780.56 -37490780.46 0.1690 0.1275

Mercury -107357-09-15 20:24 J -37490462.75 -37490462.65 -37490462.56 0.1827 0.1210

Venus -107356-02-19 04:48 J -37490306.42 -37490306.30 -37490306.17 0.1668 0.1083

Mercury -107356-10-09 07:26 J -37490074.32 -37490074.19 -37490074.05 0.1708 0.0823

Mercury -107355-08-22 16:33 J -37489756.92 -37489756.81 -37489756.70 0.1806 0.0859

Venus -107355-12-20 06:28 J -37489637.36 -37489637.23 -37489637.09 0.1682 0.0956
 Mercury -107347-02-06 02:38 J -37487032.42 -37487032.39 -37487032.36 0.1831 0.1754
 Mercury -107346-03-01 10:48 J -37486644.20 -37486644.05 -37486643.90 0.1703 0.0278
 Mercury -107345-01-12 23:45 J -37486326.63 -37486326.51 -37486326.39 0.1812 0.0378
 Mercury -107337-07-21 14:24 J -37483214.05 -37483213.90 -37483213.76 0.1698 0.0255
 Mercury -107336-06-04 06:57 J -37482896.33 -37482896.21 -37482896.08 0.1817 0.0132
 Mercury -107328-12-11 18:43 J -37479783.86 -37479783.72 -37479783.59 0.1694 0.0743
 Mercury -107327-10-25 13:55 J -37479466.04 -37479465.92 -37479465.80 0.1822 0.0630
 Mercury -107326-11-18 05:02 J -37479077.37 -37479077.29 -37479077.21 0.1713 0.1433
 Venus -107325-03-07 12:28 J -37478967.07 -37478966.98 -37478966.88 0.1833 0.1540
 Mercury -107325-09-30 08:52 J -37478760.20 -37478760.13 -37478760.05 0.1801 0.1368
 Venus -107323-12-19 00:28 J -37477950.65 -37477950.48 -37477950.31 0.1675 0.0024
 Mercury -107318-05-03 23:02 J -37476353.64 -37476353.54 -37476353.44 0.1690 0.1228
 Mercury -107317-03-16 20:24 J -37476035.74 -37476035.65 -37476035.55 0.1827 0.1162
 Mercury -107316-04-09 07:55 J -37475647.30 -37475647.17 -37475647.04 0.1708 0.0875
 Mercury -107315-02-20 16:33 J -37475329.92 -37475329.81 -37475329.70 0.1807 0.0900
 Mercury -107308-08-07 02:38 J -37472605.43 -37472605.39 -37472605.34 0.1831 0.1708
 Mercury -107307-08-30 11:16 J -37472217.18 -37472217.03 -37472216.89 0.1703 0.0334
 Mercury -107306-07-14 00:00 J -37471899.62 -37471899.50 -37471899.38 0.1812 0.0424
 Mercury -107297-01-20 14:52 J -37468787.03 -37468786.88 -37468786.73 0.1698 0.0191
 Mercury -107297-12-03 07:11 J -37468469.33 -37468469.20 -37468469.08 0.1817 0.0087
 Venus -107293-03-07 11:45 J -37467279.19 -37467279.01 -37467278.83 0.1841 0.0204
 Earth -107291-01-14 03:07 J -37466601.57 -37466601.37 -37466601.16 0.1832 0.0378
 Moon -107291-01-14 04:48 J -37466601.49 -37466601.30 -37466601.11 0.1832 0.0220 *
 Venus -107291-12-17 17:16 J -37466263.92 -37466263.78 -37466263.65 0.1670 0.0973
 Venus -107289-10-16 18:28 J -37465594.86 -37465594.73 -37465594.60 0.1683 0.1084
 Mercury -107288-06-11 18:43 J -37465356.85 -37465356.72 -37465356.58 0.1694 0.0701
 Mercury -107287-04-25 13:55 J -37465039.04 -37465038.92 -37465038.80 0.1822 0.0588
 Mercury -107286-05-19 05:31 J -37464650.35 -37464650.27 -37464650.20 0.1712 0.1487
 Mercury -107285-03-31 08:52 J -37464333.20 -37464333.13 -37464333.05 0.1802 0.1402

Moon -107285-07-16 10:48 J -37464226.23 -37464226.05 -37464225.88 0.1688 0.0705
 Earth -107285-07-16 14:09 J -37464226.07 -37464225.91 -37464225.75 0.1688 0.0821 *
 Mercury -107279-11-01 23:16 J -37461926.63 -37461926.53 -37461926.43 0.1690 0.1181
 Mercury -107278-09-15 20:38 J -37461608.74 -37461608.64 -37461608.54 0.1826 0.1110
 Mercury -107277-10-08 08:09 J -37461220.28 -37461220.16 -37461220.03 0.1708 0.0923
 Mercury -107276-08-21 16:48 J -37460902.91 -37460902.80 -37460902.70 0.1807 0.0948
 Mercury -107269-03-24 04:04 J -37458496.36 -37458496.33 -37458496.30 0.1686 0.1645
 Mercury -107268-02-05 02:52 J -37458178.43 -37458178.38 -37458178.33 0.1831 0.1659
 Mercury -107267-02-28 11:31 J -37457790.16 -37457790.02 -37457789.87 0.1703 0.0387
 Mercury -107266-01-12 00:14 J -37457472.61 -37457472.49 -37457472.37 0.1812 0.0472
 Mercury -107258-07-21 15:21 J -37454360.01 -37454359.86 -37454359.71 0.1698 0.0144
 Mercury -107257-06-03 07:11 J -37454042.32 -37454042.20 -37454042.07 0.1817 0.0055
 Venus -107257-10-15 12:14 J -37453908.16 -37453907.99 -37453907.82 0.1677 0.0104
 Mercury -107249-12-10 19:26 J -37450929.83 -37450929.69 -37450929.56 0.1694 0.0646
 Mercury -107248-10-24 14:09 J -37450612.03 -37450611.91 -37450611.79 0.1822 0.0537
 Mercury -107247-11-17 06:00 J -37450223.31 -37450223.25 -37450223.19 0.1712 0.1543
 Mercury -107246-09-30 09:07 J -37449906.19 -37449906.12 -37449906.05 0.1801 0.1448
 Mercury -107239-05-02 23:31 J -37447499.62 -37447499.52 -37447499.41 0.1690 0.1135
 Mercury -107238-03-16 20:38 J -37447181.74 -37447181.64 -37447181.53 0.1827 0.1070
 Mercury -107237-04-08 08:52 J -37446793.26 -37446793.13 -37446793.01 0.1708 0.0979
 Mercury -107236-02-19 16:48 J -37446475.91 -37446475.80 -37446475.70 0.1807 0.0987
 Mercury -107230-09-23 04:19 J -37444069.36 -37444069.32 -37444069.28 0.1686 0.1600
 Mercury -107229-08-06 03:07 J -37443751.42 -37443751.37 -37443751.31 0.1831 0.1607
 Mercury -107228-08-29 12:00 J -37443363.14 -37443363.00 -37443362.85 0.1703 0.0435
 Venus -107227-01-02 14:24 J -37443237.08 -37443236.90 -37443236.72 0.1838 0.0123
 Mercury -107227-07-13 00:14 J -37443045.61 -37443045.49 -37443045.37 0.1812 0.0513
 Venus -107225-10-14 05:16 J -37442221.42 -37442221.28 -37442221.13 0.1672 0.0859
 Venus -107223-08-14 06:14 J -37441552.36 -37441552.24 -37441552.13 0.1685 0.1219
 Mercury -107218-01-19 15:35 J -37439933.00 -37439932.85 -37439932.70 0.1698 0.0094
 Mercury -107218-12-03 07:26 J -37439615.31 -37439615.19 -37439615.06 0.1817 0.0070

Mercury -107209-06-10 19:40 J -37436502.82 -37436502.68 -37436502.54 0.1694 0.0597
 Mercury -107208-04-24 14:09 J -37436185.03 -37436184.91 -37436184.78 0.1822 0.0498
 Mercury -107207-05-18 06:14 J -37435796.29 -37435796.24 -37435796.18 0.1713 0.1591
 Mercury -107206-03-31 09:07 J -37435479.18 -37435479.12 -37435479.05 0.1801 0.1492
 Earth -107206-07-19 16:04 J -37435369.00 -37435368.83 -37435368.65 0.1685 0.0299
 Moon -107206-07-19 18:57 J -37435368.90 -37435368.71 -37435368.52 0.1685 0.0119 *
 Mercury -107200-11-01 00:14 J -37433072.61 -37433072.49 -37433072.38 0.1690 0.1082
 Mercury -107199-09-14 21:07 J -37432754.73 -37432754.62 -37432754.52 0.1827 0.1016
 Mercury -107198-10-08 09:21 J -37432366.23 -37432366.11 -37432365.99 0.1708 0.1036
 Mercury -107197-08-20 17:02 J -37432048.90 -37432048.79 -37432048.69 0.1807 0.1036
 Venus -107195-01-02 15:35 J -37431548.91 -37431548.85 -37431548.78 0.1847 0.1703
 Venus -107191-08-13 00:28 J -37429865.65 -37429865.48 -37429865.32 0.1679 0.0227
 Mercury -107190-03-24 04:48 J -37429642.35 -37429642.30 -37429642.25 0.1686 0.1550
 Mercury -107189-02-05 03:21 J -37429324.43 -37429324.36 -37429324.30 0.1831 0.1563
 Mercury -107188-02-27 12:28 J -37428936.12 -37428935.98 -37428935.83 0.1703 0.0489
 Mercury -107187-01-11 00:28 J -37428618.60 -37428618.48 -37428618.36 0.1812 0.0560
 Mercury -107179-07-20 16:04 J -37425505.98 -37425505.83 -37425505.68 0.1698 0.0044
 Mercury -107178-06-03 07:26 J -37425188.31 -37425188.19 -37425188.06 0.1817 0.0067
 Mercury -107170-12-10 20:09 J -37422075.80 -37422075.66 -37422075.52 0.1694 0.0549
 Mercury -107169-10-23 14:38 J -37421758.02 -37421757.89 -37421757.77 0.1822 0.0447
 Mercury -107168-11-16 06:57 J -37421369.25 -37421369.21 -37421369.17 0.1712 0.1652
 Mercury -107167-09-29 09:21 J -37421052.18 -37421052.11 -37421052.05 0.1802 0.1533
 Venus -107162-10-30 18:00 J -37419194.93 -37419194.75 -37419194.57 0.1836 0.0425
 Mercury -107160-05-02 00:28 J -37418645.60 -37418645.48 -37418645.37 0.1690 0.1036
 Mercury -107159-03-15 21:07 J -37418327.72 -37418327.62 -37418327.51 0.1827 0.0969
 Venus -107159-08-11 17:31 J -37418178.92 -37418178.77 -37418178.62 0.1673 0.0747
 Mercury -107158-04-08 09:35 J -37417939.22 -37417939.10 -37417938.98 0.1708 0.1082
 Mercury -107157-02-19 17:02 J -37417621.89 -37417621.79 -37417621.69 0.1807 0.1079
 Venus -107157-06-10 18:28 J -37417509.83 -37417509.73 -37417509.63 0.1687 0.1343
 Mercury -107151-09-22 05:16 J -37415215.35 -37415215.28 -37415215.22 0.1686 0.1502

Mercury -107150-08-06 03:35 J -37414897.42 -37414897.35 -37414897.28 0.1831 0.1511
 Mercury -107149-08-28 12:57 J -37414509.10 -37414508.96 -37414508.82 0.1703 0.0539
 Mercury -107148-07-12 00:28 J -37414191.60 -37414191.48 -37414191.36 0.1812 0.0605
 Mercury -107139-01-18 16:33 J -37411078.96 -37411078.81 -37411078.66 0.1698 0.0016
 Mercury -107139-12-02 07:40 J -37410761.30 -37410761.18 -37410761.05 0.1817 0.0117
 Mercury -107130-06-10 20:24 J -37407648.79 -37407648.65 -37407648.50 0.1694 0.0498
 Venus -107130-10-30 18:00 J -37407506.87 -37407506.75 -37407506.63 0.1844 0.1370
 Mercury -107129-04-23 14:38 J -37407331.01 -37407330.89 -37407330.77 0.1822 0.0399
 Mercury -107128-05-17 07:26 J -37406942.20 -37406942.19 -37406942.18 0.1712 0.1706
 Mercury -107127-03-30 09:21 J -37406625.16 -37406625.11 -37406625.05 0.1801 0.1576
 Earth -107127-07-21 18:28 J -37406511.83 -37406511.73 -37406511.64 0.1682 0.1399
 Moon -107127-07-22 00:28 J -37406511.49 -37406511.48 -37406511.46 0.1682 0.1671
 Venus -107125-06-09 12:28 J -37405823.15 -37405822.98 -37405822.82 0.1681 0.0345
 Mercury -107121-10-31 00:57 J -37404218.58 -37404218.46 -37404218.34 0.1690 0.0985
 Mercury -107120-09-13 21:21 J -37403900.72 -37403900.61 -37403900.50 0.1827 0.0922
 Mercury -107119-10-07 10:19 J -37403512.19 -37403512.07 -37403511.96 0.1708 0.1141
 Mercury -107118-08-20 17:02 J -37403194.88 -37403194.79 -37403194.69 0.1807 0.1123
 Mercury -107111-03-23 05:16 J -37400788.35 -37400788.28 -37400788.21 0.1685 0.1461
 Mercury -107110-02-04 03:50 J -37400470.42 -37400470.34 -37400470.27 0.1832 0.1464
 Mercury -107109-02-27 13:26 J -37400082.09 -37400081.94 -37400081.80 0.1703 0.0592
 Mercury -107108-01-10 00:43 J -37399764.59 -37399764.47 -37399764.36 0.1812 0.0649
 Mercury -107100-07-19 16:48 J -37396651.95 -37396651.80 -37396651.65 0.1698 0.0059
 Mercury -107099-06-02 07:55 J -37396334.29 -37396334.17 -37396334.04 0.1817 0.0160
 Venus -107096-08-26 20:52 J -37395152.80 -37395152.63 -37395152.46 0.1833 0.0735
 Venus -107093-06-08 06:00 J -37394136.41 -37394136.25 -37394136.10 0.1675 0.0634
 Venus -107091-04-08 06:00 J -37393467.33 -37393467.25 -37393467.17 0.1689 0.1482
 Mercury -107091-12-09 20:52 J -37393221.77 -37393221.63 -37393221.48 0.1694 0.0446
 Mercury -107090-10-23 14:52 J -37392904.01 -37392903.88 -37392903.76 0.1822 0.0349
 Mercury -107088-09-28 09:35 J -37392198.15 -37392198.10 -37392198.05 0.1801 0.1622
 Mercury -107081-05-01 01:11 J -37389791.57 -37389791.45 -37389791.33 0.1690 0.0937

Mercury -107080-03-14 21:21 J -37389473.72 -37389473.61 -37389473.49 0.1827 0.0878
 Earth -107080-07-15 15:35 J -37389350.92 -37389350.85 -37389350.79 0.1694 0.1568
 Mercury -107079-04-07 10:33 J -37389085.16 -37389085.06 -37389084.95 0.1708 0.1195
 Mercury -107078-02-18 17:16 J -37388767.88 -37388767.78 -37388767.69 0.1807 0.1163
 Mercury -107072-09-21 06:00 J -37386361.33 -37386361.25 -37386361.18 0.1686 0.1408
 Mercury -107071-08-05 03:50 J -37386043.42 -37386043.34 -37386043.26 0.1831 0.1416
 Mercury -107070-08-28 13:55 J -37385655.06 -37385654.92 -37385654.78 0.1703 0.0646
 Mercury -107069-07-11 00:43 J -37385337.58 -37385337.47 -37385337.35 0.1812 0.0694
 Venus -107064-08-26 20:24 J -37383464.80 -37383464.65 -37383464.50 0.1842 0.1047
 Venus -107061-06-06 23:02 J -37382449.59 -37382449.54 -37382449.49 0.1669 0.1591
 Mercury -107060-01-17 17:31 J -37382224.92 -37382224.77 -37382224.62 0.1698 0.0124
 Mercury -107060-12-01 07:55 J -37381907.29 -37381907.17 -37381907.04 0.1817 0.0207
 Venus -107059-04-07 00:28 J -37381780.65 -37381780.48 -37381780.32 0.1683 0.0470
 Mercury -107051-06-09 21:07 J -37378794.76 -37378794.62 -37378794.47 0.1694 0.0403
 Mercury -107050-04-23 14:52 J -37378477.00 -37378476.88 -37378476.75 0.1822 0.0308
 Mercury -107048-03-29 09:35 J -37377771.15 -37377771.10 -37377771.06 0.1802 0.1658
 Mercury -107042-10-31 01:40 J -37375364.56 -37375364.43 -37375364.31 0.1690 0.0889
 Mercury -107041-09-12 21:50 J -37375046.71 -37375046.59 -37375046.48 0.1827 0.0824
 Mercury -107040-10-06 11:02 J -37374658.14 -37374658.04 -37374657.94 0.1708 0.1243
 Mercury -107039-08-19 17:31 J -37374340.86 -37374340.77 -37374340.68 0.1807 0.1211
 Mercury -107032-03-22 06:14 J -37371934.32 -37371934.24 -37371934.15 0.1686 0.1359
 Mercury -107031-02-03 04:04 J -37371616.41 -37371616.33 -37371616.25 0.1832 0.1367
 Mercury -107030-02-26 14:24 J -37371228.04 -37371227.90 -37371227.77 0.1703 0.0700
 Venus -107030-06-24 01:11 J -37371110.60 -37371110.45 -37371110.31 0.1831 0.1028
 Mercury -107029-01-10 00:57 J -37370910.57 -37370910.46 -37370910.35 0.1812 0.0739
 Venus -107027-04-05 18:14 J -37370093.90 -37370093.74 -37370093.58 0.1676 0.0522
 Venus -107025-02-03 17:45 J -37369424.81 -37369424.76 -37369424.72 0.1692 0.1616
 Mercury -107021-07-18 17:45 J -37367797.91 -37367797.76 -37367797.61 0.1698 0.0167
 Mercury -107020-06-01 08:09 J -37367480.29 -37367480.16 -37367480.04 0.1817 0.0249
 Mercury -107012-12-08 21:50 J -37364367.74 -37364367.59 -37364367.45 0.1694 0.0347

Mercury -107011-10-22 15:07 J -37364049.99 -37364049.87 -37364049.74 0.1822 0.0257

Mercury -107009-09-27 09:50 J -37363344.13 -37363344.09 -37363344.06 0.1801 0.1705

Moon -107007-01-13 07:55 J -37362871.40 -37362871.17 -37362870.93 0.1826 0.0074

Earth -107007-01-13 07:40 J -37362871.39 -37362871.18 -37362870.97 0.1826 0.0210 *

Mercury -107002-05-01 01:55 J -37360937.54 -37360937.42 -37360937.29 0.1690 0.0840

Mercury -107001-03-13 21:50 J -37360619.71 -37360619.59 -37360619.48 0.1827 0.0783

Earth -107001-07-17 18:43 J -37360493.90 -37360493.72 -37360493.55 0.1692 0.0419

Moon -107001-07-17 18:28 J -37360493.90 -37360493.73 -37360493.56 0.1692 0.0214 *

107TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 107th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -107000-04-06 11:31 J | -37360231.11 | -37360231.02 | -37360230.92 | 0.1708 | 0.1302 | | |
| Mercury | -106999-02-17 17:31 J | -37359913.86 | -37359913.77 | -37359913.68 | 0.1807 | 0.1250 | | |
| Venus | -106998-06-24 00:00 J | -37359422.67 | -37359422.50 | -37359422.34 | 0.1839 | 0.0734 | | |
| Venus | -106995-04-04 11:16 J | -37358407.11 | -37358407.03 | -37358406.96 | 0.1671 | 0.1482 | | |
| Venus | -106993-02-02 12:14 J | -37357738.15 | -37357737.99 | -37357737.83 | 0.1685 | 0.0597 | | |
| Mercury | -106993-09-20 06:28 J | -37357507.32 | -37357507.23 | -37357507.14 | 0.1685 | 0.1315 | | |
| Mercury | -106992-08-04 04:19 J | -37357189.40 | -37357189.32 | -37357189.23 | 0.1832 | 0.1313 | | |
| Mercury | -106991-08-27 14:38 J | -37356801.02 | -37356800.89 | -37356800.75 | 0.1703 | 0.0748 | | |
| Mercury | -106990-07-11 00:57 J | -37356483.57 | -37356483.46 | -37356483.34 | 0.1812 | 0.0783 | | |

Mercury -106981-01-17 18:14 J -37353370.89 -37353370.74 -37353370.60 0.1698 0.0220
 Mercury -106981-11-30 08:24 J -37353053.27 -37353053.15 -37353053.03 0.1817 0.0298
 Mercury -106972-06-08 22:04 J -37349940.72 -37349940.58 -37349940.43 0.1694 0.0297
 Mercury -106971-04-22 15:07 J -37349622.99 -37349622.87 -37349622.74 0.1822 0.0223
 Mercury -106969-03-28 09:50 J -37348917.11 -37348917.09 -37348917.06 0.1801 0.1747
 Venus -106964-04-20 04:19 J -37347068.44 -37347068.32 -37347068.20 0.1828 0.1333
 Mercury -106963-10-30 02:24 J -37346510.53 -37346510.40 -37346510.27 0.1690 0.0787
 Mercury -106962-09-12 22:04 J -37346192.70 -37346192.58 -37346192.46 0.1827 0.0728
 Venus -106961-02-01 06:14 J -37346051.40 -37346051.24 -37346051.07 0.1678 0.0401
 Mercury -106961-10-05 12:14 J -37345804.08 -37345803.99 -37345803.90 0.1708 0.1359
 Mercury -106960-08-18 17:45 J -37345486.85 -37345486.76 -37345486.68 0.1807 0.1298
 Mercury -106953-03-21 06:57 J -37343080.30 -37343080.21 -37343080.11 0.1685 0.1265
 Mercury -106952-02-02 04:19 J -37342762.41 -37342762.32 -37342762.23 0.1832 0.1273
 Mercury -106951-02-25 15:07 J -37342374.00 -37342373.87 -37342373.73 0.1703 0.0804
 Mercury -106950-01-09 01:11 J -37342056.56 -37342056.45 -37342056.34 0.1812 0.0827
 Mercury -106943-06-25 10:33 J -37339332.07 -37339332.06 -37339332.05 0.1837 0.1826
 Mercury -106942-07-18 18:43 J -37338943.87 -37338943.72 -37338943.58 0.1698 0.0272
 Mercury -106941-05-31 08:24 J -37338626.28 -37338626.15 -37338626.03 0.1817 0.0338
 Mercury -106933-12-07 22:33 J -37335513.71 -37335513.56 -37335513.41 0.1694 0.0246
 Venus -106932-04-20 02:38 J -37335380.57 -37335380.39 -37335380.22 0.1837 0.0411
 Mercury -106932-10-21 15:35 J -37335195.98 -37335195.85 -37335195.73 0.1822 0.0165
 Mercury -106930-09-27 09:50 J -37334490.10 -37334490.09 -37334490.08 0.1802 0.1790
 Venus -106929-01-30 23:45 J -37334364.61 -37334364.51 -37334364.42 0.1673 0.1375
 Venus -106928-11-30 00:14 J -37333695.64 -37333695.49 -37333695.34 0.1687 0.0728
 Mercury -106923-04-30 02:38 J -37332083.52 -37332083.39 -37332083.25 0.1690 0.0742
 Mercury -106922-03-13 22:19 J -37331765.69 -37331765.57 -37331765.46 0.1827 0.0684
 Moon -106922-07-20 15:50 J -37331637.01 -37331636.84 -37331636.67 0.1689 0.0452
 Earth -106922-07-20 21:07 J -37331636.78 -37331636.62 -37331636.45 0.1689 0.0705 *
 Mercury -106921-04-05 12:28 J -37331377.07 -37331376.98 -37331376.90 0.1708 0.1404
 Mercury -106920-02-16 17:45 J -37331059.84 -37331059.76 -37331059.68 0.1807 0.1341

Mercury -106914-09-20 07:26 J -37328653.29 -37328653.19 -37328653.09 0.1685 0.1215

Mercury -106913-08-03 04:33 J -37328335.40 -37328335.31 -37328335.21 0.1832 0.1221

Mercury -106912-08-26 15:35 J -37327946.98 -37327946.85 -37327946.72 0.1703 0.0856

Mercury -106911-07-10 01:11 J -37327629.55 -37327629.45 -37327629.34 0.1812 0.0873

Mercury -106904-02-09 12:14 J -37325223.00 -37325222.99 -37325222.98 0.1681 0.1674

Mercury -106904-12-24 10:48 J -37324905.08 -37324905.05 -37324905.02 0.1836 0.1776

Mercury -106902-01-16 19:11 J -37324516.85 -37324516.70 -37324516.55 0.1698 0.0324

Mercury -106902-11-30 08:38 J -37324199.26 -37324199.14 -37324199.02 0.1817 0.0388

Venus -106898-02-15 08:09 J -37323026.23 -37323026.16 -37323026.08 0.1825 0.1628

Venus -106896-11-28 18:43 J -37322008.89 -37322008.72 -37322008.56 0.1680 0.0284

Mercury -106893-06-07 23:02 J -37321086.69 -37321086.54 -37321086.40 0.1694 0.0197

Mercury -106892-04-21 15:35 J -37320768.98 -37320768.85 -37320768.72 0.1822 0.0118

Mercury -106884-10-29 03:07 J -37317656.50 -37317656.37 -37317656.23 0.1690 0.0691

Mercury -106883-09-11 22:19 J -37317338.69 -37317338.57 -37317338.45 0.1827 0.0637

Mercury -106882-10-05 12:57 J -37316950.03 -37316949.96 -37316949.88 0.1708 0.1464

Mercury -106881-08-17 17:45 J -37316632.83 -37316632.76 -37316632.68 0.1807 0.1383

Mercury -106874-03-21 07:40 J -37314226.29 -37314226.18 -37314226.08 0.1685 0.1173

Mercury -106873-02-02 04:48 J -37313908.39 -37313908.30 -37313908.20 0.1832 0.1171

Mercury -106872-02-24 16:04 J -37313519.96 -37313519.83 -37313519.70 0.1703 0.0908

Mercury -106871-01-08 01:26 J -37313202.55 -37313202.44 -37313202.33 0.1812 0.0916

Venus -106866-02-15 06:14 J -37311338.42 -37311338.24 -37311338.06 0.1834 0.0109

Mercury -106865-08-10 12:43 J -37310796.00 -37310795.97 -37310795.94 0.1682 0.1626

Mercury -106864-06-24 11:02 J -37310478.08 -37310478.04 -37310478.00 0.1836 0.1725

Venus -106864-11-27 11:45 J -37310322.12 -37310322.01 -37310321.90 0.1674 0.1262

Mercury -106863-07-17 19:26 J -37310089.84 -37310089.69 -37310089.54 0.1698 0.0370

Mercury -106862-05-31 08:52 J -37309772.25 -37309772.13 -37309772.01 0.1817 0.0437

Venus -106862-09-27 11:45 J -37309653.15 -37309653.01 -37309652.86 0.1689 0.0863

Mercury -106854-12-07 23:31 J -37306659.67 -37306659.52 -37306659.37 0.1694 0.0141

Mercury -106853-10-20 15:50 J -37306341.97 -37306341.84 -37306341.72 0.1822 0.0077

Mercury -106844-04-29 03:35 J -37303229.49 -37303229.35 -37303229.22 0.1690 0.0641

Mercury -106843-03-12 22:33 J -37302911.68 -37302911.56 -37302911.44 0.1827 0.0589
 Mercury -106842-04-05 13:26 J -37302523.00 -37302522.94 -37302522.87 0.1708 0.1519
 Mercury -106841-02-16 18:00 J -37302205.82 -37302205.75 -37302205.68 0.1807 0.1426
 Mercury -106835-09-19 08:09 J -37299799.27 -37299799.16 -37299799.05 0.1685 0.1118
 Mercury -106834-08-03 05:02 J -37299481.39 -37299481.29 -37299481.19 0.1832 0.1124
 Mercury -106833-08-25 16:33 J -37299092.93 -37299092.81 -37299092.69 0.1703 0.0963
 Mercury -106832-07-09 01:40 J -37298775.54 -37298775.43 -37298775.33 0.1812 0.0963
 Venus -106830-09-26 06:14 J -37297966.41 -37297966.24 -37297966.08 0.1682 0.0157
 Mercury -106825-02-09 12:57 J -37296369.00 -37296368.96 -37296368.91 0.1681 0.1582
 Mercury -106825-12-23 11:16 J -37296051.08 -37296051.03 -37296050.98 0.1837 0.1678
 Mercury -106823-01-15 19:55 J -37295662.81 -37295662.67 -37295662.52 0.1698 0.0430
 Mercury -106823-11-29 08:52 J -37295345.25 -37295345.13 -37295345.01 0.1817 0.0477
 Mercury -106814-06-07 23:45 J -37292232.66 -37292232.51 -37292232.36 0.1694 0.0104
 Mercury -106813-04-20 15:50 J -37291914.96 -37291914.84 -37291914.71 0.1822 0.0061
 Mercury -106805-10-28 04:04 J -37288802.47 -37288802.33 -37288802.19 0.1690 0.0589
 Mercury -106804-09-10 22:48 J -37288484.67 -37288484.55 -37288484.43 0.1827 0.0537
 Mercury -106803-10-04 13:55 J -37288095.98 -37288095.92 -37288095.86 0.1708 0.1569
 Mercury -106802-08-17 18:14 J -37287778.81 -37287778.74 -37287778.67 0.1807 0.1474
 Venus -106801-12-12 09:07 J -37287296.30 -37287296.12 -37287295.94 0.1831 0.0214
 Venus -106798-09-24 23:45 J -37286279.63 -37286279.51 -37286279.39 0.1676 0.1146
 Moon -106796-07-16 18:00 J -37285618.87 -37285618.75 -37285618.64 0.1699 0.1378
 Earth -106796-07-16 19:40 J -37285618.81 -37285618.68 -37285618.54 0.1698 0.1166 *
 Venus -106796-07-24 23:31 J -37285610.66 -37285610.52 -37285610.39 0.1691 0.1001
 Mercury -106795-03-20 08:38 J -37285372.26 -37285372.14 -37285372.03 0.1685 0.1071
 Mercury -106794-02-01 05:16 J -37285054.39 -37285054.28 -37285054.18 0.1832 0.1076
 Mercury -106793-02-24 17:02 J -37284665.91 -37284665.79 -37284665.67 0.1703 0.1019
 Mercury -106792-01-07 01:40 J -37284348.53 -37284348.43 -37284348.33 0.1812 0.1007
 Mercury -106786-08-10 13:26 J -37281942.00 -37281941.94 -37281941.89 0.1681 0.1534
 Mercury -106785-06-23 11:16 J -37281624.08 -37281624.03 -37281623.97 0.1836 0.1629
 Mercury -106784-07-16 20:24 J -37281235.79 -37281235.65 -37281235.51 0.1698 0.0477

Mercury -106783-05-30 08:52 J -37280918.24 -37280918.13 -37280918.01 0.1817 0.0526

Mercury -106775-12-07 00:14 J -37277805.64 -37277805.49 -37277805.34 0.1694 0.0046

Mercury -106774-10-20 16:04 J -37277487.96 -37277487.83 -37277487.70 0.1822 0.0027

Venus -106769-12-12 09:07 J -37275608.20 -37275608.12 -37275608.03 0.1840 0.1608

Mercury -106765-04-28 04:19 J -37274375.46 -37274375.32 -37274375.18 0.1689 0.0542

Mercury -106764-03-11 22:48 J -37274057.67 -37274057.55 -37274057.43 0.1827 0.0495

Venus -106764-07-23 18:28 J -37273923.90 -37273923.73 -37273923.57 0.1684 0.0055

Mercury -106763-04-04 14:24 J -37273668.94 -37273668.90 -37273668.85 0.1708 0.1628

Mercury -106762-02-15 18:14 J -37273351.81 -37273351.74 -37273351.68 0.1807 0.1512

Mercury -106756-09-18 08:52 J -37270945.25 -37270945.13 -37270945.02 0.1685 0.1026

Mercury -106755-08-02 05:31 J -37270627.38 -37270627.27 -37270627.17 0.1832 0.1022

Mercury -106754-08-25 17:16 J -37270238.89 -37270238.78 -37270238.66 0.1703 0.1066

Mercury -106753-07-08 01:55 J -37269921.52 -37269921.42 -37269921.32 0.1812 0.1051

Mercury -106746-02-08 13:40 J -37267514.99 -37267514.93 -37267514.86 0.1681 0.1486

Mercury -106746-12-23 11:31 J -37267197.08 -37267197.02 -37267196.96 0.1836 0.1579

Mercury -106744-01-14 20:52 J -37266808.78 -37266808.63 -37266808.49 0.1698 0.0530

Mercury -106744-11-28 09:21 J -37266491.23 -37266491.11 -37266491.00 0.1817 0.0576

Mercury -106735-06-07 00:43 J -37263378.62 -37263378.47 -37263378.32 0.1694 0.0013

Venus -106735-10-09 13:11 J -37263254.12 -37263253.95 -37263253.78 0.1829 0.0510

Mercury -106734-04-20 16:19 J -37263060.95 -37263060.82 -37263060.70 0.1822 0.0093

Venus -106732-07-22 12:14 J -37262237.12 -37262236.99 -37262236.86 0.1678 0.1032

Venus -106730-05-22 11:31 J -37261568.14 -37261568.02 -37261567.89 0.1693 0.1134

Mercury -106726-10-28 04:48 J -37259948.44 -37259948.30 -37259948.16 0.1689 0.0489

Mercury -106725-09-09 23:02 J -37259630.66 -37259630.54 -37259630.41 0.1827 0.0445

Mercury -106724-10-03 15:07 J -37259241.90 -37259241.87 -37259241.85 0.1708 0.1684

Moon -106723-01-12 12:28 J -37259141.17 -37259140.98 -37259140.79 0.1819 0.0420

Earth -106723-01-12 14:38 J -37259141.08 -37259140.89 -37259140.69 0.1819 0.0687 *

Mercury -106723-08-16 18:28 J -37258924.79 -37258924.73 -37258924.67 0.1807 0.1559

Earth -106717-07-18 22:48 J -37256761.73 -37256761.55 -37256761.37 0.1695 0.0016

Moon -106717-07-19 03:50 J -37256761.53 -37256761.34 -37256761.15 0.1695 0.0241 *

Mercury -106716-03-19 09:21 J -37256518.23 -37256518.11 -37256517.99 0.1685 0.0975

Mercury -106715-01-31 05:31 J -37256200.38 -37256200.27 -37256200.16 0.1832 0.0982

Mercury -106714-02-23 18:00 J -37255811.87 -37255811.75 -37255811.64 0.1703 0.1124

Mercury -106713-01-07 01:55 J -37255494.52 -37255494.42 -37255494.32 0.1812 0.1095

Mercury -106707-08-09 14:09 J -37253087.99 -37253087.91 -37253087.84 0.1681 0.1442

Mercury -106706-06-23 11:45 J -37252770.08 -37252770.01 -37252769.94 0.1837 0.1528

Mercury -106705-07-15 21:21 J -37252381.75 -37252381.61 -37252381.47 0.1698 0.0583

Mercury -106704-05-29 09:07 J -37252064.23 -37252064.12 -37252064.00 0.1817 0.0615

Venus -106703-10-09 12:00 J -37251566.13 -37251566.00 -37251565.87 0.1838 0.1281

Venus -106698-05-21 06:14 J -37249881.41 -37249881.24 -37249881.07 0.1686 0.0101

Mercury -106696-12-06 00:57 J -37248951.61 -37248951.46 -37248951.31 0.1694 0.0072

Mercury -106695-10-19 16:33 J -37248633.94 -37248633.81 -37248633.69 0.1822 0.0124

Mercury -106686-04-28 05:16 J -37245521.43 -37245521.28 -37245521.14 0.1690 0.0445

Mercury -106685-03-10 23:16 J -37245203.66 -37245203.53 -37245203.41 0.1827 0.0401

Mercury -106683-02-14 18:28 J -37244497.78 -37244497.73 -37244497.67 0.1807 0.1603

Mercury -106677-09-17 09:50 J -37242091.22 -37242091.09 -37242090.97 0.1685 0.0925

Mercury -106676-08-01 05:45 J -37241773.37 -37241773.26 -37241773.15 0.1832 0.0928

Mercury -106675-08-24 18:28 J -37241384.84 -37241384.73 -37241384.62 0.1703 0.1178

Mercury -106674-07-08 02:09 J -37241067.51 -37241067.41 -37241067.32 0.1812 0.1140

Venus -106669-08-05 16:33 J -37239211.97 -37239211.81 -37239211.64 0.1826 0.0816

Mercury -106667-02-07 14:38 J -37238660.97 -37238660.89 -37238660.81 0.1681 0.1391

Mercury -106667-12-22 12:00 J -37238343.08 -37238343.00 -37238342.93 0.1836 0.1479

Venus -106666-05-20 00:14 J -37238194.63 -37238194.49 -37238194.34 0.1680 0.0914

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Mercury -106665-11-27 09:35 J -37237637.22 -37237637.10 -37237636.99 0.1817 0.0664

Venus -106664-03-18 22:48 J -37237525.65 -37237525.55 -37237525.43 0.1695 0.1279

Mercury -106656-06-06 01:26 J -37234524.59 -37234524.44 -37234524.29 0.1694 0.0115

Mercury -106655-04-19 16:33 J -37234206.94 -37234206.81 -37234206.69 0.1822 0.0166

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Mercury -106646-09-09 23:16 J -37230776.65 -37230776.53 -37230776.40 0.1827 0.0355

Moon -106644-01-15 18:28 J -37230282.87 -37230282.73 -37230282.59 0.1824 0.1372
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 Earth -106638-07-22 01:55 J -37227904.56 -37227904.42 -37227904.29 0.1692 0.1109
 Moon -106638-07-22 07:26 J -37227904.33 -37227904.19 -37227904.04 0.1692 0.0971 *
 Mercury -106637-03-18 10:04 J -37227664.21 -37227664.08 -37227663.96 0.1685 0.0880
 Venus -106637-08-05 15:07 J -37227524.03 -37227523.87 -37227523.72 0.1835 0.0963
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Mercury -106577-06-05 02:09 J -37205670.55 -37205670.41 -37205670.26 0.1694 0.0216
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 Venus -106571-06-02 18:43 J -37203481.89 -37203481.72 -37203481.55 0.1832 0.0653
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 Moon -106512-07-17 19:11 J -37181886.84 -37181886.70 -37181886.57 0.1703 0.1032
 Earth -106512-07-17 23:02 J -37181886.70 -37181886.54 -37181886.38 0.1703 0.0778 *
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 Mercury -106488-09-07 23:59 J -37173068.62 -37173068.50 -37173068.37 0.1827 0.0166
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 Mercury -106476-01-04 02:38 J -37168932.47 -37168932.39 -37168932.31 0.1812 0.1361
 Venus -106471-01-25 05:16 J -37167085.34 -37167085.28 -37167085.22 0.1818 0.1695
 Mercury -106470-08-07 16:19 J -37166525.93 -37166525.82 -37166525.72 0.1681 0.1155
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 Mercury -106468-07-13 23:59 J -37165819.63 -37165819.50 -37165819.37 0.1698 0.0898
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 Mercury -106460-11-10 18:57 J -37162777.73 -37162777.71 -37162777.68 0.1841 0.1794
 Mercury -106459-12-04 03:35 J -37162389.50 -37162389.35 -37162389.20 0.1694 0.0368
 Mercury -106458-10-17 17:31 J -37162071.90 -37162071.77 -37162071.65 0.1822 0.0404
 Mercury -106449-04-25 07:40 J -37158959.33 -37158959.18 -37158959.03 0.1690 0.0139
 Mercury -106448-03-09 00:14 J -37158641.62 -37158641.49 -37158641.37 0.1827 0.0120
 Mercury -106440-09-15 11:59 J -37155529.13 -37155529.00 -37155528.86 0.1685 0.0630
 Earth -106439-01-12 00:43 J -37155410.63 -37155410.47 -37155410.30 0.1813 0.1059
 Moon -106439-01-12 08:23 J -37155410.35 -37155410.15 -37155409.94 0.1813 0.0663 *

Venus -106439-01-25 01:55 J -37155397.61 -37155397.42 -37155397.24 0.1827 0.0051
 Mercury -106439-07-30 06:57 J -37155211.33 -37155211.21 -37155211.09 0.1832 0.0639
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 Mercury -106437-07-05 02:52 J -37154505.46 -37154505.38 -37154505.31 0.1812 0.1404
 Venus -106437-11-07 06:14 J -37154380.30 -37154380.24 -37154380.18 0.1679 0.1556
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 Moon -106433-07-19 20:38 J -37153029.82 -37153029.64 -37153029.46 0.1700 0.0520
 Earth -106433-07-20 03:07 J -37153029.54 -37153029.37 -37153029.19 0.1699 0.0391 *
 Mercury -106430-02-05 16:47 J -37152098.91 -37152098.80 -37152098.69 0.1681 0.1104
 Mercury -106430-12-20 13:11 J -37151781.05 -37151780.95 -37151780.86 0.1837 0.1187
 Mercury -106428-01-12 00:28 J -37151392.60 -37151392.48 -37151392.35 0.1698 0.0954
 Mercury -106428-11-25 10:19 J -37151075.18 -37151075.07 -37151074.96 0.1817 0.0933
 Mercury -106421-06-27 21:35 J -37148668.65 -37148668.60 -37148668.55 0.1677 0.1563
 Mercury -106420-05-11 18:57 J -37148350.75 -37148350.71 -37148350.67 0.1842 0.1753
 Mercury -106419-06-04 04:04 J -37147962.48 -37147962.33 -37147962.19 0.1694 0.0422
 Mercury -106418-04-17 17:16 J -37147644.90 -37147644.78 -37147644.65 0.1822 0.0442
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 Venus -106403-09-05 23:45 J -37142024.67 -37142024.51 -37142024.34 0.1688 0.0413
 Mercury -106400-03-16 12:14 J -37141102.13 -37141101.99 -37141101.85 0.1685 0.0585
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Mercury -106379-10-16 17:31 J -37133217.89 -37133217.77 -37133217.64 0.1822 0.0492
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 Moon -106360-01-15 17:16 J -37126551.92 -37126551.78 -37126551.63 0.1818 0.1181 *
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 Earth -106354-07-23 05:45 J -37124172.34 -37124172.26 -37124172.17 0.1696 0.1503 *
 Mercury -106351-02-04 17:16 J -37123244.89 -37123244.78 -37123244.66 0.1681 0.1013
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 Venus -106342-11-22 03:35 J -37119667.44 -37119667.35 -37119667.25 0.1833 0.1524
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 Venus -106337-07-03 11:59 J -37117982.17 -37117982.00 -37117981.84 0.1690 0.0290
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 Earth -106307-07-16 21:21 J -37107011.67 -37107011.61 -37107011.54 0.1710 0.1581
 Moon -106307-07-17 01:11 J -37107011.57 -37107011.45 -37107011.32 0.1710 0.1304 *
 Venus -106305-07-02 06:14 J -37106295.34 -37106295.24 -37106295.14 0.1683 0.1319
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 Mercury -106302-11-09 19:40 J -37105069.74 -37105069.68 -37105069.62 0.1842 0.1601
 Mercury -106301-12-02 05:31 J -37104681.41 -37104681.27 -37104681.13 0.1694 0.0582
 Mercury -106300-10-15 17:59 J -37104363.87 -37104363.75 -37104363.64 0.1822 0.0582
 Mercury -106291-04-24 09:07 J -37101251.27 -37101251.12 -37101250.97 0.1689 0.0072
 Mercury -106290-03-08 00:43 J -37100933.59 -37100933.47 -37100933.34 0.1828 0.0077
 Mercury -106282-09-14 13:26 J -37097821.08 -37097820.94 -37097820.79 0.1685 0.0437
 Mercury -106281-07-28 07:40 J -37097503.31 -37097503.18 -37097503.06 0.1832 0.0446
 Mercury -106279-07-04 03:21 J -37096797.42 -37096797.36 -37096797.30 0.1812 0.1580
 Venus -106276-09-18 06:43 J -37095625.35 -37095625.22 -37095625.08 0.1830 0.1198
 Mercury -106272-02-03 18:14 J -37094390.86 -37094390.74 -37094390.62 0.1681 0.0910
 Mercury -106272-12-18 13:55 J -37094073.03 -37094072.92 -37094072.82 0.1837 0.0992
 Venus -106271-04-30 23:31 J -37093939.69 -37093939.52 -37093939.35 0.1692 0.0154
 Mercury -106270-01-11 02:09 J -37093684.52 -37093684.41 -37093684.30 0.1698 0.1165
 Mercury -106270-11-24 10:47 J -37093367.14 -37093367.05 -37093366.95 0.1817 0.1115
 Mercury -106263-06-26 23:02 J -37090960.62 -37090960.54 -37090960.45 0.1677 0.1375
 Mercury -106262-05-10 19:55 J -37090642.74 -37090642.67 -37090642.60 0.1842 0.1552
 Mercury -106261-06-02 05:45 J -37090254.40 -37090254.26 -37090254.12 0.1694 0.0630
 Mercury -106260-04-15 17:59 J -37089936.87 -37089936.75 -37089936.63 0.1822 0.0623
 Mercury -106252-10-23 09:50 J -37086824.24 -37086824.09 -37086823.95 0.1689 0.0125
 Mercury -106251-09-06 00:57 J -37086506.58 -37086506.46 -37086506.33 0.1827 0.0127

Mercury -106242-03-15 13:55 J -37083394.06 -37083393.92 -37083393.77 0.1685 0.0385

Venus -106242-07-16 13:26 J -37083271.10 -37083270.94 -37083270.78 0.1818 0.0884

Mercury -106241-01-27 07:40 J -37083076.31 -37083076.18 -37083076.06 0.1832 0.0407

Mercury -106239-01-02 03:21 J -37082370.41 -37082370.36 -37082370.30 0.1812 0.1624

Venus -106239-04-29 18:14 J -37082252.86 -37082252.74 -37082252.62 0.1685 0.1195

Venus -106237-02-27 15:21 J -37081583.99 -37081583.86 -37081583.73 0.1701 0.1074

Mercury -106233-08-04 18:28 J -37079963.86 -37079963.73 -37079963.61 0.1681 0.0868

Mercury -106232-06-18 14:09 J -37079646.02 -37079645.91 -37079645.80 0.1837 0.0943

Mercury -106231-07-12 02:38 J -37079257.49 -37079257.39 -37079257.29 0.1698 0.1214

Mercury -106230-05-25 10:47 J -37078940.14 -37078940.05 -37078939.95 0.1818 0.1152

Earth -106228-07-19 01:11 J -37078154.63 -37078154.45 -37078154.27 0.1707 0.0403

Moon -106228-07-19 07:55 J -37078154.34 -37078154.17 -37078154.00 0.1707 0.0549 *

Mercury -106224-12-25 23:31 J -37076533.61 -37076533.52 -37076533.43 0.1677 0.1326

Mercury -106223-11-08 20:09 J -37076215.73 -37076215.66 -37076215.59 0.1841 0.1499

Mercury -106222-12-02 05:59 J -37075827.38 -37075827.25 -37075827.11 0.1694 0.0680

Mercury -106221-10-14 18:14 J -37075509.85 -37075509.74 -37075509.62 0.1822 0.0674

Mercury -106212-04-23 10:04 J -37072397.23 -37072397.08 -37072396.93 0.1689 0.0170

Mercury -106211-03-07 01:11 J -37072079.58 -37072079.45 -37072079.33 0.1827 0.0176

Venus -106210-07-16 10:33 J -37071583.22 -37071583.06 -37071582.91 0.1828 0.0885

Venus -106205-02-26 11:02 J -37069897.21 -37069897.04 -37069896.87 0.1694 0.0026

Mercury -106203-09-13 14:23 J -37068967.05 -37068966.90 -37068966.75 0.1685 0.0333

Mercury -106202-07-28 07:55 J -37068649.30 -37068649.17 -37068649.05 0.1832 0.0352

Mercury -106200-07-03 03:35 J -37067943.40 -37067943.35 -37067943.31 0.1812 0.1666

Mercury -106193-02-03 18:57 J -37065536.84 -37065536.71 -37065536.58 0.1681 0.0816

Mercury -106193-12-17 14:09 J -37065219.02 -37065218.91 -37065218.80 0.1837 0.0897

Mercury -106191-01-10 03:07 J -37064830.47 -37064830.37 -37064830.27 0.1698 0.1270

Mercury -106191-11-23 11:02 J -37064513.13 -37064513.04 -37064512.95 0.1817 0.1201

Mercury -106184-06-25 23:45 J -37062106.60 -37062106.51 -37062106.41 0.1677 0.1281

Mercury -106183-05-09 20:09 J -37061788.74 -37061788.66 -37061788.58 0.1842 0.1456

Mercury -106182-06-02 06:43 J -37061400.36 -37061400.22 -37061400.09 0.1694 0.0735

Mercury -106181-04-14 18:14 J -37061082.86 -37061082.74 -37061082.63 0.1822 0.0712

Venus -106176-05-12 17:59 J -37059228.89 -37059228.75 -37059228.61 0.1815 0.1171

Venus -106173-02-25 05:59 J -37058210.38 -37058210.25 -37058210.12 0.1687 0.1071

Mercury -106173-10-22 10:33 J -37057970.21 -37057970.06 -37057969.91 0.1689 0.0216

Mercury -106172-09-05 01:11 J -37057652.57 -37057652.45 -37057652.32 0.1828 0.0226

Venus -106172-12-25 02:52 J -37057541.50 -37057541.38 -37057541.26 0.1704 0.1223

Mercury -106163-03-14 14:38 J -37054540.04 -37054539.89 -37054539.74 0.1685 0.0288

Mercury -106162-01-26 08:09 J -37054222.29 -37054222.16 -37054222.04 0.1832 0.0312

Mercury -106160-01-01 03:35 J -37053516.38 -37053516.35 -37053516.31 0.1812 0.1712

Moon -106155-01-11 02:52 J -37051680.51 -37051680.38 -37051680.25 0.1806 0.1383

Earth -106155-01-11 12:28 J -37051680.11 -37051679.98 -37051679.84 0.1806 0.1368

Mercury -106154-08-04 19:11 J -37051109.83 -37051109.70 -37051109.56 0.1681 0.0769

Mercury -106153-06-17 14:23 J -37050792.02 -37050791.90 -37050791.79 0.1837 0.0849

Mercury -106152-07-11 03:35 J -37050403.45 -37050403.35 -37050403.26 0.1698 0.1321

Mercury -106151-05-24 11:02 J -37050086.12 -37050086.04 -37050085.95 0.1817 0.1246

Earth -106149-07-21 06:14 J -37049297.40 -37049297.24 -37049297.08 0.1704 0.0768

Moon -106149-07-21 07:55 J -37049297.31 -37049297.17 -37049297.02 0.1704 0.0929 *

Mercury -106145-12-25 00:14 J -37047679.59 -37047679.49 -37047679.39 0.1677 0.1230

Venus -106144-05-12 14:09 J -37047541.09 -37047540.91 -37047540.74 0.1825 0.0572

Mercury -106144-11-07 20:23 J -37047361.73 -37047361.65 -37047361.56 0.1842 0.1402

Mercury -106143-12-01 07:11 J -37046973.33 -37046973.20 -37046973.07 0.1694 0.0790

Mercury -106142-10-14 18:28 J -37046655.84 -37046655.73 -37046655.62 0.1823 0.0763

Venus -106140-12-23 22:33 J -37045854.73 -37045854.56 -37045854.39 0.1696 0.0128

Mercury -106133-04-22 10:47 J -37043543.19 -37043543.05 -37043542.90 0.1689 0.0270

Mercury -106132-03-06 01:26 J -37043225.57 -37043225.44 -37043225.32 0.1827 0.0259

Mercury -106124-09-12 15:07 J -37040113.02 -37040112.87 -37040112.72 0.1685 0.0235

Mercury -106123-07-27 08:09 J -37039795.29 -37039795.16 -37039795.04 0.1832 0.0264

Mercury -106121-07-02 03:35 J -37039089.37 -37039089.35 -37039089.32 0.1812 0.1752

Mercury -106114-02-02 19:40 J -37036682.81 -37036682.68 -37036682.55 0.1681 0.0722

Mercury -106114-12-17 14:38 J -37036365.01 -37036364.89 -37036364.78 0.1837 0.0796

Mercury -106112-01-09 04:04 J -37035976.42 -37035976.33 -37035976.24 0.1698 0.1377
 Mercury -106112-11-22 11:16 J -37035659.12 -37035659.03 -37035658.94 0.1818 0.1288
 Venus -106110-03-09 22:04 J -37035186.69 -37035186.58 -37035186.48 0.1812 0.1470
 Venus -106108-12-22 17:45 J -37034167.90 -37034167.76 -37034167.62 0.1689 0.0938
 Venus -106106-10-22 13:40 J -37033499.03 -37033498.93 -37033498.83 0.1706 0.1383
 Mercury -106105-06-25 00:28 J -37033252.58 -37033252.48 -37033252.38 0.1677 0.1186
 Mercury -106104-05-08 20:38 J -37032934.73 -37032934.64 -37032934.55 0.1842 0.1354
 Mercury -106103-06-01 07:26 J -37032546.32 -37032546.19 -37032546.06 0.1694 0.0833
 Mercury -106102-04-14 18:43 J -37032228.84 -37032228.72 -37032228.61 0.1823 0.0810
 Mercury -106096-11-15 05:45 J -37029822.28 -37029822.26 -37029822.23 0.1673 0.1633
 Mercury -106094-10-22 11:16 J -37029116.17 -37029116.03 -37029115.88 0.1689 0.0323
 Mercury -106093-09-04 01:40 J -37028798.56 -37028798.43 -37028798.31 0.1827 0.0313
 Mercury -106084-03-13 15:35 J -37025686.00 -37025685.85 -37025685.70 0.1685 0.0186
 Mercury -106083-01-25 08:23 J -37025368.28 -37025368.15 -37025368.03 0.1832 0.0219
 Mercury -106081-01-01 03:50 J -37024662.35 -37024662.34 -37024662.33 0.1812 0.1796
 Venus -106078-03-09 17:31 J -37023498.95 -37023498.77 -37023498.59 0.1822 0.0251
 Moon -106076-01-14 19:55 J -37022821.88 -37022821.67 -37022821.47 0.1811 0.0802
 Earth -106076-01-14 21:07 J -37022821.80 -37022821.62 -37022821.44 0.1811 0.0929 *
 Mercury -106075-08-03 19:55 J -37022255.80 -37022255.67 -37022255.53 0.1681 0.0673
 Mercury -106074-06-17 14:38 J -37021938.00 -37021937.89 -37021937.77 0.1837 0.0753
 Venus -106074-10-21 09:50 J -37021812.26 -37021812.09 -37021811.92 0.1699 0.0276
 Mercury -106073-07-10 04:19 J -37021549.40 -37021549.32 -37021549.24 0.1698 0.1429
 Mercury -106072-05-23 11:16 J -37021232.11 -37021232.03 -37021231.94 0.1817 0.1334
 Mercury -106066-12-25 00:57 J -37018825.57 -37018825.46 -37018825.35 0.1677 0.1138
 Mercury -106065-11-06 20:52 J -37018507.72 -37018507.63 -37018507.54 0.1842 0.1308
 Mercury -106064-11-30 07:55 J -37018119.30 -37018119.17 -37018119.04 0.1694 0.0891
 Mercury -106063-10-13 18:43 J -37017801.83 -37017801.72 -37017801.61 0.1823 0.0851
 Mercury -106056-05-16 05:59 J -37015395.29 -37015395.25 -37015395.21 0.1673 0.1592
 Mercury -106054-04-22 11:45 J -37014689.16 -37014689.01 -37014688.87 0.1689 0.0368
 Mercury -106053-03-05 01:40 J -37014371.55 -37014371.43 -37014371.31 0.1828 0.0350

Mercury -106045-09-11 15:50 J -37011258.99 -37011258.84 -37011258.69 0.1685 0.0137

Venus -106044-01-04 02:38 J -37011144.43 -37011144.39 -37011144.36 0.1809 0.1759

Mercury -106044-07-26 08:38 J -37010941.27 -37010941.14 -37010941.02 0.1832 0.0166

Venus -106042-10-20 05:31 J -37010125.42 -37010125.27 -37010125.13 0.1691 0.0807

Venus -106040-08-19 00:43 J -37009456.54 -37009456.47 -37009456.40 0.1709 0.1545

Mercury -106035-02-01 20:23 J -37007828.78 -37007828.65 -37007828.51 0.1681 0.0621

Mercury -106035-12-16 14:52 J -37007511.00 -37007510.88 -37007510.76 0.1837 0.0703

Mercury -106033-01-09 04:47 J -37007122.37 -37007122.30 -37007122.22 0.1698 0.1484

Mercury -106033-11-21 11:31 J -37006805.10 -37006805.02 -37006804.94 0.1817 0.1379

Mercury -106026-06-25 01:11 J -37004398.56 -37004398.45 -37004398.34 0.1677 0.1092

Mercury -106025-05-07 20:52 J -37004080.72 -37004080.63 -37004080.53 0.1842 0.1260

Mercury -106024-05-31 08:23 J -37003692.28 -37003692.15 -37003692.03 0.1694 0.0942

Mercury -106023-04-13 18:43 J -37003374.83 -37003374.72 -37003374.61 0.1823 0.0895

Moon -106023-07-17 15:50 J -37003279.98 -37003279.84 -37003279.70 0.1715 0.1085

Earth -106023-07-17 22:19 J -37003279.69 -37003279.57 -37003279.44 0.1715 0.1223

Mercury -106017-11-14 06:28 J -37000968.28 -37000968.23 -37000968.17 0.1673 0.1540

Mercury -106016-09-28 02:52 J -37000650.40 -37000650.38 -37000650.37 0.1846 0.1829

Mercury -106015-10-21 12:14 J -37000262.14 -37000261.99 -37000261.85 0.1689 0.0422

Mercury -106014-09-04 01:55 J -36999944.54 -36999944.42 -36999944.30 0.1827 0.0400

Venus -106012-01-03 21:50 J -36999456.77 -36999456.59 -36999456.41 0.1819 0.0058

Venus -106008-08-17 21:07 J -36997769.78 -36997769.62 -36997769.45 0.1701 0.0425

Mercury -106005-03-12 16:19 J -36996831.97 -36996831.82 -36996831.67 0.1685 0.0086

Mercury -106004-01-24 08:38 J -36996514.27 -36996514.14 -36996514.02 0.1833 0.0132

106TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 106th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -105996-08-02 20:38 J | -36993401.78 | -36993401.64 | -36993401.50 | 0.1681 | 0.0579 | | |
| Mercury | -105995-06-16 15:07 J | -36993083.99 | -36993083.87 | -36993083.75 | 0.1837 | 0.0655 | | |
| Mercury | -105994-07-10 05:16 J | -36992695.34 | -36992695.28 | -36992695.22 | 0.1698 | 0.1531 | | |
| Mercury | -105993-05-22 11:31 J | -36992378.10 | -36992378.02 | -36992377.94 | 0.1818 | 0.1417 | | |
| Mercury | -105987-12-24 01:40 J | -36989971.54 | -36989971.43 | -36989971.32 | 0.1677 | 0.1042 | | |
| Mercury | -105986-11-06 21:07 J | -36989653.71 | -36989653.62 | -36989653.52 | 0.1842 | 0.1208 | | |
| Mercury | -105985-11-29 08:38 J | -36989265.26 | -36989265.14 | -36989265.02 | 0.1694 | 0.0992 | | |
| Mercury | -105984-10-12 18:57 J | -36988947.81 | -36988947.71 | -36988947.60 | 0.1823 | 0.0947 | | |
| Venus | -105980-01-03 18:57 J | -36987768.76 | -36987768.71 | -36987768.67 | 0.1828 | 0.1754 | | |
| Mercury | -105977-05-15 06:43 J | -36986541.28 | -36986541.22 | -36986541.15 | 0.1673 | 0.1496 | | |
| Mercury | -105976-03-29 02:52 J | -36986223.41 | -36986223.38 | -36986223.34 | 0.1846 | 0.1781 | | |
| Venus | -105976-08-16 16:47 J | -36986082.95 | -36986082.80 | -36986082.65 | 0.1693 | 0.0666 | | |
| Mercury | -105975-04-21 12:28 J | -36985835.12 | -36985834.98 | -36985834.83 | 0.1689 | 0.0475 | | |
| Mercury | -105974-03-05 01:55 J | -36985517.54 | -36985517.42 | -36985517.30 | 0.1828 | 0.0444 | | |
| Venus | -105974-06-16 11:45 J | -36985414.02 | -36985414.01 | -36985414.00 | 0.1711 | 0.1703 | | |
| Mercury | -105966-09-11 16:47 J | -36982404.95 | -36982404.80 | -36982404.66 | 0.1685 | 0.0063 | | |
| Mercury | -105965-07-25 08:52 J | -36982087.26 | -36982087.13 | -36982087.01 | 0.1832 | 0.0091 | | |
| Mercury | -105956-01-31 21:07 J | -36978974.76 | -36978974.62 | -36978974.48 | 0.1681 | 0.0525 | | |
| Mercury | -105956-12-15 15:07 J | -36978656.99 | -36978656.87 | -36978656.75 | 0.1837 | 0.0610 | | |
| Mercury | -105954-01-08 05:45 J | -36978268.31 | -36978268.26 | -36978268.21 | 0.1698 | 0.1590 | | |
| Mercury | -105954-11-21 11:45 J | -36977951.08 | -36977951.01 | -36977950.94 | 0.1817 | 0.1466 | | |
| Mercury | -105947-06-24 01:55 J | -36975544.53 | -36975544.42 | -36975544.30 | 0.1677 | 0.0997 | | |

Venus -105947-11-01 01:26 J -36975414.62 -36975414.44 -36975414.27 0.1816 0.0367
 Mercury -105946-05-07 21:21 J -36975226.71 -36975226.61 -36975226.51 0.1842 0.1163
 Mercury -105945-05-30 09:07 J -36974838.24 -36974838.12 -36974838.00 0.1694 0.1046
 Mercury -105944-04-12 18:57 J -36974520.81 -36974520.71 -36974520.60 0.1823 0.0984
 Moon -105944-07-20 01:11 J -36974422.64 -36974422.45 -36974422.25 0.1712 0.0221
 Earth -105944-07-20 03:07 J -36974422.55 -36974422.37 -36974422.19 0.1712 0.0037 *
 Venus -105942-06-15 08:38 J -36973727.30 -36973727.14 -36973726.98 0.1703 0.0572
 Mercury -105938-11-14 06:57 J -36972114.27 -36972114.21 -36972114.13 0.1673 0.1452
 Mercury -105937-09-27 03:21 J -36971796.40 -36971796.36 -36971796.32 0.1846 0.1724
 Mercury -105936-10-20 12:57 J -36971408.10 -36971407.96 -36971407.82 0.1689 0.0520
 Mercury -105935-09-03 02:09 J -36971090.53 -36971090.41 -36971090.29 0.1828 0.0491
 Mercury -105926-03-12 17:02 J -36967977.94 -36967977.79 -36967977.64 0.1685 0.0026
 Mercury -105925-01-24 08:52 J -36967660.25 -36967660.13 -36967660.00 0.1832 0.0051
 Mercury -105917-08-01 21:35 J -36964547.74 -36964547.60 -36964547.46 0.1681 0.0476
 Mercury -105916-06-15 15:21 J -36964229.98 -36964229.86 -36964229.74 0.1837 0.0560
 Mercury -105915-07-09 06:14 J -36963841.28 -36963841.24 -36963841.21 0.1698 0.1641
 Venus -105915-10-31 22:33 J -36963726.67 -36963726.56 -36963726.45 0.1826 0.1439
 Mercury -105914-05-22 11:45 J -36963524.07 -36963524.01 -36963523.94 0.1817 0.1509
 Venus -105910-06-14 04:33 J -36962040.47 -36962040.31 -36962040.15 0.1696 0.0535
 Mercury -105908-12-23 02:23 J -36961117.52 -36961117.40 -36961117.28 0.1677 0.0947
 Mercury -105907-11-05 21:35 J -36960799.70 -36960799.60 -36960799.50 0.1842 0.1109
 Mercury -105906-11-29 09:35 J -36960411.21 -36960411.10 -36960410.98 0.1694 0.1102
 Mercury -105905-10-11 19:11 J -36960093.80 -36960093.70 -36960093.60 0.1823 0.1033
 Mercury -105898-05-15 07:26 J -36957687.27 -36957687.19 -36957687.11 0.1673 0.1404
 Mercury -105897-03-28 03:21 J -36957369.41 -36957369.36 -36957369.31 0.1847 0.1686
 Mercury -105896-04-20 13:11 J -36956981.09 -36956980.95 -36956980.80 0.1689 0.0574
 Mercury -105895-03-04 02:09 J -36956663.53 -36956663.41 -36956663.29 0.1828 0.0534
 Mercury -105887-09-10 17:31 J -36953550.92 -36953550.77 -36953550.62 0.1685 0.0067
 Mercury -105886-07-25 09:07 J -36953233.25 -36953233.12 -36953233.00 0.1833 0.0064
 Venus -105881-08-28 05:45 J -36951372.42 -36951372.26 -36951372.09 0.1813 0.0659

Venus -105878-06-12 23:16 J -36950353.58 -36950353.53 -36950353.48 0.1688 0.1600
 Mercury -105877-01-31 21:50 J -36950120.73 -36950120.59 -36950120.45 0.1681 0.0430
 Mercury -105877-12-14 15:35 J -36949802.97 -36949802.85 -36949802.73 0.1838 0.0508
 Venus -105876-04-11 19:55 J -36949684.82 -36949684.67 -36949684.51 0.1706 0.0719
 Mercury -105875-01-07 06:43 J -36949414.22 -36949414.22 -36949414.22 0.1698 0.1695
 Mercury -105875-11-20 11:59 J -36949097.06 -36949097.00 -36949096.94 0.1818 0.1553
 Earth -105871-01-11 00:57 J -36947949.54 -36947949.46 -36947949.37 0.1799 0.1623
 Moon -105871-01-11 07:11 J -36947949.29 -36947949.20 -36947949.11 0.1799 0.1574
 Mercury -105868-06-23 02:38 J -36946690.51 -36946690.39 -36946690.27 0.1677 0.0902
 Mercury -105867-05-06 21:35 J -36946372.70 -36946372.60 -36946372.49 0.1842 0.1065
 Mercury -105866-05-30 09:50 J -36945984.20 -36945984.09 -36945983.98 0.1693 0.1144
 Mercury -105865-04-11 19:26 J -36945666.79 -36945666.69 -36945666.59 0.1823 0.1079
 Earth -105865-07-22 07:40 J -36945565.32 -36945565.18 -36945565.04 0.1708 0.1123
 Moon -105865-07-22 13:26 J -36945565.06 -36945564.94 -36945564.83 0.1708 0.1351 *
 Mercury -105859-11-13 07:55 J -36943260.26 -36943260.17 -36943260.09 0.1673 0.1355
 Mercury -105858-09-27 03:35 J -36942942.41 -36942942.35 -36942942.29 0.1846 0.1629
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 Moon -105792-01-14 01:26 J -36919091.62 -36919091.44 -36919091.25 0.1804 0.0492
 Earth -105792-01-14 07:26 J -36919091.39 -36919091.19 -36919090.99 0.1804 0.0549 *
 Mercury -105789-06-22 03:21 J -36917836.49 -36917836.36 -36917836.23 0.1677 0.0806
 Mercury -105788-05-05 22:04 J -36917518.69 -36917518.58 -36917518.47 0.1842 0.0968
 Mercury -105787-05-29 10:47 J -36917130.15 -36917130.05 -36917129.95 0.1693 0.1257
 Mercury -105786-04-11 19:26 J -36916812.78 -36916812.69 -36916812.59 0.1823 0.1166
 Venus -105783-06-25 06:14 J -36915642.40 -36915642.24 -36915642.08 0.1820 0.0804
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 Mercury -105778-10-19 14:38 J -36913700.03 -36913699.89 -36913699.76 0.1689 0.0728
 Mercury -105777-09-01 02:38 J -36913382.50 -36913382.39 -36913382.27 0.1828 0.0675
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 Mercury -105756-05-20 12:14 J -36905816.04 -36905815.99 -36905815.95 0.1818 0.1681
 Mercury -105750-12-22 03:50 J -36903409.47 -36903409.34 -36903409.21 0.1677 0.0755
 Venus -105749-04-21 15:21 J -36903287.99 -36903287.86 -36903287.73 0.1807 0.1239

Mercury -105749-11-03 22:19 J -36903091.68 -36903091.57 -36903091.46 0.1842 0.0916
 Mercury -105748-11-27 11:16 J -36902703.13 -36902703.03 -36902702.94 0.1694 0.1306
 Mercury -105747-10-10 19:40 J -36902385.77 -36902385.68 -36902385.58 0.1823 0.1217
 Venus -105746-02-04 22:47 J -36902268.65 -36902268.55 -36902268.45 0.1693 0.1340
 Venus -105745-12-04 18:14 J -36901599.88 -36901599.74 -36901599.61 0.1711 0.1036
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 Mercury -105739-03-27 04:04 J -36899661.40 -36899661.33 -36899661.25 0.1847 0.1484
 Earth -105739-07-18 22:33 J -36899547.71 -36899547.56 -36899547.40 0.1720 0.0877
 Moon -105739-07-19 00:14 J -36899547.65 -36899547.49 -36899547.33 0.1720 0.0659 *
 Mercury -105738-04-19 15:07 J -36899273.01 -36899272.87 -36899272.74 0.1689 0.0780
 Mercury -105737-03-02 02:38 J -36898955.50 -36898955.39 -36898955.27 0.1828 0.0719
 Mercury -105731-10-03 14:09 J -36896548.92 -36896548.91 -36896548.90 0.1669 0.1659
 Mercury -105729-09-08 18:57 J -36895842.86 -36895842.71 -36895842.56 0.1685 0.0266
 Mercury -105728-07-23 09:35 J -36895525.22 -36895525.10 -36895524.97 0.1833 0.0212
 Mercury -105719-01-29 23:31 J -36892412.67 -36892412.52 -36892412.38 0.1681 0.0232
 Mercury -105719-12-13 16:04 J -36892094.95 -36892094.83 -36892094.70 0.1838 0.0324
 Venus -105717-04-21 10:04 J -36891600.26 -36891600.08 -36891599.91 0.1817 0.0492
 Mercury -105717-11-18 12:28 J -36891389.02 -36891388.98 -36891388.95 0.1818 0.1729
 Venus -105713-12-03 14:38 J -36889913.06 -36889912.89 -36889912.72 0.1703 0.0106
 Mercury -105710-06-22 04:04 J -36888982.46 -36888982.33 -36888982.20 0.1676 0.0712
 Mercury -105709-05-04 22:19 J -36888664.68 -36888664.57 -36888664.46 0.1842 0.0872
 Mercury -105708-05-28 11:45 J -36888276.10 -36888276.01 -36888275.92 0.1693 0.1360
 Mercury -105707-04-10 19:40 J -36887958.77 -36887958.68 -36887958.59 0.1823 0.1252
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 Mercury -105700-09-25 04:33 J -36885234.39 -36885234.31 -36885234.23 0.1847 0.1431
 Mercury -105699-10-18 15:21 J -36884845.99 -36884845.86 -36884845.73 0.1689 0.0827
 Mercury -105698-09-01 02:52 J -36884528.49 -36884528.38 -36884528.26 0.1828 0.0768
 Mercury -105691-04-03 14:38 J -36882121.93 -36882121.89 -36882121.86 0.1669 0.1613
 Mercury -105689-03-09 19:26 J -36881415.84 -36881415.69 -36881415.55 0.1685 0.0316
 Mercury -105688-01-21 09:50 J -36881098.22 -36881098.09 -36881097.97 0.1833 0.0258

Venus -105683-02-16 19:55 J -36879245.76 -36879245.67 -36879245.58 0.1804 0.1531

Venus -105681-12-02 10:19 J -36878226.19 -36878226.07 -36878225.95 0.1695 0.1202

Mercury -105680-07-30 23:45 J -36877985.66 -36877985.51 -36877985.36 0.1681 0.0182

Mercury -105679-06-13 16:19 J -36877667.95 -36877667.82 -36877667.69 0.1838 0.0274

Venus -105679-10-02 04:33 J -36877557.43 -36877557.31 -36877557.19 0.1713 0.1206

Mercury -105677-05-19 12:28 J -36876962.00 -36876961.98 -36876961.96 0.1818 0.1770

Mercury -105671-12-21 04:33 J -36874555.45 -36874555.31 -36874555.18 0.1677 0.0661

Mercury -105670-11-03 22:33 J -36874237.67 -36874237.56 -36874237.44 0.1842 0.0820

Mercury -105669-11-26 12:14 J -36873849.07 -36873848.99 -36873848.91 0.1693 0.1415

Mercury -105668-10-09 19:55 J -36873531.76 -36873531.67 -36873531.58 0.1823 0.1301

Mercury -105661-05-12 09:21 J -36871125.21 -36871125.11 -36871125.00 0.1673 0.1126

Mercury -105660-03-26 04:19 J -36870807.40 -36870807.32 -36870807.23 0.1847 0.1391

Moon -105660-07-20 22:47 J -36870690.73 -36870690.55 -36870690.38 0.1717 0.0086

Earth -105660-07-21 03:50 J -36870690.52 -36870690.34 -36870690.16 0.1716 0.0318 *

Mercury -105659-04-18 15:50 J -36870418.97 -36870418.84 -36870418.71 0.1689 0.0881

Mercury -105658-03-02 03:07 J -36870101.49 -36870101.37 -36870101.26 0.1828 0.0811

Mercury -105652-10-02 14:52 J -36867694.93 -36867694.88 -36867694.83 0.1669 0.1570

Venus -105651-02-16 13:55 J -36867558.10 -36867557.92 -36867557.74 0.1814 0.0177

Mercury -105650-09-08 19:55 J -36866988.82 -36866988.67 -36866988.53 0.1685 0.0369

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Venus -105647-10-01 01:26 J -36865870.61 -36865870.44 -36865870.27 0.1705 0.0056

Mercury -105640-01-28 23:59 J -36863558.64 -36863558.50 -36863558.35 0.1680 0.0139

Mercury -105640-12-12 16:33 J -36863240.94 -36863240.81 -36863240.68 0.1838 0.0223

Mercury -105638-11-18 12:28 J -36862534.98 -36862534.98 -36862534.97 0.1818 0.1815

Mercury -105631-06-21 04:47 J -36860128.44 -36860128.30 -36860128.16 0.1677 0.0613

Mercury -105630-05-04 22:47 J -36859810.67 -36859810.55 -36859810.44 0.1842 0.0777

Mercury -105629-05-27 12:28 J -36859422.05 -36859421.98 -36859421.91 0.1693 0.1461

Mercury -105628-04-09 20:09 J -36859104.75 -36859104.66 -36859104.58 0.1823 0.1347

Mercury -105622-11-11 09:50 J -36856698.20 -36856698.09 -36856697.97 0.1673 0.1075

Mercury -105621-09-24 04:47 J -36856380.39 -36856380.30 -36856380.21 0.1847 0.1332

Mercury -105620-10-17 16:19 J -36855991.94 -36855991.82 -36855991.69 0.1689 0.0937
 Mercury -105619-08-31 03:07 J -36855674.48 -36855674.37 -36855674.26 0.1828 0.0859
 Venus -105615-09-29 21:35 J -36854183.73 -36854183.60 -36854183.46 0.1697 0.1066
 Venus -105613-07-29 15:21 J -36853514.96 -36853514.86 -36853514.76 0.1716 0.1375
 Mercury -105612-04-02 15:07 J -36853267.92 -36853267.87 -36853267.81 0.1669 0.1523
 Mercury -105610-03-09 20:09 J -36852561.80 -36852561.66 -36852561.51 0.1685 0.0418
 Mercury -105609-01-21 10:04 J -36852244.20 -36852244.08 -36852243.96 0.1833 0.0349
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 Mercury -105600-06-12 16:33 J -36848813.94 -36848813.81 -36848813.68 0.1838 0.0183
 Mercury -105592-12-20 05:16 J -36845701.42 -36845701.28 -36845701.14 0.1676 0.0566
 Mercury -105591-11-02 23:02 J -36845383.66 -36845383.54 -36845383.43 0.1843 0.0724
 Mercury -105590-11-26 13:11 J -36844995.02 -36844994.95 -36844994.89 0.1693 0.1522
 Mercury -105589-10-08 20:09 J -36844677.74 -36844677.66 -36844677.58 0.1823 0.1389
 Venus -105586-12-14 18:14 J -36843515.92 -36843515.74 -36843515.56 0.1811 0.0127
 Mercury -105582-05-12 10:04 J -36842271.19 -36842271.08 -36842270.96 0.1673 0.1032
 Mercury -105581-03-25 05:02 J -36841953.38 -36841953.29 -36841953.20 0.1847 0.1284
 Moon -105581-07-23 02:38 J -36841833.47 -36841833.39 -36841833.30 0.1713 0.1512
 Earth -105581-07-23 09:07 J -36841833.21 -36841833.12 -36841833.03 0.1713 0.1478
 Venus -105581-07-28 12:43 J -36841828.14 -36841827.97 -36841827.80 0.1707 0.0208
 Mercury -105580-04-17 16:33 J -36841564.93 -36841564.81 -36841564.69 0.1689 0.0981
 Mercury -105579-03-01 03:21 J -36841247.47 -36841247.36 -36841247.25 0.1828 0.0902
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 Mercury -105570-07-22 10:19 J -36837817.20 -36837817.07 -36837816.95 0.1833 0.0400
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 Venus -105554-12-14 14:09 J -36831827.98 -36831827.91 -36831827.84 0.1821 0.1668
 Mercury -105552-06-20 05:31 J -36831274.41 -36831274.27 -36831274.13 0.1676 0.0517
 Mercury -105551-05-03 23:02 J -36830956.66 -36830956.54 -36830956.42 0.1842 0.0677
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Mercury -105549-04-08 20:09 J -36830250.73 -36830250.66 -36830250.58 0.1823 0.1435

Venus -105549-07-27 09:07 J -36830141.26 -36830141.12 -36830140.98 0.1700 0.0921

Venus -105547-05-27 02:23 J -36829472.47 -36829472.40 -36829472.33 0.1718 0.1543

Mercury -105543-11-10 10:33 J -36827844.18 -36827844.06 -36827843.94 0.1673 0.0981

Mercury -105542-09-24 05:02 J -36827526.38 -36827526.29 -36827526.19 0.1847 0.1238

Mercury -105541-10-16 17:02 J -36827137.90 -36827137.79 -36827137.67 0.1689 0.1039

Mercury -105540-08-30 03:21 J -36826820.46 -36826820.36 -36826820.25 0.1828 0.0948

Mercury -105533-04-01 15:50 J -36824413.92 -36824413.84 -36824413.77 0.1669 0.1435

Mercury -105532-02-13 10:47 J -36824096.07 -36824096.05 -36824096.03 0.1851 0.1816

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Mercury -105530-01-20 10:19 J -36823390.19 -36823390.07 -36823389.95 0.1833 0.0440

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Mercury -105521-06-11 17:02 J -36819959.92 -36819959.79 -36819959.66 0.1838 0.0082

Venus -105520-10-10 22:33 J -36819473.74 -36819473.56 -36819473.39 0.1807 0.0431

Venus -105515-05-25 23:59 J -36817785.67 -36817785.50 -36817785.34 0.1710 0.0368

Mercury -105513-12-19 05:59 J -36816847.39 -36816847.25 -36816847.11 0.1677 0.0465

Mercury -105512-11-01 23:16 J -36816529.65 -36816529.53 -36816529.41 0.1842 0.0625

Mercury -105511-11-25 13:55 J -36816140.96 -36816140.92 -36816140.88 0.1694 0.1624

Mercury -105510-10-08 20:23 J -36815823.72 -36815823.65 -36815823.58 0.1823 0.1483

Earth -105508-01-13 19:55 J -36815360.88 -36815360.67 -36815360.47 0.1797 0.0253

Moon -105508-01-14 05:16 J -36815360.48 -36815360.28 -36815360.09 0.1798 0.0506 *

Mercury -105503-05-11 10:47 J -36813417.17 -36813417.05 -36813416.93 0.1673 0.0936

Mercury -105502-03-25 05:16 J -36813099.38 -36813099.28 -36813099.18 0.1847 0.1189

Mercury -105501-04-16 17:31 J -36812710.88 -36812710.77 -36812710.66 0.1689 0.1090

Mercury -105500-02-28 03:35 J -36812393.46 -36812393.35 -36812393.25 0.1828 0.0992

Mercury -105494-10-01 16:19 J -36809986.90 -36809986.82 -36809986.74 0.1669 0.1383

Mercury -105493-08-14 11:02 J -36809669.08 -36809669.04 -36809669.01 0.1851 0.1766

Mercury -105492-09-06 21:21 J -36809280.75 -36809280.61 -36809280.47 0.1685 0.0572

Mercury -105491-07-21 10:33 J -36808963.18 -36808963.06 -36808962.94 0.1833 0.0490

Venus -105488-10-10 18:28 J -36807785.85 -36807785.73 -36807785.61 0.1818 0.1361

Venus -105483-05-24 20:38 J -36806098.79 -36806098.64 -36806098.49 0.1702 0.0781

Mercury -105482-01-28 01:40 J -36805850.58 -36805850.43 -36805850.28 0.1680 0.0073

Mercury -105482-12-11 17:02 J -36805532.92 -36805532.79 -36805532.66 0.1838 0.0045

Venus -105481-03-23 12:57 J -36805429.97 -36805429.96 -36805429.95 0.1721 0.1717

Mercury -105473-06-19 06:14 J -36802420.38 -36802420.24 -36802420.10 0.1676 0.0423

Mercury -105472-05-02 23:16 J -36802102.65 -36802102.53 -36802102.40 0.1843 0.0584

Mercury -105471-05-26 14:23 J -36801713.92 -36801713.90 -36801713.89 0.1693 0.1677

Mercury -105470-04-08 20:23 J -36801396.72 -36801396.65 -36801396.58 0.1823 0.1519

Mercury -105464-11-09 11:16 J -36798990.16 -36798990.03 -36798989.91 0.1673 0.0888

Mercury -105463-09-23 05:31 J -36798672.37 -36798672.27 -36798672.17 0.1847 0.1134

Mercury -105462-10-16 17:45 J -36798283.87 -36798283.76 -36798283.64 0.1689 0.1140

Mercury -105461-08-29 03:50 J -36797966.44 -36797966.34 -36797966.24 0.1828 0.1042

Earth -105455-07-19 22:33 J -36795815.73 -36795815.56 -36795815.38 0.1725 0.0538

Moon -105455-07-20 03:35 J -36795815.54 -36795815.35 -36795815.16 0.1725 0.0281 *

Mercury -105454-04-01 16:33 J -36795559.89 -36795559.81 -36795559.72 0.1669 0.1337

Venus -105454-08-08 03:35 J -36795431.51 -36795431.35 -36795431.18 0.1804 0.0714

Mercury -105453-02-13 11:02 J -36795242.08 -36795242.04 -36795241.99 0.1851 0.1718

Mercury -105452-03-07 21:50 J -36794853.73 -36794853.59 -36794853.45 0.1685 0.0622

Mercury -105451-01-19 10:33 J -36794536.18 -36794536.06 -36794535.94 0.1833 0.0540

Venus -105449-03-22 11:02 J -36793743.20 -36793743.04 -36793742.88 0.1712 0.0520

Mercury -105443-07-29 02:09 J -36791423.56 -36791423.41 -36791423.27 0.1680 0.0122

Mercury -105442-06-11 17:16 J -36791105.91 -36791105.78 -36791105.66 0.1838 0.0029

Mercury -105434-12-19 06:43 J -36787993.36 -36787993.22 -36787993.08 0.1676 0.0368

Mercury -105433-10-31 23:31 J -36787675.64 -36787675.52 -36787675.39 0.1842 0.0533

Mercury -105431-10-07 20:38 J -36786969.70 -36786969.64 -36786969.58 0.1823 0.1569

Mercury -105424-05-10 11:31 J -36784563.14 -36784563.02 -36784562.89 0.1673 0.0840

Mercury -105423-03-24 05:31 J -36784245.37 -36784245.27 -36784245.17 0.1847 0.1093

Mercury -105422-04-16 18:28 J -36783856.84 -36783856.73 -36783856.63 0.1689 0.1196

Venus -105422-08-07 22:19 J -36783743.72 -36783743.57 -36783743.42 0.1815 0.1045

Mercury -105421-02-28 03:50 J -36783539.44 -36783539.34 -36783539.24 0.1828 0.1083

Venus -105417-03-21 07:40 J -36782056.34 -36782056.18 -36782056.03 0.1704 0.0633
 Mercury -105415-09-30 16:47 J -36781132.89 -36781132.80 -36781132.71 0.1669 0.1294
 Mercury -105414-08-14 11:31 J -36780815.07 -36780815.02 -36780814.97 0.1852 0.1661
 Mercury -105413-09-05 22:19 J -36780426.71 -36780426.57 -36780426.44 0.1685 0.0673
 Mercury -105412-07-20 10:47 J -36780109.17 -36780109.05 -36780108.93 0.1833 0.0582
 Mercury -105403-01-27 02:23 J -36776996.55 -36776996.40 -36776996.25 0.1680 0.0164
 Mercury -105403-12-10 17:31 J -36776678.90 -36776678.77 -36776678.64 0.1838 0.0063
 Mercury -105394-06-19 07:11 J -36773566.35 -36773566.20 -36773566.06 0.1676 0.0323
 Mercury -105393-05-01 23:45 J -36773248.63 -36773248.51 -36773248.39 0.1843 0.0483
 Mercury -105391-04-07 20:52 J -36772542.69 -36772542.63 -36772542.58 0.1823 0.1615
 Venus -105388-06-04 08:38 J -36771389.29 -36771389.14 -36771388.99 0.1801 0.1005
 Mercury -105385-11-08 11:59 J -36770136.13 -36770136.00 -36770135.87 0.1673 0.0789
 Mercury -105384-09-22 05:59 J -36769818.36 -36769818.25 -36769818.15 0.1847 0.1037
 Venus -105383-01-17 21:50 J -36769700.75 -36769700.59 -36769700.44 0.1715 0.0689
 Mercury -105383-10-15 18:57 J -36769429.81 -36769429.71 -36769429.61 0.1689 0.1251
 Mercury -105382-08-29 04:04 J -36769112.43 -36769112.33 -36769112.24 0.1828 0.1133
 Earth -105376-07-22 04:19 J -36766958.49 -36766958.32 -36766958.15 0.1721 0.0668
 Moon -105376-07-22 10:04 J -36766958.25 -36766958.08 -36766957.91 0.1721 0.0582 *
 Mercury -105375-03-31 17:16 J -36766705.88 -36766705.78 -36766705.69 0.1669 0.1245
 Mercury -105374-02-12 11:31 J -36766388.08 -36766388.02 -36766387.96 0.1851 0.1619
 Mercury -105373-03-06 22:33 J -36765999.69 -36765999.56 -36765999.42 0.1685 0.0725
 Mercury -105372-01-18 10:47 J -36765682.16 -36765682.05 -36765681.93 0.1833 0.0631
 Mercury -105364-07-28 02:52 J -36762569.53 -36762569.38 -36762569.23 0.1680 0.0217
 Mercury -105363-06-10 17:31 J -36762251.90 -36762251.77 -36762251.64 0.1838 0.0104
 Venus -105356-06-04 02:52 J -36759701.54 -36759701.38 -36759701.21 0.1812 0.0740
 Mercury -105355-12-18 07:26 J -36759139.34 -36759139.19 -36759139.04 0.1676 0.0272
 Mercury -105354-10-31 23:59 J -36758821.62 -36758821.50 -36758821.38 0.1843 0.0430
 Mercury -105352-10-06 20:52 J -36758115.68 -36758115.63 -36758115.58 0.1823 0.1657
 Venus -105351-01-16 18:57 J -36758013.87 -36758013.71 -36758013.55 0.1707 0.0483
 Mercury -105345-05-09 12:14 J -36755709.12 -36755708.99 -36755708.86 0.1673 0.0745

Mercury -105344-03-23 05:59 J -36755391.36 -36755391.25 -36755391.14 0.1847 0.0989

Mercury -105343-04-15 19:11 J -36755002.80 -36755002.70 -36755002.61 0.1689 0.1295

Mercury -105342-02-27 04:04 J -36754685.42 -36754685.33 -36754685.23 0.1828 0.1177

Mercury -105336-09-29 17:31 J -36752278.87 -36752278.77 -36752278.67 0.1669 0.1197

Mercury -105335-08-13 11:45 J -36751961.07 -36751961.01 -36751960.94 0.1852 0.1564

Mercury -105334-09-05 23:02 J -36751572.67 -36751572.54 -36751572.41 0.1685 0.0776

Mercury -105333-07-19 11:02 J -36751255.15 -36751255.04 -36751254.92 0.1833 0.0677

Mercury -105326-02-19 23:02 J -36748848.56 -36748848.54 -36748848.51 0.1665 0.1636

Mercury -105324-01-26 03:21 J -36748142.51 -36748142.36 -36748142.21 0.1680 0.0271

Mercury -105324-12-09 17:45 J -36747824.88 -36747824.76 -36747824.63 0.1838 0.0159

Venus -105322-04-01 13:55 J -36747347.04 -36747346.92 -36747346.79 0.1798 0.1283

Venus -105319-01-15 15:07 J -36746326.91 -36746326.87 -36746326.82 0.1699 0.1614

Venus -105318-11-15 08:52 J -36745658.27 -36745658.13 -36745657.98 0.1718 0.0850

Mercury -105315-06-18 07:55 J -36744712.32 -36744712.17 -36744712.03 0.1676 0.0227

Mercury -105314-05-01 23:59 J -36744394.62 -36744394.50 -36744394.37 0.1843 0.0390

Mercury -105312-04-06 20:52 J -36743688.67 -36743688.63 -36743688.59 0.1823 0.1702

Mercury -105306-11-08 12:43 J -36741282.10 -36741281.97 -36741281.84 0.1672 0.0694

Mercury -105305-09-21 06:14 J -36740964.35 -36740964.24 -36740964.13 0.1847 0.0943

Mercury -105304-10-14 19:40 J -36740575.77 -36740575.68 -36740575.59 0.1689 0.1354

Mercury -105303-08-28 04:19 J -36740258.42 -36740258.32 -36740258.23 0.1828 0.1222

Mercury -105296-03-30 17:45 J -36737851.86 -36737851.76 -36737851.65 0.1669 0.1155

Mercury -105295-02-11 11:59 J -36737534.07 -36737534.00 -36737533.92 0.1852 0.1513

Mercury -105294-03-06 23:31 J -36737145.65 -36737145.52 -36737145.39 0.1684 0.0827

Mercury -105293-01-18 11:16 J -36736828.15 -36736828.03 -36736827.92 0.1833 0.0724

Venus -105290-04-01 07:26 J -36735659.37 -36735659.19 -36735659.02 0.1808 0.0436

Mercury -105287-08-20 23:31 J -36734421.56 -36734421.52 -36734421.48 0.1665 0.1590

Venus -105286-11-14 05:59 J -36733971.41 -36733971.25 -36733971.08 0.1709 0.0330

Mercury -105285-07-27 03:35 J -36733715.50 -36733715.35 -36733715.21 0.1680 0.0316

Mercury -105284-06-09 17:59 J -36733397.88 -36733397.75 -36733397.62 0.1838 0.0205

Mercury -105276-12-17 08:09 J -36730285.30 -36730285.16 -36730285.01 0.1676 0.0178

Mercury -105275-10-31 00:14 J -36729967.61 -36729967.49 -36729967.36 0.1843 0.0336
 Mercury -105273-10-05 21:07 J -36729261.65 -36729261.62 -36729261.59 0.1823 0.1750
 Mercury -105266-05-09 12:57 J -36726855.09 -36726854.96 -36726854.82 0.1672 0.0649
 Mercury -105265-03-22 06:28 J -36726537.34 -36726537.23 -36726537.12 0.1847 0.0892
 Mercury -105264-04-14 20:09 J -36726148.74 -36726148.66 -36726148.58 0.1689 0.1408
 Mercury -105263-02-26 04:19 J -36725831.41 -36725831.32 -36725831.23 0.1828 0.1267
 Mercury -105257-09-28 18:14 J -36723424.84 -36723424.74 -36723424.63 0.1669 0.1102
 Venus -105256-01-26 18:57 J -36723304.79 -36723304.71 -36723304.62 0.1795 0.1569
 Mercury -105256-08-12 12:14 J -36723107.07 -36723106.99 -36723106.91 0.1852 0.1464
 Mercury -105255-09-04 23:59 J -36722718.63 -36722718.50 -36722718.38 0.1684 0.0881
 Mercury -105254-07-19 11:16 J -36722401.14 -36722401.03 -36722400.91 0.1833 0.0773
 Venus -105254-11-13 02:23 J -36722284.48 -36722284.40 -36722284.31 0.1701 0.1470
 Venus -105252-09-11 19:11 J -36721615.83 -36721615.70 -36721615.56 0.1720 0.1028
 Moon -105250-07-18 10:33 J -36720941.08 -36720941.06 -36720941.02 0.1734 0.1702
 Earth -105250-07-18 14:38 J -36720940.99 -36720940.89 -36720940.79 0.1734 0.1446
 Mercury -105247-02-18 23:45 J -36719994.56 -36719994.51 -36719994.46 0.1665 0.1546
 Mercury -105245-01-26 04:04 J -36719288.47 -36719288.33 -36719288.18 0.1680 0.0372
 Mercury -105245-12-08 17:59 J -36718970.87 -36718970.75 -36718970.62 0.1838 0.0249
 Mercury -105236-06-17 08:23 J -36715858.29 -36715858.15 -36715858.00 0.1676 0.0133
 Mercury -105235-05-01 00:28 J -36715540.61 -36715540.48 -36715540.35 0.1843 0.0287
 Mercury -105233-04-05 21:07 J -36714834.64 -36714834.62 -36714834.60 0.1823 0.1789
 Mercury -105227-11-07 13:26 J -36712428.08 -36712427.94 -36712427.80 0.1673 0.0597
 Mercury -105226-09-21 06:43 J -36712110.33 -36712110.22 -36712110.11 0.1847 0.0836
 Mercury -105225-10-13 20:23 J -36711721.72 -36711721.65 -36711721.57 0.1689 0.1457
 Moon -105224-01-13 06:28 J -36711630.45 -36711630.23 -36711630.01 0.1790 0.0240
 Earth -105224-01-13 12:57 J -36711630.17 -36711629.96 -36711629.76 0.1790 0.0074 *
 Venus -105224-01-26 11:45 J -36711617.19 -36711617.01 -36711616.83 0.1805 0.0126
 Mercury -105224-08-27 04:33 J -36711404.39 -36711404.31 -36711404.22 0.1828 0.1318
 Venus -105220-09-10 16:47 J -36709928.97 -36709928.80 -36709928.63 0.1712 0.0167
 Mercury -105217-03-29 18:43 J -36708997.83 -36708997.72 -36708997.61 0.1669 0.1055

Mercury -105216-02-10 12:28 J -36708680.06 -36708679.98 -36708679.90 0.1852 0.1415
 Mercury -105215-03-06 00:28 J -36708291.61 -36708291.48 -36708291.36 0.1685 0.0935
 Mercury -105214-01-17 11:31 J -36707974.13 -36707974.02 -36707973.91 0.1833 0.0816
 Mercury -105208-08-19 23:59 J -36705567.56 -36705567.50 -36705567.44 0.1665 0.1500
 Mercury -105206-07-27 04:33 J -36704861.46 -36704861.31 -36704861.17 0.1680 0.0423
 Mercury -105205-06-08 18:14 J -36704543.87 -36704543.74 -36704543.62 0.1838 0.0298
 Mercury -105197-12-16 09:07 J -36701431.27 -36701431.12 -36701430.97 0.1676 0.0075
 Mercury -105196-10-30 00:43 J -36701113.60 -36701113.47 -36701113.35 0.1843 0.0238
 Venus -105188-09-09 13:55 J -36698242.03 -36698241.92 -36698241.82 0.1704 0.1328
 Mercury -105187-05-08 13:55 J -36698001.06 -36698000.92 -36698000.79 0.1672 0.0551
 Mercury -105186-03-22 06:43 J -36697683.34 -36697683.22 -36697683.10 0.1848 0.0795
 Venus -105186-07-10 05:59 J -36697573.37 -36697573.25 -36697573.13 0.1723 0.1200
 Mercury -105185-04-13 21:07 J -36697294.69 -36697294.62 -36697294.56 0.1689 0.1514
 Mercury -105184-02-25 04:33 J -36696977.39 -36696977.31 -36696977.23 0.1828 0.1357
 Mercury -105178-09-28 18:57 J -36694570.83 -36694570.71 -36694570.60 0.1669 0.1012
 Mercury -105177-08-11 12:43 J -36694253.06 -36694252.97 -36694252.88 0.1852 0.1359
 Mercury -105176-09-04 00:43 J -36693864.59 -36693864.47 -36693864.35 0.1684 0.0982
 Mercury -105175-07-18 11:31 J -36693547.13 -36693547.02 -36693546.91 0.1833 0.0863
 Moon -105171-07-20 15:50 J -36692084.02 -36692083.84 -36692083.65 0.1730 0.0096
 Earth -105171-07-20 21:50 J -36692083.77 -36692083.59 -36692083.40 0.1730 0.0204 *
 Mercury -105168-02-18 00:28 J -36691140.55 -36691140.48 -36691140.41 0.1665 0.1452
 Mercury -105166-01-25 04:47 J -36690434.44 -36690434.30 -36690434.16 0.1680 0.0471
 Mercury -105166-12-08 18:28 J -36690116.85 -36690116.73 -36690116.60 0.1838 0.0351
 Venus -105159-11-23 16:33 J -36687574.99 -36687574.81 -36687574.63 0.1802 0.0171
 Mercury -105157-06-16 09:21 J -36687004.26 -36687004.11 -36687003.96 0.1676 0.0035
 Mercury -105156-04-30 00:43 J -36686686.59 -36686686.47 -36686686.34 0.1843 0.0194
 Venus -105154-07-09 04:04 J -36685886.50 -36685886.33 -36685886.16 0.1714 0.0034
 Mercury -105148-11-06 14:09 J -36683574.05 -36683573.91 -36683573.77 0.1672 0.0500
 Mercury -105147-09-20 06:57 J -36683256.32 -36683256.21 -36683256.09 0.1847 0.0741
 Mercury -105146-10-13 21:35 J -36682867.66 -36682867.60 -36682867.55 0.1689 0.1569

Mercury -105145-08-26 04:47 J -36682550.38 -36682550.30 -36682550.22 0.1828 0.1406
 Mercury -105138-03-29 19:11 J -36680143.81 -36680143.70 -36680143.58 0.1669 0.0963
 Mercury -105137-02-10 12:43 J -36679826.06 -36679825.97 -36679825.88 0.1852 0.1317
 Mercury -105136-03-05 01:11 J -36679437.57 -36679437.45 -36679437.33 0.1684 0.1038
 Mercury -105135-01-16 11:45 J -36679120.12 -36679120.01 -36679119.90 0.1833 0.0909
 Mercury -105129-08-19 00:43 J -36676713.54 -36676713.47 -36676713.39 0.1665 0.1407
 Mercury -105127-07-26 05:16 J -36676007.42 -36676007.28 -36676007.14 0.1680 0.0524
 Venus -105127-11-23 11:02 J -36675887.12 -36675887.04 -36675886.96 0.1812 0.1610
 Mercury -105126-06-08 18:28 J -36675689.85 -36675689.73 -36675689.61 0.1838 0.0391
 Venus -105122-07-08 00:57 J -36674199.58 -36674199.46 -36674199.33 0.1706 0.1183
 Venus -105120-05-06 16:33 J -36673530.91 -36673530.81 -36673530.71 0.1726 0.1377
 Mercury -105118-12-16 09:50 J -36672577.24 -36672577.09 -36672576.95 0.1676 0.0050
 Mercury -105117-10-29 01:11 J -36672259.58 -36672259.45 -36672259.33 0.1843 0.0151
 Mercury -105108-05-07 14:23 J -36669147.04 -36669146.90 -36669146.75 0.1672 0.0455
 Mercury -105107-03-21 07:11 J -36668829.32 -36668829.20 -36668829.08 0.1847 0.0692
 Mercury -105106-04-13 21:50 J -36668440.63 -36668440.59 -36668440.55 0.1689 0.1615
 Mercury -105105-02-25 05:02 J -36668123.37 -36668123.29 -36668123.22 0.1828 0.1453
 Mercury -105099-09-27 19:40 J -36665716.80 -36665716.68 -36665716.55 0.1669 0.0912
 Mercury -105098-08-11 12:57 J -36665399.05 -36665398.96 -36665398.86 0.1852 0.1262
 Mercury -105097-09-03 01:40 J -36665010.54 -36665010.43 -36665010.32 0.1685 0.1091
 Mercury -105096-07-17 11:59 J -36664693.11 -36664693.00 -36664692.90 0.1833 0.0957
 Venus -105093-09-19 21:21 J -36663532.79 -36663532.61 -36663532.44 0.1799 0.0469
 Earth -105092-07-23 05:02 J -36663226.44 -36663226.29 -36663226.15 0.1726 0.1026
 Moon -105092-07-23 06:14 J -36663226.41 -36663226.24 -36663226.07 0.1726 0.0872 *
 Mercury -105089-02-18 01:11 J -36662286.53 -36662286.45 -36662286.37 0.1665 0.1359
 Mercury -105089-12-31 18:28 J -36661968.73 -36661968.73 -36661968.72 0.1856 0.1852
 Venus -105088-05-05 15:07 J -36661844.04 -36661843.87 -36661843.71 0.1717 0.0157
 Mercury -105087-01-24 05:45 J -36661580.40 -36661580.26 -36661580.12 0.1680 0.0578
 Mercury -105087-12-07 18:43 J -36661262.84 -36661262.72 -36661262.59 0.1838 0.0446
 Mercury -105078-06-16 10:04 J -36658150.23 -36658150.08 -36658149.93 0.1676 0.0082

Mercury -105077-04-29 01:11 J -36657832.58 -36657832.45 -36657832.33 0.1843 0.0108

Mercury -105069-11-05 15:07 J -36654720.02 -36654719.87 -36654719.73 0.1672 0.0404

Mercury -105068-09-19 07:26 J -36654402.31 -36654402.19 -36654402.07 0.1848 0.0645

Mercury -105067-10-12 22:19 J -36654013.58 -36654013.57 -36654013.55 0.1689 0.1677

Mercury -105066-08-26 05:02 J -36653696.36 -36653696.29 -36653696.22 0.1828 0.1496

Venus -105061-09-19 15:50 J -36651844.96 -36651844.84 -36651844.71 0.1809 0.1311

Mercury -105059-03-28 19:55 J -36651289.79 -36651289.67 -36651289.54 0.1669 0.0869

Mercury -105058-02-09 13:26 J -36650972.04 -36650971.94 -36650971.85 0.1852 0.1209

Mercury -105057-03-04 02:09 J -36650583.52 -36650583.41 -36650583.30 0.1684 0.1143

Mercury -105056-01-15 11:59 J -36650266.10 -36650266.00 -36650265.89 0.1834 0.1005

Venus -105056-05-04 12:28 J -36650157.11 -36650156.98 -36650156.84 0.1709 0.1039

Venus -105054-03-04 03:07 J -36649488.44 -36649488.37 -36649488.30 0.1729 0.1560

Mercury -105050-08-19 01:26 J -36647859.53 -36647859.44 -36647859.35 0.1665 0.1312

Mercury -105049-07-01 18:43 J -36647541.75 -36647541.72 -36647541.69 0.1856 0.1800

Mercury -105048-07-25 05:59 J -36647153.39 -36647153.25 -36647153.11 0.1680 0.0623

Mercury -105047-06-07 18:57 J -36646835.83 -36646835.71 -36646835.59 0.1838 0.0492

Mercury -105039-12-15 10:33 J -36643723.20 -36643723.06 -36643722.91 0.1676 0.0141

Mercury -105038-10-29 01:26 J -36643405.57 -36643405.44 -36643405.32 0.1843 0.0056

Mercury -105029-05-06 15:21 J -36640293.00 -36640292.86 -36640292.72 0.1672 0.0351

Mercury -105028-03-20 07:40 J -36639975.31 -36639975.18 -36639975.06 0.1847 0.0594

Venus -105027-07-18 03:07 J -36639490.53 -36639490.37 -36639490.20 0.1796 0.0743

Mercury -105026-02-24 05:16 J -36639269.35 -36639269.28 -36639269.22 0.1828 0.1544

Venus -105022-03-03 02:09 J -36637801.58 -36637801.41 -36637801.25 0.1720 0.0317

Mercury -105020-09-26 20:23 J -36636862.77 -36636862.65 -36636862.52 0.1669 0.0816

Mercury -105019-08-10 13:26 J -36636545.04 -36636544.94 -36636544.84 0.1852 0.1162

Mercury -105018-09-03 02:23 J -36636156.50 -36636156.40 -36636156.29 0.1684 0.1196

Mercury -105017-07-16 12:14 J -36635839.09 -36635838.99 -36635838.89 0.1833 0.1050

Mercury -105010-02-17 01:40 J -36633432.52 -36633432.43 -36633432.33 0.1665 0.1269

Mercury -105010-12-31 18:57 J -36633114.75 -36633114.71 -36633114.67 0.1856 0.1751

Mercury -105008-01-23 06:43 J -36632726.36 -36632726.22 -36632726.09 0.1680 0.0683

Mercury -105008-12-06 18:57 J -36632408.83 -36632408.71 -36632408.59 0.1838 0.0537

105TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 105th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -104999-06-15 10:47 J | -36629296.19 | -36629296.05 | -36629295.90 | 0.1676 | 0.0182 | | |
| Mercury | -104998-04-29 01:40 J | -36628978.56 | -36628978.43 | -36628978.31 | 0.1843 | 0.0070 | | |
| Venus | -104995-07-17 20:38 J | -36627802.79 | -36627802.64 | -36627802.49 | 0.1806 | 0.1004 | | |
| Venus | -104990-03-01 23:31 J | -36626114.67 | -36626114.52 | -36626114.38 | 0.1711 | 0.0883 | | |
| Mercury | -104990-11-05 15:50 J | -36625865.99 | -36625865.84 | -36625865.70 | 0.1672 | 0.0303 | | |
| Mercury | -104989-09-18 07:55 J | -36625548.30 | -36625548.17 | -36625548.05 | 0.1847 | 0.0540 | | |
| Mercury | -104987-08-25 05:31 J | -36624842.33 | -36624842.27 | -36624842.21 | 0.1828 | 0.1593 | | |
| Mercury | -104980-03-27 20:52 J | -36622435.76 | -36622435.63 | -36622435.50 | 0.1669 | 0.0769 | | |
| Mercury | -104979-02-08 13:40 J | -36622118.03 | -36622117.93 | -36622117.83 | 0.1852 | 0.1112 | | |
| Mercury | -104978-03-04 02:52 J | -36621729.48 | -36621729.38 | -36621729.28 | 0.1685 | 0.1251 | | |
| Mercury | -104977-01-15 12:28 J | -36621412.08 | -36621411.98 | -36621411.88 | 0.1833 | 0.1098 | | |
| Mercury | -104971-08-18 02:09 J | -36619005.51 | -36619005.41 | -36619005.31 | 0.1665 | 0.1219 | | |
| Mercury | -104970-07-01 19:11 J | -36618687.75 | -36618687.70 | -36618687.65 | 0.1856 | 0.1697 | | |
| Mercury | -104969-07-24 06:57 J | -36618299.34 | -36618299.21 | -36618299.07 | 0.1680 | 0.0732 | | |
| Mercury | -104968-06-06 19:11 J | -36617981.82 | -36617981.70 | -36617981.58 | 0.1838 | 0.0586 | | |
| Earth | -104966-07-19 13:26 J | -36617209.08 | -36617208.94 | -36617208.80 | 0.1739 | 0.1113 | | |

Moon -104966-07-19 19:26 J -36617208.81 -36617208.69 -36617208.57 0.1739 0.1283 *
 Mercury -104961-01-08 07:55 J -36615575.18 -36615575.17 -36615575.16 0.1662 0.1651
 Venus -104961-05-14 08:23 J -36615448.30 -36615448.15 -36615448.00 0.1793 0.1027
 Mercury -104960-12-14 11:31 J -36614869.17 -36614869.02 -36614868.88 0.1676 0.0236
 Mercury -104959-10-28 01:40 J -36614551.55 -36614551.43 -36614551.30 0.1843 0.0068
 Venus -104957-12-28 12:43 J -36613759.14 -36613758.97 -36613758.81 0.1722 0.0491
 Mercury -104950-05-06 16:04 J -36611438.98 -36611438.83 -36611438.68 0.1672 0.0254
 Mercury -104949-03-19 07:55 J -36611121.30 -36611121.17 -36611121.05 0.1848 0.0498
 Mercury -104947-02-23 05:16 J -36610415.33 -36610415.28 -36610415.22 0.1828 0.1632
 Mercury -104941-09-25 21:07 J -36608008.75 -36608008.62 -36608008.49 0.1668 0.0724
 Moon -104940-01-13 05:45 J -36607899.45 -36607899.26 -36607899.08 0.1783 0.0180
 Earth -104940-01-13 08:23 J -36607899.36 -36607899.15 -36607898.95 0.1783 0.0043 *
 Mercury -104940-08-09 13:55 J -36607691.02 -36607690.92 -36607690.81 0.1852 0.1056
 Mercury -104939-09-02 03:21 J -36607302.46 -36607302.36 -36607302.27 0.1684 0.1299
 Mercury -104938-07-16 12:28 J -36606985.07 -36606984.98 -36606984.88 0.1834 0.1144
 Mercury -104931-02-16 02:38 J -36604578.49 -36604578.39 -36604578.29 0.1665 0.1169
 Mercury -104931-12-30 19:26 J -36604260.75 -36604260.69 -36604260.63 0.1856 0.1646
 Mercury -104929-01-23 07:26 J -36603872.32 -36603872.19 -36603872.06 0.1680 0.0783
 Venus -104929-05-14 01:26 J -36603760.61 -36603760.44 -36603760.28 0.1803 0.0705
 Mercury -104929-12-05 19:26 J -36603554.81 -36603554.69 -36603554.57 0.1838 0.0640
 Venus -104925-12-27 10:33 J -36602072.21 -36602072.06 -36602071.91 0.1714 0.0727
 Mercury -104922-07-09 08:09 J -36601148.19 -36601148.16 -36601148.13 0.1661 0.1607
 Mercury -104920-06-14 11:45 J -36600442.15 -36600442.01 -36600441.86 0.1676 0.0285
 Mercury -104919-04-28 01:55 J -36600124.55 -36600124.42 -36600124.30 0.1843 0.0113
 Mercury -104911-11-04 16:33 J -36597011.96 -36597011.81 -36597011.66 0.1672 0.0202
 Mercury -104910-09-18 08:09 J -36596694.28 -36596694.16 -36596694.03 0.1848 0.0441
 Mercury -104908-08-24 05:31 J -36595988.31 -36595988.27 -36595988.22 0.1828 0.1682
 Mercury -104901-03-26 21:35 J -36593581.73 -36593581.60 -36593581.47 0.1668 0.0671
 Mercury -104900-02-07 13:55 J -36593264.02 -36593263.92 -36593263.81 0.1852 0.1014
 Mercury -104899-03-03 03:50 J -36592875.43 -36592875.34 -36592875.25 0.1684 0.1358

Mercury -104898-01-14 12:43 J -36592558.06 -36592557.97 -36592557.88 0.1833 0.1191

Venus -104895-03-11 14:23 J -36591406.02 -36591405.90 -36591405.78 0.1790 0.1297

Mercury -104892-08-17 02:52 J -36590151.49 -36590151.38 -36590151.28 0.1665 0.1126

Mercury -104891-06-30 19:40 J -36589833.74 -36589833.68 -36589833.62 0.1857 0.1594

Venus -104891-10-25 23:16 J -36589716.68 -36589716.53 -36589716.37 0.1725 0.0662

Mercury -104890-07-24 07:55 J -36589445.30 -36589445.17 -36589445.04 0.1680 0.0836

Mercury -104889-06-05 19:26 J -36589127.81 -36589127.69 -36589127.57 0.1838 0.0678

Moon -104887-07-21 20:38 J -36588351.81 -36588351.64 -36588351.47 0.1735 0.0315

Earth -104887-07-21 21:07 J -36588351.81 -36588351.62 -36588351.44 0.1735 0.0137 *

Mercury -104882-01-07 08:23 J -36586721.19 -36586721.15 -36586721.10 0.1662 0.1563

Mercury -104881-12-13 12:14 J -36586015.14 -36586014.99 -36586014.85 0.1676 0.0334

Mercury -104880-10-27 02:09 J -36585697.54 -36585697.41 -36585697.28 0.1843 0.0157

Mercury -104871-05-05 16:47 J -36582584.94 -36582584.80 -36582584.65 0.1672 0.0158

Mercury -104870-03-19 08:23 J -36582267.28 -36582267.15 -36582267.03 0.1848 0.0395

Mercury -104868-02-22 05:45 J -36581561.30 -36581561.26 -36581561.22 0.1828 0.1728

Venus -104863-03-11 06:28 J -36579718.41 -36579718.23 -36579718.06 0.1800 0.0408

Mercury -104862-09-25 22:04 J -36579154.72 -36579154.58 -36579154.45 0.1668 0.0622

Moon -104861-01-17 03:35 J -36579041.45 -36579041.35 -36579041.24 0.1788 0.1546

Mercury -104861-08-08 14:23 J -36578837.01 -36578836.90 -36578836.79 0.1852 0.0956

Mercury -104860-09-01 04:18 J -36578448.40 -36578448.32 -36578448.24 0.1685 0.1411

Mercury -104859-07-15 12:42 J -36578131.06 -36578130.97 -36578130.87 0.1833 0.1240

Venus -104859-10-24 21:21 J -36578029.77 -36578029.61 -36578029.45 0.1716 0.0564

Mercury -104852-02-15 03:06 J -36575724.47 -36575724.37 -36575724.26 0.1665 0.1078

Mercury -104852-12-29 19:54 J -36575406.74 -36575406.67 -36575406.60 0.1856 0.1544

Mercury -104850-01-22 08:23 J -36575018.28 -36575018.15 -36575018.03 0.1680 0.0891

Mercury -104850-12-05 19:40 J -36574700.79 -36574700.68 -36574700.56 0.1838 0.0732

Mercury -104843-07-08 08:52 J -36572294.19 -36572294.13 -36572294.08 0.1661 0.1516

Mercury -104841-06-13 12:28 J -36571588.12 -36571587.98 -36571587.83 0.1676 0.0388

Mercury -104840-04-27 02:09 J -36571270.54 -36571270.41 -36571270.28 0.1843 0.0199

Mercury -104832-11-03 17:16 J -36568157.92 -36568157.78 -36568157.63 0.1672 0.0106

Mercury -104831-09-17 08:38 J -36567840.27 -36567840.14 -36567840.02 0.1848 0.0349

Venus -104829-01-06 19:54 J -36567363.76 -36567363.67 -36567363.59 0.1786 0.1576

Mercury -104829-08-23 05:45 J -36567134.28 -36567134.26 -36567134.23 0.1828 0.1772

Venus -104825-08-22 09:35 J -36565674.25 -36565674.10 -36565673.95 0.1728 0.0846

Mercury -104822-03-26 22:04 J -36564727.71 -36564727.58 -36564727.44 0.1668 0.0580

Mercury -104821-02-07 14:38 J -36564410.00 -36564409.89 -36564409.78 0.1852 0.0905

Mercury -104820-03-02 04:47 J -36564021.38 -36564021.30 -36564021.23 0.1684 0.1461

Mercury -104819-01-13 12:57 J -36563704.05 -36563703.96 -36563703.87 0.1834 0.1285

Mercury -104813-08-16 03:35 J -36561297.46 -36561297.35 -36561297.24 0.1665 0.1029

Mercury -104812-06-29 20:09 J -36560979.74 -36560979.66 -36560979.59 0.1856 0.1494

Mercury -104811-07-23 08:38 J -36560591.27 -36560591.14 -36560591.02 0.1680 0.0937

Mercury -104810-06-05 19:54 J -36560273.78 -36560273.67 -36560273.56 0.1838 0.0779

Moon -104808-07-23 22:33 J -36559494.68 -36559494.56 -36559494.43 0.1732 0.1215

Earth -104808-07-24 04:47 J -36559494.41 -36559494.30 -36559494.19 0.1731 0.1373

Mercury -104803-01-06 09:21 J -36557867.18 -36557867.11 -36557867.05 0.1661 0.1467

Mercury -104802-12-13 13:11 J -36557161.10 -36557160.95 -36557160.81 0.1676 0.0441

Mercury -104801-10-26 02:23 J -36556843.52 -36556843.40 -36556843.27 0.1843 0.0254

Venus -104797-01-06 11:16 J -36555676.21 -36555676.03 -36555675.86 0.1797 0.0114

Venus -104793-08-21 08:09 J -36553987.33 -36553987.16 -36553987.00 0.1719 0.0398

Mercury -104792-05-04 17:45 J -36553730.91 -36553730.76 -36553730.62 0.1672 0.0064

Mercury -104791-03-18 08:38 J -36553413.26 -36553413.14 -36553413.01 0.1848 0.0298

Mercury -104789-02-22 05:59 J -36552707.26 -36552707.25 -36552707.24 0.1829 0.1818

Mercury -104783-09-24 22:33 J -36550300.69 -36550300.56 -36550300.42 0.1668 0.0527

Mercury -104782-08-08 14:38 J -36549983.00 -36549982.89 -36549982.78 0.1852 0.0860

Mercury -104781-08-31 05:02 J -36549594.35 -36549594.29 -36549594.22 0.1684 0.1516

Mercury -104780-07-14 13:11 J -36549277.04 -36549276.95 -36549276.87 0.1833 0.1330

Mercury -104773-02-15 03:50 J -36546870.45 -36546870.34 -36546870.22 0.1665 0.0984

Mercury -104773-12-28 20:23 J -36546552.73 -36546552.65 -36546552.57 0.1857 0.1441

Mercury -104771-01-21 09:06 J -36546164.24 -36546164.12 -36546164.00 0.1680 0.0996

Mercury -104771-12-04 19:54 J -36545846.78 -36545846.67 -36545846.56 0.1839 0.0825

Mercury -104764-07-07 09:21 J -36543440.18 -36543440.11 -36543440.03 0.1661 0.1425

Mercury -104762-06-13 13:26 J -36542734.09 -36542733.94 -36542733.80 0.1676 0.0486

Mercury -104761-04-26 02:38 J -36542416.51 -36542416.39 -36542416.26 0.1843 0.0302

Venus -104761-08-20 05:45 J -36542300.31 -36542300.26 -36542300.20 0.1710 0.1600

Venus -104759-06-19 20:09 J -36541631.79 -36541631.66 -36541631.52 0.1731 0.1024

Mercury -104753-11-02 17:59 J -36539303.89 -36539303.75 -36539303.60 0.1672 0.0053

Mercury -104752-09-16 08:52 J -36538986.25 -36538986.13 -36538986.00 0.1848 0.0244

Mercury -104743-03-25 23:02 J -36535873.68 -36535873.54 -36535873.40 0.1668 0.0476

Mercury -104742-02-06 14:52 J -36535555.99 -36535555.88 -36535555.76 0.1852 0.0807

Mercury -104741-03-01 05:45 J -36535167.31 -36535167.26 -36535167.21 0.1685 0.1573

Mercury -104740-01-12 13:11 J -36534850.03 -36534849.95 -36534849.87 0.1833 0.1378

Mercury -104734-08-16 04:18 J -36532443.44 -36532443.32 -36532443.20 0.1665 0.0933

Mercury -104733-06-28 20:38 J -36532125.73 -36532125.64 -36532125.56 0.1857 0.1390

Mercury -104732-07-22 09:35 J -36531737.22 -36531737.10 -36531736.99 0.1680 0.1047

Venus -104732-11-02 16:33 J -36531633.99 -36531633.81 -36531633.63 0.1793 0.0186

Mercury -104731-06-04 20:09 J -36531419.77 -36531419.66 -36531419.55 0.1838 0.0874

Venus -104727-06-18 18:57 J -36529944.87 -36529944.71 -36529944.54 0.1722 0.0238

Mercury -104724-01-05 09:50 J -36529013.17 -36529013.09 -36529013.01 0.1661 0.1375

Mercury -104723-12-12 13:54 J -36528307.06 -36528306.92 -36528306.78 0.1676 0.0541

Mercury -104722-10-26 02:38 J -36527989.51 -36527989.39 -36527989.26 0.1843 0.0355

Mercury -104713-05-03 18:28 J -36524876.88 -36524876.73 -36524876.58 0.1672 0.0054

Mercury -104712-03-17 09:06 J -36524559.25 -36524559.12 -36524559.00 0.1848 0.0207

Mercury -104704-09-23 23:16 J -36521446.67 -36521446.53 -36521446.39 0.1668 0.0430

Mercury -104703-08-07 15:06 J -36521128.98 -36521128.87 -36521128.75 0.1852 0.0753

Mercury -104702-08-31 05:59 J -36520740.29 -36520740.25 -36520740.21 0.1684 0.1621

Mercury -104701-07-13 13:26 J -36520423.02 -36520422.94 -36520422.86 0.1834 0.1425

Venus -104700-11-02 09:35 J -36519946.19 -36519946.10 -36519946.02 0.1804 0.1579

Venus -104695-06-17 16:47 J -36518257.89 -36518257.80 -36518257.71 0.1713 0.1447

Mercury -104694-02-14 04:47 J -36518016.43 -36518016.30 -36518016.18 0.1665 0.0884

Mercury -104694-12-28 20:38 J -36517698.72 -36517698.64 -36517698.55 0.1857 0.1339

Venus -104693-04-16 06:28 J -36517589.35 -36517589.23 -36517589.11 0.1733 0.1210
 Mercury -104692-01-20 09:50 J -36517310.20 -36517310.09 -36517309.97 0.1680 0.1101
 Mercury -104692-12-03 20:23 J -36516992.76 -36516992.65 -36516992.54 0.1838 0.0925
 Mercury -104685-07-06 10:18 J -36514586.16 -36514586.07 -36514585.99 0.1661 0.1330
 Mercury -104683-06-12 14:09 J -36513880.05 -36513879.91 -36513879.77 0.1676 0.0593
 Mercury -104682-04-26 02:52 J -36513562.50 -36513562.38 -36513562.26 0.1843 0.0395
 Moon -104682-07-20 10:18 J -36513477.23 -36513477.07 -36513476.91 0.1745 0.0980
 Earth -104682-07-20 11:16 J -36513477.20 -36513477.03 -36513476.87 0.1745 0.0796 *
 Mercury -104674-11-02 18:57 J -36510449.86 -36510449.71 -36510449.56 0.1672 0.0102
 Mercury -104673-09-15 09:21 J -36510132.24 -36510132.11 -36510131.98 0.1848 0.0142
 Venus -104666-08-30 21:35 J -36507591.78 -36507591.60 -36507591.43 0.1790 0.0480
 Mercury -104664-03-24 23:45 J -36507019.65 -36507019.51 -36507019.37 0.1668 0.0377
 Mercury -104663-02-05 15:06 J -36506701.98 -36506701.87 -36506701.75 0.1852 0.0711
 Mercury -104662-03-01 06:28 J -36506313.23 -36506313.23 -36506313.22 0.1684 0.1680
 Mercury -104661-01-12 13:40 J -36505996.01 -36505995.93 -36505995.86 0.1833 0.1472
 Venus -104661-04-15 05:45 J -36505902.43 -36505902.26 -36505902.09 0.1724 0.0072
 Earth -104656-01-13 05:30 J -36504168.47 -36504168.27 -36504168.06 0.1776 0.0095
 Moon -104656-01-13 14:38 J -36504168.10 -36504167.89 -36504167.69 0.1777 0.0339 *
 Mercury -104655-08-15 05:02 J -36503589.42 -36503589.29 -36503589.17 0.1665 0.0842
 Mercury -104654-06-28 20:52 J -36503271.72 -36503271.63 -36503271.53 0.1857 0.1288
 Mercury -104653-07-21 10:18 J -36502883.18 -36502883.07 -36502882.96 0.1680 0.1150
 Mercury -104652-06-03 20:23 J -36502565.76 -36502565.65 -36502565.55 0.1839 0.0964
 Mercury -104645-01-05 10:33 J -36500159.15 -36500159.06 -36500158.97 0.1661 0.1282
 Mercury -104644-12-11 14:38 J -36499453.03 -36499452.89 -36499452.75 0.1676 0.0640
 Mercury -104643-10-25 03:06 J -36499135.49 -36499135.37 -36499135.24 0.1843 0.0453
 Mercury -104634-05-03 19:11 J -36496022.84 -36496022.70 -36496022.55 0.1672 0.0155
 Venus -104634-08-30 14:52 J -36495904.01 -36495903.88 -36495903.76 0.1801 0.1286
 Mercury -104633-03-16 09:21 J -36495705.23 -36495705.11 -36495704.98 0.1848 0.0106
 Venus -104629-04-14 04:04 J -36494215.44 -36494215.33 -36494215.22 0.1716 0.1296
 Venus -104627-02-11 16:33 J -36493546.90 -36493546.81 -36493546.71 0.1736 0.1403

Mercury -104625-09-23 00:14 J -36492592.64 -36492592.49 -36492592.35 0.1668 0.0327

Mercury -104624-08-06 15:35 J -36492274.97 -36492274.85 -36492274.73 0.1852 0.0654

Mercury -104622-07-13 13:40 J -36491569.00 -36491568.93 -36491568.86 0.1834 0.1516

Mercury -104615-02-13 05:16 J -36489162.40 -36489162.28 -36489162.15 0.1665 0.0791

Mercury -104615-12-27 21:06 J -36488844.71 -36488844.62 -36488844.52 0.1857 0.1237

Mercury -104613-01-20 10:47 J -36488456.15 -36488456.05 -36488455.94 0.1680 0.1207

Mercury -104613-12-02 20:38 J -36488138.74 -36488138.64 -36488138.53 0.1839 0.1018

Mercury -104606-07-06 10:47 J -36485732.14 -36485732.05 -36485731.95 0.1661 0.1237

Mercury -104605-05-19 02:23 J -36485414.41 -36485414.40 -36485414.38 0.1861 0.1839

Mercury -104604-06-11 15:06 J -36485026.01 -36485025.87 -36485025.74 0.1676 0.0695

Mercury -104603-04-25 03:06 J -36484708.49 -36484708.37 -36484708.25 0.1843 0.0494

Earth -104603-07-22 19:26 J -36484619.87 -36484619.69 -36484619.51 0.1741 0.0463

Moon -104603-07-23 01:26 J -36484619.61 -36484619.44 -36484619.26 0.1740 0.0676 *

Venus -104600-06-27 04:04 J -36483549.50 -36483549.33 -36483549.17 0.1787 0.0748

Venus -104595-02-10 16:33 J -36481859.98 -36481859.81 -36481859.64 0.1727 0.0107

Mercury -104595-11-01 19:40 J -36481595.83 -36481595.68 -36481595.53 0.1672 0.0200

Mercury -104594-09-15 09:35 J -36481278.23 -36481278.10 -36481277.97 0.1848 0.0054

Mercury -104585-03-24 00:28 J -36478165.63 -36478165.48 -36478165.34 0.1668 0.0285

Mercury -104584-02-04 15:50 J -36477847.97 -36477847.84 -36477847.72 0.1852 0.0605

Mercury -104582-01-11 13:54 J -36477141.98 -36477141.92 -36477141.86 0.1834 0.1565

Moon -104577-01-17 12:42 J -36475310.04 -36475309.97 -36475309.89 0.1781 0.1628

Mercury -104576-08-14 05:45 J -36474735.39 -36474735.26 -36474735.13 0.1665 0.0741

Mercury -104575-06-27 21:21 J -36474417.71 -36474417.61 -36474417.51 0.1857 0.1186

Mercury -104574-07-21 11:16 J -36474029.13 -36474029.03 -36474028.93 0.1680 0.1256

Mercury -104573-06-02 20:52 J -36473711.73 -36473711.63 -36473711.53 0.1838 0.1065

Venus -104568-06-26 19:54 J -36471861.82 -36471861.67 -36471861.52 0.1797 0.0984

Mercury -104566-01-04 11:16 J -36471305.13 -36471305.03 -36471304.93 0.1661 0.1186

Mercury -104566-11-18 02:52 J -36470987.42 -36470987.38 -36470987.35 0.1861 0.1780

Mercury -104565-12-10 15:35 J -36470598.98 -36470598.85 -36470598.72 0.1676 0.0750

Mercury -104564-10-24 03:21 J -36470281.48 -36470281.36 -36470281.23 0.1843 0.0549

Venus -104563-02-09 14:52 J -36470173.01 -36470172.88 -36470172.76 0.1718 0.1135

Venus -104562-12-10 02:52 J -36469504.44 -36469504.38 -36469504.31 0.1739 0.1597

Mercury -104557-05-26 17:02 J -36467874.82 -36467874.79 -36467874.76 0.1658 0.1619

Mercury -104555-05-02 19:54 J -36467168.81 -36467168.67 -36467168.52 0.1672 0.0253

Mercury -104554-03-16 09:50 J -36466851.22 -36466851.09 -36466850.97 0.1848 0.0034

Mercury -104546-09-23 00:57 J -36463738.61 -36463738.46 -36463738.32 0.1668 0.0230

Mercury -104545-08-05 15:50 J -36463420.96 -36463420.84 -36463420.72 0.1853 0.0557

Mercury -104543-07-12 13:54 J -36462714.98 -36462714.92 -36462714.86 0.1834 0.1609

Mercury -104536-02-12 05:59 J -36460308.38 -36460308.25 -36460308.12 0.1664 0.0696

Mercury -104536-12-26 21:35 J -36459990.70 -36459990.60 -36459990.50 0.1857 0.1132

Mercury -104534-01-19 11:45 J -36459602.10 -36459602.01 -36459601.92 0.1680 0.1313

Venus -104534-04-24 09:21 J -36459507.25 -36459507.11 -36459506.96 0.1784 0.1030

Mercury -104534-12-02 20:52 J -36459284.73 -36459284.63 -36459284.53 0.1839 0.1110

Venus -104530-12-09 02:52 J -36457817.54 -36457817.38 -36457817.21 0.1730 0.0292

Mercury -104527-07-05 11:30 J -36456878.12 -36456878.02 -36456877.92 0.1661 0.1143

Mercury -104526-05-19 03:06 J -36456560.42 -36456560.37 -36456560.33 0.1861 0.1730

Mercury -104525-06-10 15:50 J -36456171.97 -36456171.84 -36456171.71 0.1676 0.0793

Mercury -104524-04-24 03:35 J -36455854.47 -36455854.35 -36455854.23 0.1844 0.0593

Earth -104524-07-25 03:50 J -36455762.37 -36455762.34 -36455762.31 0.1737 0.1709

Moon -104524-07-25 07:40 J -36455762.23 -36455762.18 -36455762.13 0.1736 0.1650

Mercury -104518-11-25 17:30 J -36453447.82 -36453447.77 -36453447.73 0.1658 0.1572

Mercury -104516-10-31 20:23 J -36452741.79 -36452741.65 -36452741.50 0.1672 0.0305

Mercury -104515-09-14 10:04 J -36452424.21 -36452424.08 -36452423.96 0.1848 0.0069

Mercury -104506-03-24 01:26 J -36449311.59 -36449311.44 -36449311.30 0.1668 0.0186

Mercury -104505-02-04 16:04 J -36448993.95 -36448993.83 -36448993.71 0.1853 0.0504

Mercury -104503-01-10 14:09 J -36448287.96 -36448287.91 -36448287.86 0.1834 0.1657

Venus -104502-04-24 00:57 J -36447819.62 -36447819.46 -36447819.29 0.1795 0.0686

Venus -104498-12-08 01:40 J -36446130.57 -36446130.43 -36446130.29 0.1721 0.0970

Mercury -104497-08-13 06:28 J -36445881.37 -36445881.23 -36445881.10 0.1664 0.0646

Mercury -104496-06-26 21:50 J -36445563.70 -36445563.59 -36445563.49 0.1857 0.1084

Mercury -104495-07-20 11:59 J -36445175.08 -36445175.00 -36445174.91 0.1680 0.1364

Mercury -104494-06-02 21:06 J -36444857.72 -36444857.62 -36444857.53 0.1839 0.1158

Mercury -104487-01-03 11:59 J -36442451.11 -36442451.00 -36442450.89 0.1661 0.1095

Mercury -104487-11-17 03:06 J -36442133.42 -36442133.37 -36442133.32 0.1861 0.1682

Mercury -104486-12-10 16:18 J -36441744.95 -36441744.82 -36441744.69 0.1676 0.0852

Mercury -104485-10-23 03:35 J -36441427.46 -36441427.35 -36441427.23 0.1843 0.0642

Mercury -104478-05-26 17:30 J -36439020.82 -36439020.77 -36439020.71 0.1658 0.1532

Moon -104477-07-18 00:42 J -36438602.54 -36438602.47 -36438602.41 0.1754 0.1608

Mercury -104476-05-01 20:52 J -36438314.78 -36438314.63 -36438314.49 0.1672 0.0353

Mercury -104475-03-15 10:04 J -36437997.21 -36437997.08 -36437996.95 0.1848 0.0102

Venus -104468-02-18 15:50 J -36435464.96 -36435464.84 -36435464.72 0.1781 0.1295

Mercury -104467-09-22 01:40 J -36434884.58 -36434884.43 -36434884.29 0.1668 0.0139

Mercury -104466-08-05 16:18 J -36434566.94 -36434566.82 -36434566.69 0.1853 0.0451

Mercury -104464-07-11 14:09 J -36433860.95 -36433860.91 -36433860.86 0.1834 0.1705

Venus -104464-10-05 13:11 J -36433775.11 -36433774.95 -36433774.79 0.1733 0.0475

Mercury -104457-02-12 06:57 J -36431454.35 -36431454.21 -36431454.08 0.1665 0.0597

Mercury -104457-12-25 21:50 J -36431136.69 -36431136.59 -36431136.48 0.1857 0.1035

Mercury -104455-01-18 12:28 J -36430748.06 -36430747.98 -36430747.90 0.1680 0.1417

Mercury -104455-12-01 21:21 J -36430430.71 -36430430.61 -36430430.52 0.1838 0.1209

Mercury -104448-07-04 12:14 J -36428024.10 -36428023.99 -36428023.88 0.1661 0.1048

Mercury -104447-05-18 03:21 J -36427706.42 -36427706.36 -36427706.30 0.1861 0.1629

Mercury -104446-06-10 16:47 J -36427317.93 -36427317.80 -36427317.68 0.1676 0.0903

Mercury -104445-04-23 03:50 J -36427000.46 -36427000.34 -36427000.22 0.1844 0.0687

Mercury -104439-11-24 17:59 J -36424593.81 -36424593.75 -36424593.68 0.1658 0.1480

Mercury -104437-10-30 21:21 J -36423887.76 -36423887.61 -36423887.47 0.1672 0.0407

Venus -104436-02-18 06:28 J -36423777.41 -36423777.23 -36423777.06 0.1791 0.0394

Mercury -104436-09-13 10:18 J -36423570.19 -36423570.07 -36423569.94 0.1848 0.0160

Venus -104432-10-04 11:59 J -36422088.15 -36422088.00 -36422087.85 0.1724 0.0797

Mercury -104427-03-23 01:54 J -36420457.56 -36420457.42 -36420457.27 0.1668 0.0094

Mercury -104426-02-03 16:18 J -36420139.94 -36420139.82 -36420139.69 0.1853 0.0409

Mercury -104424-01-09 14:23 J -36419433.94 -36419433.90 -36419433.87 0.1834 0.1748
 Mercury -104418-08-13 06:57 J -36417027.34 -36417027.21 -36417027.07 0.1664 0.0554
 Mercury -104417-06-25 22:18 J -36416709.68 -36416709.57 -36416709.47 0.1857 0.0982
 Mercury -104416-07-19 12:57 J -36416321.03 -36416320.96 -36416320.89 0.1680 0.1468
 Mercury -104415-06-01 21:21 J -36416003.71 -36416003.61 -36416003.52 0.1839 0.1250
 Mercury -104408-01-02 12:42 J -36413597.09 -36413596.97 -36413596.86 0.1661 0.0999
 Mercury -104408-11-16 03:35 J -36413279.41 -36413279.35 -36413279.28 0.1861 0.1573
 Mercury -104407-12-09 17:02 J -36412890.91 -36412890.79 -36412890.67 0.1676 0.0953
 Mercury -104406-10-23 04:04 J -36412573.44 -36412573.33 -36412573.21 0.1844 0.0744
 Venus -104403-12-16 21:21 J -36411422.69 -36411422.61 -36411422.52 0.1777 0.1571
 Mercury -104399-05-25 18:28 J -36410166.80 -36410166.73 -36410166.66 0.1658 0.1436
 Moon -104398-07-21 02:23 J -36409745.57 -36409745.40 -36409745.24 0.1751 0.0729
 Earth -104398-07-21 08:09 J -36409745.34 -36409745.16 -36409744.98 0.1750 0.0489 *
 Venus -104398-08-02 23:16 J -36409732.69 -36409732.53 -36409732.38 0.1736 0.0670
 Mercury -104397-04-30 21:35 J -36409460.74 -36409460.60 -36409460.46 0.1672 0.0455
 Mercury -104396-03-14 10:33 J -36409143.19 -36409143.06 -36409142.94 0.1848 0.0207
 Mercury -104388-09-21 02:23 J -36406030.55 -36406030.40 -36406030.25 0.1668 0.0031
 Mercury -104387-08-04 16:33 J -36405712.93 -36405712.81 -36405712.68 0.1853 0.0356
 Mercury -104385-07-10 14:23 J -36405006.92 -36405006.90 -36405006.88 0.1834 0.1793
 Mercury -104378-02-11 07:26 J -36402600.32 -36402600.19 -36402600.05 0.1664 0.0501
 Mercury -104378-12-25 22:18 J -36402282.68 -36402282.57 -36402282.46 0.1857 0.0932
 Mercury -104376-01-17 13:26 J -36401894.00 -36401893.94 -36401893.88 0.1680 0.1526
 Mercury -104376-11-30 21:35 J -36401576.69 -36401576.60 -36401576.52 0.1839 0.1302
 Moon -104372-01-12 21:06 J -36400437.84 -36400437.62 -36400437.41 0.1769 0.0043
 Earth -104372-01-13 04:47 J -36400437.50 -36400437.30 -36400437.10 0.1769 0.0097 *
 Venus -104371-12-16 11:16 J -36399735.21 -36399735.03 -36399734.85 0.1788 0.0098
 Mercury -104369-07-03 12:57 J -36399170.08 -36399169.96 -36399169.84 0.1661 0.0954
 Mercury -104368-05-17 03:50 J -36398852.42 -36398852.34 -36398852.27 0.1861 0.1529
 Mercury -104367-06-09 17:30 J -36398463.89 -36398463.77 -36398463.65 0.1676 0.1007
 Mercury -104366-04-23 04:04 J -36398146.44 -36398146.33 -36398146.21 0.1844 0.0782

Venus -104366-08-01 22:33 J -36398045.72 -36398045.56 -36398045.40 0.1727 0.0622
 Mercury -104360-11-23 18:42 J -36395739.80 -36395739.72 -36395739.65 0.1658 0.1393
 Mercury -104358-10-30 22:04 J -36395033.73 -36395033.58 -36395033.44 0.1672 0.0506
 Mercury -104357-09-12 10:33 J -36394716.18 -36394716.06 -36394715.93 0.1848 0.0257
 Mercury -104348-03-22 02:38 J -36391603.54 -36391603.39 -36391603.24 0.1668 0.0024
 Mercury -104347-02-02 16:47 J -36391285.92 -36391285.80 -36391285.67 0.1853 0.0304
 Mercury -104339-08-12 07:54 J -36388173.31 -36388173.17 -36388173.03 0.1664 0.0450
 Mercury -104338-06-25 22:33 J -36387855.67 -36387855.56 -36387855.45 0.1857 0.0880
 Mercury -104337-07-18 13:40 J -36387466.97 -36387466.93 -36387466.88 0.1680 0.1577
 Mercury -104336-05-31 21:35 J -36387149.68 -36387149.60 -36387149.51 0.1839 0.1347
 Venus -104332-05-30 09:35 J -36385690.25 -36385690.10 -36385689.96 0.1739 0.0860
 Mercury -104329-01-02 13:11 J -36384743.07 -36384742.95 -36384742.82 0.1661 0.0906
 Mercury -104329-11-15 04:04 J -36384425.41 -36384425.33 -36384425.25 0.1861 0.1471
 Mercury -104328-12-08 17:59 J -36384036.86 -36384036.75 -36384036.63 0.1676 0.1061
 Mercury -104327-10-22 04:18 J -36383719.43 -36383719.32 -36383719.21 0.1844 0.0835
 Mercury -104320-05-24 18:57 J -36381312.79 -36381312.71 -36381312.63 0.1658 0.1345
 Moon -104319-07-23 11:30 J -36380888.19 -36380888.02 -36380887.85 0.1747 0.0848
 Earth -104319-07-23 16:18 J -36380887.99 -36380887.82 -36380887.66 0.1746 0.0767 *
 Mercury -104318-04-30 22:18 J -36380606.71 -36380606.57 -36380606.43 0.1672 0.0555
 Mercury -104317-03-13 10:47 J -36380289.18 -36380289.05 -36380288.92 0.1848 0.0297
 Mercury -104309-09-20 03:06 J -36377176.52 -36377176.37 -36377176.22 0.1668 0.0075
 Mercury -104308-08-03 16:47 J -36376858.92 -36376858.80 -36376858.67 0.1853 0.0266
 Venus -104305-10-12 17:16 J -36375692.96 -36375692.78 -36375692.61 0.1784 0.0196
 Venus -104300-05-29 09:06 J -36374003.28 -36374003.12 -36374002.95 0.1729 0.0449
 Mercury -104299-02-10 08:09 J -36373746.30 -36373746.16 -36373746.02 0.1664 0.0405
 Mercury -104299-12-24 22:47 J -36373428.66 -36373428.55 -36373428.43 0.1857 0.0827
 Mercury -104297-01-17 14:09 J -36373039.94 -36373039.91 -36373039.87 0.1680 0.1632
 Mercury -104297-11-29 21:50 J -36372722.67 -36372722.59 -36372722.51 0.1839 0.1394
 Earth -104293-01-17 04:04 J -36371579.38 -36371579.33 -36371579.27 0.1774 0.1707
 Moon -104293-01-17 08:09 J -36371579.27 -36371579.16 -36371579.04 0.1774 0.1515 *

Mercury -104290-07-03 13:26 J -36370316.06 -36370315.94 -36370315.81 0.1661 0.0862
 Mercury -104289-05-16 04:18 J -36369998.41 -36369998.32 -36369998.24 0.1861 0.1424
 Mercury -104288-06-08 18:14 J -36369609.85 -36369609.74 -36369609.63 0.1676 0.1105
 Mercury -104287-04-22 04:33 J -36369292.42 -36369292.31 -36369292.20 0.1844 0.0881
 Mercury -104281-11-22 19:26 J -36366885.78 -36366885.69 -36366885.60 0.1658 0.1296
 Mercury -104279-10-29 22:47 J -36366179.69 -36366179.55 -36366179.41 0.1672 0.0611
 Mercury -104278-09-12 11:02 J -36365862.17 -36365862.04 -36365861.92 0.1848 0.0350
 Venus -104273-10-12 08:38 J -36364005.23 -36364005.14 -36364005.05 0.1795 0.1555
 Mercury -104269-03-21 03:35 J -36362749.50 -36362749.35 -36362749.21 0.1668 0.0123
 Mercury -104268-02-01 17:02 J -36362431.91 -36362431.79 -36362431.66 0.1853 0.0216
 Venus -104268-05-28 07:40 J -36362316.19 -36362316.18 -36362316.16 0.1720 0.1706
 Venus -104266-03-27 19:26 J -36361647.83 -36361647.69 -36361647.56 0.1741 0.1058
 Mercury -104260-08-11 08:38 J -36359319.29 -36359319.14 -36359319.00 0.1664 0.0358
 Mercury -104259-06-24 22:47 J -36359001.66 -36359001.55 -36359001.43 0.1857 0.0784
 Mercury -104257-05-30 21:50 J -36358295.67 -36358295.59 -36358295.51 0.1839 0.1438
 Mercury -104250-01-01 13:54 J -36355889.04 -36355888.92 -36355888.79 0.1661 0.0811
 Mercury -104250-11-15 04:18 J -36355571.40 -36355571.32 -36355571.23 0.1862 0.1374
 Mercury -104249-12-07 18:42 J -36355182.82 -36355182.72 -36355182.61 0.1676 0.1166
 Mercury -104248-10-21 04:33 J -36354865.42 -36354865.31 -36354865.20 0.1844 0.0928
 Mercury -104241-05-23 19:26 J -36352458.78 -36352458.69 -36352458.59 0.1657 0.1256
 Mercury -104239-04-29 23:02 J -36351752.67 -36351752.54 -36351752.40 0.1672 0.0657
 Venus -104239-08-09 22:33 J -36351650.73 -36351650.56 -36351650.39 0.1781 0.0480
 Mercury -104238-03-13 11:02 J -36351435.16 -36351435.04 -36351434.91 0.1849 0.0398
 Venus -104234-03-26 19:26 J -36349960.86 -36349960.69 -36349960.53 0.1732 0.0267
 Mercury -104230-09-20 03:50 J -36348322.49 -36348322.34 -36348322.19 0.1668 0.0167
 Mercury -104229-08-02 17:30 J -36348004.90 -36348004.77 -36348004.65 0.1853 0.0165
 Mercury -104220-02-09 08:52 J -36344892.27 -36344892.13 -36344891.98 0.1664 0.0306
 Mercury -104220-12-23 23:02 J -36344574.65 -36344574.54 -36344574.42 0.1857 0.0731
 Mercury -104218-11-29 22:04 J -36343868.65 -36343868.58 -36343868.51 0.1839 0.1489
 Mercury -104211-07-02 14:23 J -36341462.03 -36341461.90 -36341461.78 0.1661 0.0764

Mercury -104210-05-16 04:33 J -36341144.40 -36341144.31 -36341144.22 0.1861 0.1321

Mercury -104209-06-07 19:11 J -36340755.80 -36340755.70 -36340755.60 0.1676 0.1217

Mercury -104208-04-21 04:47 J -36340438.41 -36340438.30 -36340438.19 0.1844 0.0976

Venus -104207-08-09 14:23 J -36339963.03 -36339962.90 -36339962.78 0.1792 0.1267

Venus -104202-03-25 18:28 J -36338273.80 -36338273.73 -36338273.66 0.1723 0.1544

Mercury -104202-11-22 19:54 J -36338031.76 -36338031.67 -36338031.57 0.1657 0.1204

Venus -104200-01-22 05:02 J -36337605.40 -36337605.29 -36337605.17 0.1744 0.1264

Mercury -104200-10-28 23:30 J -36337325.65 -36337325.52 -36337325.38 0.1672 0.0712

Mercury -104199-09-11 11:16 J -36337008.15 -36337008.03 -36337007.90 0.1848 0.0447

Earth -104193-07-18 17:02 J -36334870.88 -36334870.79 -36334870.70 0.1760 0.1546

Moon -104193-07-18 23:16 J -36334870.66 -36334870.53 -36334870.39 0.1760 0.1254

Mercury -104192-04-14 01:54 J -36334601.44 -36334601.42 -36334601.41 0.1654 0.1635

Mercury -104190-03-21 04:18 J -36333895.47 -36333895.32 -36333895.18 0.1668 0.0223

Mercury -104189-02-01 17:16 J -36333577.90 -36333577.78 -36333577.65 0.1853 0.0123

Mercury -104181-08-10 09:06 J -36330465.26 -36330465.12 -36330464.97 0.1664 0.0262

Mercury -104180-06-23 23:16 J -36330147.65 -36330147.53 -36330147.41 0.1858 0.0679

Mercury -104178-05-30 22:04 J -36329441.65 -36329441.58 -36329441.51 0.1839 0.1531

Venus -104173-06-06 05:02 J -36327608.45 -36327608.29 -36327608.12 0.1778 0.0747

Mercury -104172-12-31 14:38 J -36327035.02 -36327034.89 -36327034.76 0.1661 0.0714

Mercury -104171-11-14 04:47 J -36326717.39 -36326717.30 -36326717.20 0.1861 0.1267

Mercury -104170-12-07 19:26 J -36326328.78 -36326328.69 -36326328.59 0.1676 0.1266

Mercury -104169-10-20 05:02 J -36326011.39 -36326011.29 -36326011.18 0.1844 0.1029

Venus -104168-01-21 05:59 J -36325918.42 -36325918.25 -36325918.08 0.1735 0.0090

Mercury -104162-05-23 20:09 J -36323604.76 -36323604.66 -36323604.55 0.1657 0.1160

Mercury -104160-04-28 23:59 J -36322898.64 -36322898.50 -36322898.37 0.1672 0.0762

Mercury -104159-03-12 11:16 J -36322581.15 -36322581.03 -36322580.90 0.1848 0.0494

Mercury -104153-10-13 02:09 J -36320174.44 -36320174.41 -36320174.37 0.1654 0.1586

Mercury -104151-09-19 04:33 J -36319468.45 -36319468.31 -36319468.16 0.1668 0.0273

Mercury -104150-08-02 17:45 J -36319150.89 -36319150.76 -36319150.64 0.1853 0.0066

Mercury -104141-02-09 09:35 J -36316038.24 -36316038.10 -36316037.95 0.1664 0.0209

Venus -104141-06-05 19:40 J -36315920.83 -36315920.68 -36315920.53 0.1789 0.0967
 Mercury -104141-12-22 23:30 J -36315720.64 -36315720.52 -36315720.40 0.1857 0.0628
 Mercury -104139-11-28 22:18 J -36315014.63 -36315014.57 -36315014.51 0.1839 0.1582
 Venus -104136-01-20 05:02 J -36314231.39 -36314231.29 -36314231.19 0.1726 0.1373
 Venus -104135-11-19 15:06 J -36313562.96 -36313562.87 -36313562.78 0.1747 0.1469
 Mercury -104132-07-01 14:52 J -36312608.01 -36312607.88 -36312607.75 0.1661 0.0670
 Mercury -104131-05-15 05:02 J -36312290.39 -36312290.29 -36312290.20 0.1862 0.1222
 Mercury -104130-06-07 19:54 J -36311901.76 -36311901.67 -36311901.58 0.1676 0.1320
 Mercury -104129-04-20 05:02 J -36311584.39 -36311584.29 -36311584.19 0.1844 0.1068
 Mercury -104123-11-21 20:38 J -36309177.75 -36309177.64 -36309177.54 0.1657 0.1116
 Mercury -104122-10-05 10:18 J -36308860.09 -36308860.07 -36308860.04 0.1865 0.1820
 Mercury -104121-10-28 00:14 J -36308471.62 -36308471.49 -36308471.36 0.1672 0.0811
 Mercury -104120-09-10 11:30 J -36308154.14 -36308154.02 -36308153.89 0.1849 0.0548
 Earth -104114-07-22 03:06 J -36306013.55 -36306013.37 -36306013.18 0.1756 0.0215
 Moon -104114-07-22 08:38 J -36306013.31 -36306013.14 -36306012.96 0.1756 0.0324 *
 Mercury -104113-04-13 02:38 J -36305747.44 -36305747.39 -36305747.34 0.1654 0.1540
 Mercury -104111-03-20 05:02 J -36305041.44 -36305041.29 -36305041.15 0.1668 0.0320
 Mercury -104110-01-31 17:59 J -36304723.88 -36304723.75 -36304723.63 0.1853 0.0069
 Venus -104107-04-03 11:02 J -36303566.19 -36303566.04 -36303565.90 0.1775 0.1024
 Venus -104103-11-18 15:50 J -36301876.01 -36301875.84 -36301875.67 0.1738 0.0117
 Mercury -104102-08-10 10:04 J -36301611.23 -36301611.08 -36301610.94 0.1664 0.0162
 Mercury -104101-06-22 23:45 J -36301293.64 -36301293.51 -36301293.39 0.1858 0.0580
 Mercury -104099-05-29 22:18 J -36300587.62 -36300587.57 -36300587.51 0.1839 0.1626
 Mercury -104093-12-30 15:21 J -36298181.00 -36298180.86 -36298180.73 0.1661 0.0619
 Mercury -104092-11-13 05:16 J -36297863.38 -36297863.28 -36297863.18 0.1862 0.1165
 Mercury -104091-12-06 20:23 J -36297474.73 -36297474.65 -36297474.56 0.1676 0.1375
 Mercury -104090-10-20 05:16 J -36297157.38 -36297157.28 -36297157.18 0.1844 0.1121
 Moon -104088-01-13 03:50 J -36296706.53 -36296706.34 -36296706.16 0.1762 0.0105
 Earth -104088-01-13 04:04 J -36296706.53 -36296706.33 -36296706.13 0.1762 0.0093 *
 Mercury -104083-05-22 20:52 J -36294750.74 -36294750.63 -36294750.52 0.1657 0.1065

Mercury -104082-04-05 10:18 J -36294433.10 -36294433.07 -36294433.03 0.1866 0.1778
 Mercury -104081-04-28 00:42 J -36294044.60 -36294044.47 -36294044.34 0.1672 0.0864
 Mercury -104080-03-11 11:45 J -36293727.13 -36293727.01 -36293726.89 0.1849 0.0590
 Venus -104075-04-03 01:11 J -36291878.62 -36291878.45 -36291878.28 0.1786 0.0675
 Mercury -104074-10-13 02:52 J -36291320.44 -36291320.38 -36291320.32 0.1654 0.1496
 Mercury -104072-09-18 05:16 J -36290614.42 -36290614.28 -36290614.13 0.1668 0.0373
 Mercury -104071-08-01 17:59 J -36290296.88 -36290296.75 -36290296.62 0.1853 0.0052
 Venus -104071-11-17 15:21 J -36290188.98 -36290188.86 -36290188.73 0.1729 0.1200
 Venus -104069-09-16 00:28 J -36289520.52 -36289520.48 -36289520.44 0.1750 0.1689
 Mercury -104062-02-08 10:18 J -36287184.22 -36287184.07 -36287183.93 0.1664 0.0116
 Mercury -104062-12-22 23:59 J -36286866.63 -36286866.50 -36286866.38 0.1858 0.0525
 Mercury -104060-11-27 22:33 J -36286160.61 -36286160.56 -36286160.51 0.1839 0.1673
 Mercury -104053-06-30 15:35 J -36283753.99 -36283753.85 -36283753.71 0.1661 0.0572
 Mercury -104052-05-14 05:30 J -36283436.38 -36283436.27 -36283436.17 0.1862 0.1118
 Mercury -104051-06-06 20:38 J -36283047.72 -36283047.64 -36283047.56 0.1676 0.1421
 Mercury -104050-04-20 05:30 J -36282730.37 -36282730.27 -36282730.18 0.1844 0.1170
 Mercury -104044-11-20 21:21 J -36280323.72 -36280323.61 -36280323.50 0.1657 0.1016
 Mercury -104043-10-04 10:47 J -36280006.10 -36280006.05 -36280006.00 0.1866 0.1718
 Mercury -104042-10-28 01:11 J -36279617.57 -36279617.45 -36279617.33 0.1672 0.0919
 Venus -104041-01-29 17:45 J -36279523.88 -36279523.76 -36279523.64 0.1772 0.1285
 Mercury -104041-09-09 11:59 J -36279300.12 -36279300.00 -36279299.88 0.1849 0.0643
 Venus -104037-09-15 01:54 J -36277833.59 -36277833.42 -36277833.25 0.1741 0.0306
 Moon -104035-07-24 10:33 J -36277156.19 -36277156.06 -36277155.93 0.1752 0.1126
 Earth -104035-07-24 12:14 J -36277156.14 -36277155.99 -36277155.85 0.1752 0.1060 *
 Mercury -104034-04-13 03:06 J -36276893.44 -36276893.37 -36276893.30 0.1654 0.1450
 Mercury -104032-03-19 05:45 J -36276187.40 -36276187.26 -36276187.12 0.1668 0.0420
 Mercury -104031-01-30 18:14 J -36275869.87 -36275869.74 -36275869.62 0.1853 0.0108
 Mercury -104023-08-09 10:33 J -36272757.20 -36272757.06 -36272756.91 0.1664 0.0075
 Mercury -104022-06-22 23:59 J -36272439.62 -36272439.50 -36272439.38 0.1858 0.0480
 Mercury -104020-05-28 22:33 J -36271733.60 -36271733.56 -36271733.52 0.1839 0.1718

Mercury -104014-12-30 16:04 J -36269326.97 -36269326.83 -36269326.69 0.1660 0.0524

Mercury -104013-11-12 05:30 J -36269009.37 -36269009.27 -36269009.16 0.1862 0.1066

Mercury -104012-12-05 21:21 J -36268620.68 -36268620.61 -36268620.55 0.1676 0.1482

Mercury -104011-10-19 05:30 J -36268303.37 -36268303.27 -36268303.18 0.1844 0.1214

Moon -104009-01-16 18:14 J -36267848.87 -36267848.74 -36267848.62 0.1767 0.1363

Earth -104009-01-17 02:52 J -36267848.45 -36267848.38 -36267848.31 0.1767 0.1644

Venus -104009-01-29 06:57 J -36267836.39 -36267836.21 -36267836.04 0.1782 0.0387

Venus -104005-09-14 01:26 J -36266146.58 -36266146.44 -36266146.30 0.1732 0.1015

Mercury -104004-05-21 21:21 J -36265896.72 -36265896.61 -36265896.49 0.1657 0.0976

Mercury -104003-04-04 11:02 J -36265579.10 -36265579.04 -36265578.99 0.1866 0.1667

Mercury -104002-04-28 01:26 J -36265190.56 -36265190.44 -36265190.32 0.1671 0.0964

Mercury -104001-03-10 11:59 J -36264873.12 -36264873.00 -36264872.88 0.1849 0.0688

104TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 104th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -103995-10-12 03:21 J | -36262466.43 | -36262466.36 | -36262466.28 | 0.1654 | 0.1405 | | |
| Mercury | -103993-09-17 05:59 J | -36261760.39 | -36261760.25 | -36261760.11 | 0.1668 | 0.0469 | | |
| Mercury | -103992-07-31 18:28 J | -36261442.86 | -36261442.73 | -36261442.61 | 0.1853 | 0.0157 | | |
| Mercury | -103983-02-07 11:02 J | -36258330.18 | -36258330.04 | -36258329.89 | 0.1664 | 0.0043 | | |
| Mercury | -103983-12-22 00:14 J | -36258012.61 | -36258012.49 | -36258012.37 | 0.1858 | 0.0425 | | |

Mercury -103981-11-26 22:47 J -36257306.58 -36257306.55 -36257306.52 0.1839 0.1768

Venus -103976-11-25 23:30 J -36255481.60 -36255481.52 -36255481.43 0.1768 0.1561

Mercury -103974-06-30 16:18 J -36254899.96 -36254899.82 -36254899.68 0.1660 0.0475

Mercury -103973-05-13 05:45 J -36254582.37 -36254582.26 -36254582.15 0.1862 0.1014

Mercury -103972-06-05 21:35 J -36254193.66 -36254193.60 -36254193.54 0.1676 0.1532

Mercury -103971-04-19 05:30 J -36253876.36 -36253876.27 -36253876.18 0.1844 0.1263

Venus -103971-07-13 11:30 J -36253791.18 -36253791.02 -36253790.85 0.1744 0.0510

Mercury -103965-11-19 21:50 J -36251469.71 -36251469.59 -36251469.47 0.1657 0.0924

Mercury -103964-10-03 11:02 J -36251152.10 -36251152.04 -36251151.98 0.1866 0.1620

Mercury -103963-10-27 01:54 J -36250763.54 -36250763.42 -36250763.30 0.1672 0.1020

Mercury -103962-09-09 12:14 J -36250446.11 -36250445.99 -36250445.88 0.1849 0.0737

Mercury -103955-04-12 03:35 J -36248039.43 -36248039.35 -36248039.27 0.1654 0.1362

Mercury -103953-03-18 06:28 J -36247333.37 -36247333.23 -36247333.09 0.1668 0.0522

Mercury -103952-01-29 18:28 J -36247015.86 -36247015.73 -36247015.61 0.1854 0.0195

Mercury -103944-08-08 11:16 J -36243903.18 -36243903.03 -36243902.88 0.1664 0.0036

Venus -103944-11-25 11:59 J -36243794.17 -36243794.00 -36243793.82 0.1779 0.0092

Mercury -103943-06-22 00:28 J -36243585.61 -36243585.48 -36243585.35 0.1858 0.0373

Mercury -103941-05-27 22:47 J -36242879.57 -36242879.55 -36242879.53 0.1839 0.1811

Venus -103939-07-12 11:45 J -36242104.16 -36242104.01 -36242103.86 0.1735 0.0833

Mercury -103935-12-29 16:47 J -36240472.95 -36240472.80 -36240472.66 0.1661 0.0427

Mercury -103934-11-12 05:59 J -36240155.36 -36240155.25 -36240155.14 0.1862 0.0961

Mercury -103933-12-04 21:50 J -36239766.63 -36239766.59 -36239766.54 0.1676 0.1582

Mercury -103932-10-18 05:45 J -36239449.34 -36239449.26 -36239449.17 0.1844 0.1314

Mercury -103925-05-20 22:18 J -36237042.70 -36237042.57 -36237042.45 0.1657 0.0880

Mercury -103924-04-03 11:16 J -36236725.10 -36236725.03 -36236724.96 0.1866 0.1567

Mercury -103923-04-27 02:09 J -36236336.52 -36236336.41 -36236336.29 0.1672 0.1074

Mercury -103922-03-10 12:14 J -36236019.10 -36236018.99 -36236018.87 0.1849 0.0783

Mercury -103916-10-11 04:04 J -36233612.41 -36233612.33 -36233612.24 0.1654 0.1311

Mercury -103914-09-17 06:57 J -36232906.35 -36232906.21 -36232906.07 0.1668 0.0575

Mercury -103913-07-30 18:42 J -36232588.85 -36232588.72 -36232588.60 0.1853 0.0244

Moon -103909-07-19 03:06 J -36231139.50 -36231139.37 -36231139.24 0.1767 0.1253
 Earth -103909-07-19 10:04 J -36231139.20 -36231139.08 -36231138.96 0.1767 0.1308
 Venus -103905-05-09 21:35 J -36229748.75 -36229748.60 -36229748.44 0.1747 0.0710
 Mercury -103904-02-06 11:45 J -36229476.16 -36229476.01 -36229475.86 0.1664 0.0092
 Mercury -103904-12-21 00:28 J -36229158.60 -36229158.48 -36229158.35 0.1858 0.0330
 Mercury -103895-06-29 16:47 J -36226045.94 -36226045.80 -36226045.65 0.1660 0.0385
 Mercury -103894-05-13 05:59 J -36225728.36 -36225728.25 -36225728.13 0.1862 0.0917
 Mercury -103893-06-04 22:18 J -36225339.60 -36225339.57 -36225339.54 0.1675 0.1637
 Mercury -103892-04-18 05:45 J -36225022.34 -36225022.26 -36225022.18 0.1844 0.1352
 Mercury -103886-11-19 22:33 J -36222615.69 -36222615.56 -36222615.44 0.1657 0.0831
 Mercury -103885-10-02 11:45 J -36222298.09 -36222298.01 -36222297.94 0.1866 0.1508
 Mercury -103884-10-26 02:38 J -36221909.50 -36221909.39 -36221909.28 0.1671 0.1122
 Earth -103883-01-10 06:57 J -36221833.25 -36221833.21 -36221833.15 0.1750 0.1690
 Mercury -103883-09-08 12:28 J -36221592.09 -36221591.98 -36221591.87 0.1849 0.0837
 Venus -103878-09-22 18:14 J -36219751.92 -36219751.74 -36219751.56 0.1775 0.0193
 Mercury -103876-04-11 04:18 J -36219185.41 -36219185.32 -36219185.23 0.1654 0.1266
 Mercury -103874-03-18 07:11 J -36218479.34 -36218479.20 -36218479.06 0.1668 0.0623
 Mercury -103873-01-29 18:42 J -36218161.84 -36218161.72 -36218161.59 0.1853 0.0300
 Venus -103873-05-08 22:04 J -36218061.73 -36218061.58 -36218061.42 0.1737 0.0651
 Mercury -103865-08-07 11:59 J -36215049.14 -36215049.00 -36215048.85 0.1664 0.0147
 Mercury -103864-06-21 00:42 J -36214731.60 -36214731.47 -36214731.34 0.1858 0.0277
 Mercury -103856-12-28 17:16 J -36211618.92 -36211618.78 -36211618.63 0.1660 0.0331
 Mercury -103855-11-11 06:28 J -36211301.35 -36211301.23 -36211301.12 0.1862 0.0858
 Mercury -103853-10-17 05:59 J -36210595.33 -36210595.25 -36210595.17 0.1844 0.1407
 Mercury -103846-05-20 22:47 J -36208188.67 -36208188.55 -36208188.42 0.1657 0.0783
 Venus -103846-09-22 08:23 J -36208064.24 -36208064.15 -36208064.06 0.1786 0.1536
 Mercury -103845-04-02 11:30 J -36207871.09 -36207871.02 -36207870.94 0.1866 0.1468
 Mercury -103844-04-26 03:06 J -36207482.48 -36207482.37 -36207482.27 0.1671 0.1177
 Mercury -103843-03-09 12:28 J -36207165.09 -36207164.98 -36207164.86 0.1849 0.0883
 Venus -103839-03-07 07:11 J -36205706.35 -36205706.20 -36205706.06 0.1750 0.0922

Mercury -103837-10-10 04:33 J -36204758.40 -36204758.31 -36204758.21 0.1654 0.1223
 Mercury -103835-09-16 07:40 J -36204052.32 -36204052.18 -36204052.05 0.1668 0.0675
 Mercury -103834-07-30 18:57 J -36203734.84 -36203734.71 -36203734.59 0.1854 0.0340
 Earth -103830-07-22 20:38 J -36202281.83 -36202281.64 -36202281.46 0.1762 0.0036
 Moon -103830-07-22 21:21 J -36202281.81 -36202281.61 -36202281.41 0.1762 0.0059 *
 Mercury -103827-03-02 10:47 J -36201328.06 -36201328.05 -36201328.04 0.1651 0.1645
 Mercury -103825-02-06 12:28 J -36200622.13 -36200621.98 -36200621.84 0.1664 0.0189
 Mercury -103825-12-20 00:57 J -36200304.58 -36200304.46 -36200304.33 0.1858 0.0225
 Mercury -103816-06-28 17:45 J -36197191.91 -36197191.76 -36197191.62 0.1660 0.0280
 Mercury -103815-05-12 06:28 J -36196874.34 -36196874.23 -36196874.11 0.1862 0.0810
 Mercury -103813-04-17 06:14 J -36196168.32 -36196168.24 -36196168.17 0.1844 0.1454
 Venus -103812-07-20 00:28 J -36195709.66 -36195709.48 -36195709.31 0.1772 0.0474
 Venus -103807-03-06 07:54 J -36194019.33 -36194019.17 -36194019.00 0.1740 0.0457
 Mercury -103807-11-18 23:16 J -36193761.66 -36193761.53 -36193761.40 0.1657 0.0733
 Mercury -103806-10-02 11:59 J -36193444.08 -36193444.00 -36193443.91 0.1866 0.1407
 Mercury -103805-10-25 03:35 J -36193055.45 -36193055.35 -36193055.25 0.1672 0.1232
 Earth -103804-01-13 04:47 J -36192975.50 -36192975.30 -36192975.10 0.1755 0.0062
 Moon -103804-01-13 11:30 J -36192975.23 -36192975.02 -36192974.81 0.1756 0.0150 *
 Mercury -103804-09-07 12:42 J -36192738.08 -36192737.97 -36192737.86 0.1849 0.0932
 Mercury -103797-04-10 05:02 J -36190331.39 -36190331.29 -36190331.19 0.1654 0.1175
 Mercury -103795-03-17 07:54 J -36189625.30 -36189625.17 -36189625.03 0.1668 0.0727
 Mercury -103794-01-28 19:11 J -36189307.83 -36189307.70 -36189307.58 0.1853 0.0392
 Mercury -103788-08-31 11:02 J -36186901.07 -36186901.04 -36186901.01 0.1651 0.1599
 Mercury -103786-08-07 12:57 J -36186195.11 -36186194.96 -36186194.82 0.1664 0.0245
 Mercury -103785-06-20 00:57 J -36185877.58 -36185877.46 -36185877.33 0.1858 0.0182
 Venus -103780-07-19 14:38 J -36184022.02 -36184021.89 -36184021.76 0.1783 0.1256
 Mercury -103777-12-27 17:59 J -36182764.89 -36182764.75 -36182764.60 0.1660 0.0232
 Mercury -103776-11-10 06:42 J -36182447.33 -36182447.22 -36182447.10 0.1862 0.0758
 Mercury -103774-10-17 06:14 J -36181741.31 -36181741.24 -36181741.17 0.1844 0.1499
 Venus -103773-01-02 16:33 J -36181663.93 -36181663.81 -36181663.68 0.1753 0.1139

Mercury -103767-05-19 23:30 J -36179334.65 -36179334.52 -36179334.39 0.1657 0.0691
 Mercury -103766-04-02 12:14 J -36179017.08 -36179016.99 -36179016.90 0.1866 0.1357
 Mercury -103765-04-25 03:35 J -36178628.44 -36178628.35 -36178628.25 0.1671 0.1278
 Mercury -103764-03-08 12:57 J -36178311.07 -36178310.96 -36178310.86 0.1849 0.0979
 Mercury -103758-10-10 05:16 J -36175904.38 -36175904.28 -36175904.17 0.1654 0.1126
 Mercury -103756-09-15 08:23 J -36175198.28 -36175198.15 -36175198.02 0.1668 0.0778
 Mercury -103755-07-29 19:26 J -36174880.82 -36174880.69 -36174880.57 0.1853 0.0446
 Earth -103751-07-25 06:57 J -36173424.32 -36173424.21 -36173424.09 0.1758 0.1338
 Moon -103751-07-25 13:54 J -36173424.02 -36173423.92 -36173423.83 0.1758 0.1494
 Mercury -103748-03-01 11:16 J -36172474.07 -36172474.03 -36172473.98 0.1651 0.1553
 Mercury -103746-02-05 13:11 J -36171768.09 -36171767.95 -36171767.80 0.1664 0.0296
 Venus -103746-05-17 06:57 J -36171667.37 -36171667.21 -36171667.04 0.1769 0.0735
 Mercury -103746-12-20 01:11 J -36171450.57 -36171450.45 -36171450.32 0.1858 0.0138
 Venus -103741-01-01 18:14 J -36169976.90 -36169976.74 -36169976.57 0.1743 0.0269
 Mercury -103737-06-27 18:28 J -36168337.88 -36168337.73 -36168337.59 0.1660 0.0190
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 Mercury -103728-11-17 23:59 J -36164907.64 -36164907.50 -36164907.37 0.1657 0.0640
 Mercury -103727-10-01 12:14 J -36164590.08 -36164589.99 -36164589.90 0.1866 0.1309
 Mercury -103726-10-25 04:18 J -36164201.41 -36164201.32 -36164201.23 0.1671 0.1335
 Earth -103725-01-17 02:23 J -36164117.47 -36164117.40 -36164117.32 0.1760 0.1611
 Moon -103725-01-17 09:06 J -36164117.18 -36164117.12 -36164117.05 0.1760 0.1652
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 Mercury -103718-04-10 05:30 J -36161477.38 -36161477.27 -36161477.16 0.1654 0.1084
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 Venus -103714-05-16 20:09 J -36159979.81 -36159979.66 -36159979.51 0.1779 0.0961
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Mercury -103688-05-19 00:14 J -36150480.63 -36150480.49 -36150480.35 0.1657 0.0590

Mercury -103687-04-01 12:28 J -36150163.07 -36150162.98 -36150162.88 0.1866 0.1255

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Venus -103680-03-13 13:26 J -36147625.08 -36147624.94 -36147624.79 0.1765 0.1003

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Venus -103676-10-29 03:50 J -36145934.51 -36145934.34 -36145934.17 0.1746 0.0070

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Mercury -103667-12-19 01:26 J -36142596.56 -36142596.44 -36142596.31 0.1858 0.0072

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Mercury -103646-09-06 13:26 J -36135030.04 -36135029.94 -36135029.84 0.1849 0.1129

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Venus -103642-08-27 11:02 J -36133579.10 -36133579.04 -36133578.96 0.1759 0.1592

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Mercury -103638-02-20 17:45 J -36132305.78 -36132305.76 -36132305.73 0.1870 0.1822

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 Moon -103625-07-20 01:40 J -36127407.58 -36127407.43 -36127407.29 0.1773 0.0987 *
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 Mercury -103616-10-15 06:57 J -36124033.26 -36124033.21 -36124033.17 0.1844 0.1694
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 Venus -103610-08-26 13:40 J -36121892.10 -36121891.93 -36121891.76 0.1749 0.0150
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 Mercury -103588-12-18 02:09 J -36113742.54 -36113742.41 -36113742.28 0.1858 0.0090
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Mercury -103569-09-29 13:11 J -36106882.05 -36106881.95 -36106881.84 0.1866 0.1095
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 Moon -103546-07-23 06:57 J -36098550.39 -36098550.21 -36098550.03 0.1769 0.0122
 Earth -103546-07-23 13:54 J -36098550.10 -36098549.92 -36098549.74 0.1769 0.0285 *
 Venus -103544-06-22 23:16 J -36097849.70 -36097849.53 -36097849.36 0.1752 0.0356
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 Mercury -103521-10-07 07:26 J -36089342.32 -36089342.19 -36089342.07 0.1654 0.0842
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 Earth -103520-01-13 08:09 J -36089244.36 -36089244.16 -36089243.96 0.1748 0.0047 *
 Mercury -103520-08-20 18:28 J -36089024.78 -36089024.73 -36089024.67 0.1870 0.1659
 Mercury -103519-09-13 10:47 J -36088636.16 -36088636.05 -36088635.94 0.1667 0.1092
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 Venus -103517-11-04 14:09 J -36087853.09 -36087852.91 -36087852.73 0.1770 0.0102
 Venus -103512-06-22 00:28 J -36086162.62 -36086162.48 -36086162.35 0.1743 0.1040
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Mercury -103509-02-03 15:35 J -36085205.99 -36085205.85 -36085205.72 0.1664 0.0599
 Mercury -103509-12-17 02:23 J -36084888.53 -36084888.40 -36084888.27 0.1858 0.0183
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 Mercury -103491-11-16 01:54 J -36078345.56 -36078345.42 -36078345.27 0.1657 0.0347
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 Mercury -103488-09-04 13:54 J -36077322.00 -36077321.92 -36077321.83 0.1849 0.1321
 Mercury -103481-04-07 07:26 J -36074915.31 -36074915.19 -36074915.06 0.1653 0.0800
 Mercury -103480-02-18 18:42 J -36074597.78 -36074597.72 -36074597.65 0.1871 0.1606
 Mercury -103479-03-14 11:02 J -36074209.14 -36074209.04 -36074208.93 0.1667 0.1144
 Mercury -103478-01-25 20:23 J -36073891.77 -36073891.65 -36073891.54 0.1854 0.0786
 Venus -103478-04-20 08:52 J -36073807.29 -36073807.13 -36073806.97 0.1756 0.0569
 Mercury -103472-08-28 13:26 J -36071485.03 -36071484.94 -36071484.84 0.1651 0.1232
 Mercury -103470-08-04 15:35 J -36070778.98 -36070778.85 -36070778.71 0.1663 0.0643
 Mercury -103469-06-17 02:38 J -36070461.52 -36070461.39 -36070461.27 0.1858 0.0237
 Moon -103467-07-25 20:52 J -36069692.72 -36069692.63 -36069692.54 0.1765 0.1562
 Earth -103467-07-26 01:11 J -36069692.52 -36069692.45 -36069692.38 0.1764 0.1609
 Mercury -103461-12-24 20:52 J -36067348.77 -36067348.63 -36067348.48 0.1660 0.0179
 Mercury -103460-11-07 08:23 J -36067031.28 -36067031.15 -36067031.03 0.1863 0.0346
 Mercury -103451-05-17 02:23 J -36063918.55 -36063918.40 -36063918.26 0.1657 0.0301
 Venus -103451-09-01 20:52 J -36063810.81 -36063810.63 -36063810.46 0.1766 0.0168
 Mercury -103450-03-30 13:54 J -36063601.03 -36063600.92 -36063600.81 0.1867 0.0940
 Mercury -103448-03-05 14:09 J -36062895.00 -36062894.91 -36062894.83 0.1849 0.1370
 Venus -103446-04-19 10:33 J -36062120.21 -36062120.06 -36062119.91 0.1745 0.0848
 Mercury -103442-10-07 07:54 J -36060488.30 -36060488.17 -36060488.04 0.1653 0.0747
 Earth -103441-01-17 04:18 J -36060386.39 -36060386.32 -36060386.25 0.1753 0.1632
 Moon -103441-01-17 06:28 J -36060386.31 -36060386.23 -36060386.15 0.1753 0.1614 *
 Mercury -103441-08-19 18:57 J -36060170.78 -36060170.71 -36060170.64 0.1870 0.1555

Mercury -103440-09-12 11:30 J -36059782.12 -36059782.02 -36059781.92 0.1667 0.1196

Mercury -103439-07-26 20:38 J -36059464.75 -36059464.64 -36059464.53 0.1854 0.0838

Mercury -103432-02-26 13:54 J -36057058.02 -36057057.92 -36057057.82 0.1650 0.1186

Mercury -103430-02-02 16:18 J -36056351.96 -36056351.82 -36056351.69 0.1664 0.0701

Mercury -103430-12-17 02:38 J -36056034.52 -36056034.39 -36056034.26 0.1859 0.0280

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Mercury -103421-06-24 21:06 J -36052921.76 -36052921.62 -36052921.47 0.1660 0.0222

Mercury -103420-05-08 08:23 J -36052604.27 -36052604.15 -36052604.02 0.1863 0.0300

Venus -103419-09-01 09:35 J -36052123.19 -36052123.10 -36052123.02 0.1777 0.1547

Venus -103412-02-14 18:14 J -36049764.89 -36049764.74 -36049764.58 0.1758 0.0789

Mercury -103412-11-15 02:38 J -36049491.53 -36049491.39 -36049491.25 0.1657 0.0248

Mercury -103411-09-28 14:09 J -36049174.02 -36049173.91 -36049173.80 0.1866 0.0882

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Mercury -103391-08-03 16:33 J -36041924.94 -36041924.81 -36041924.67 0.1663 0.0753

Mercury -103390-06-17 02:52 J -36041607.51 -36041607.38 -36041607.26 0.1859 0.0334

Venus -103385-06-29 03:35 J -36039768.53 -36039768.35 -36039768.18 0.1763 0.0437

Mercury -103383-01-17 20:23 J -36039200.69 -36039200.65 -36039200.61 0.1647 0.1558

Mercury -103382-12-24 21:35 J -36038494.74 -36038494.60 -36038494.45 0.1660 0.0276

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Venus -103380-02-13 20:23 J -36038077.81 -36038077.65 -36038077.50 0.1749 0.0647

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Mercury -103369-03-04 14:23 J -36034040.98 -36034040.90 -36034040.83 0.1849 0.1464

Mercury -103363-10-06 08:38 J -36031634.28 -36031634.14 -36031634.01 0.1653 0.0655

Mercury -103362-08-19 19:40 J -36031316.77 -36031316.68 -36031316.60 0.1871 0.1443

Mercury -103361-09-11 12:14 J -36030928.08 -36030927.99 -36030927.89 0.1667 0.1303
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 Venus -103353-06-28 16:33 J -36028080.94 -36028080.81 -36028080.69 0.1774 0.1276
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 Venus -103347-12-13 03:50 J -36025722.48 -36025722.34 -36025722.20 0.1762 0.1015
 Mercury -103344-07-18 20:38 J -36024773.69 -36024773.64 -36024773.58 0.1647 0.1514
 Mercury -103342-06-24 22:04 J -36024067.73 -36024067.58 -36024067.44 0.1660 0.0321
 Mercury -103341-05-07 08:52 J -36023750.26 -36023750.13 -36023750.00 0.1863 0.0195
 Earth -103341-07-20 17:02 J -36023675.95 -36023675.79 -36023675.63 0.1780 0.0858
 Moon -103341-07-21 00:14 J -36023675.67 -36023675.49 -36023675.31 0.1779 0.0657 *
 Mercury -103333-11-14 03:21 J -36020637.50 -36020637.36 -36020637.21 0.1657 0.0148
 Mercury -103332-09-27 14:38 J -36020320.01 -36020319.89 -36020319.78 0.1867 0.0780
 Mercury -103330-09-03 14:38 J -36019613.96 -36019613.89 -36019613.82 0.1849 0.1519
 Mercury -103323-04-06 08:52 J -36017207.26 -36017207.13 -36017206.99 0.1653 0.0604
 Mercury -103322-02-17 19:40 J -36016889.77 -36016889.68 -36016889.60 0.1871 0.1397
 Mercury -103321-03-12 12:42 J -36016501.05 -36016500.97 -36016500.88 0.1667 0.1359
 Mercury -103320-01-23 21:06 J -36016183.73 -36016183.62 -36016183.51 0.1854 0.0988
 Venus -103319-04-26 10:33 J -36015726.22 -36015726.06 -36015725.89 0.1760 0.0692
 Earth -103315-01-10 18:14 J -36014370.86 -36014370.74 -36014370.62 0.1737 0.1350
 Moon -103315-01-11 01:54 J -36014370.54 -36014370.42 -36014370.29 0.1738 0.1308
 Venus -103315-12-12 06:28 J -36014035.39 -36014035.23 -36014035.07 0.1751 0.0448
 Mercury -103314-08-27 14:52 J -36013776.99 -36013776.88 -36013776.77 0.1650 0.1044
 Mercury -103312-08-02 17:16 J -36013070.90 -36013070.78 -36013070.65 0.1663 0.0857
 Mercury -103311-06-16 03:06 J -36012753.49 -36012753.37 -36012753.25 0.1859 0.0431
 Mercury -103304-01-16 20:52 J -36010346.69 -36010346.63 -36010346.57 0.1647 0.1470
 Mercury -103303-12-23 22:18 J -36009640.71 -36009640.57 -36009640.42 0.1660 0.0370
 Mercury -103302-11-06 09:06 J -36009323.25 -36009323.12 -36009322.99 0.1863 0.0137
 Mercury -103293-05-15 03:35 J -36006210.49 -36006210.35 -36006210.20 0.1657 0.0107

Mercury -103292-03-28 14:38 J -36005893.01 -36005892.89 -36005892.77 0.1867 0.0728
 Mercury -103290-03-04 14:52 J -36005186.95 -36005186.88 -36005186.82 0.1850 0.1570
 Venus -103287-04-25 22:18 J -36004038.72 -36004038.57 -36004038.42 0.1770 0.0987
 Mercury -103284-10-05 09:21 J -36002780.25 -36002780.11 -36002779.97 0.1653 0.0551
 Mercury -103283-08-18 19:54 J -36002462.76 -36002462.67 -36002462.58 0.1871 0.1337
 Mercury -103282-09-11 13:11 J -36002074.03 -36002073.95 -36002073.87 0.1667 0.1411
 Mercury -103281-07-24 21:06 J -36001756.72 -36001756.62 -36001756.51 0.1854 0.1040
 Venus -103281-10-09 12:42 J -36001680.09 -36001679.97 -36001679.85 0.1765 0.1248
 Mercury -103274-02-25 15:06 J -35999349.98 -35999349.87 -35999349.75 0.1650 0.0995
 Mercury -103272-01-31 17:45 J -35998643.88 -35998643.76 -35998643.63 0.1663 0.0911
 Mercury -103272-12-15 03:21 J -35998326.48 -35998326.36 -35998326.23 0.1859 0.0490
 Mercury -103265-07-17 21:21 J -35995919.68 -35995919.61 -35995919.54 0.1647 0.1421
 Mercury -103263-06-23 22:47 J -35995213.69 -35995213.55 -35995213.41 0.1660 0.0423
 Mercury -103262-05-07 09:21 J -35994896.24 -35994896.11 -35994895.99 0.1863 0.0102
 Earth -103262-07-24 06:14 J -35994818.42 -35994818.24 -35994818.06 0.1775 0.0530
 Moon -103262-07-24 11:16 J -35994818.20 -35994818.03 -35994817.86 0.1775 0.0565 *
 Mercury -103254-11-14 04:04 J -35991783.47 -35991783.33 -35991783.18 0.1656 0.0052
 Venus -103253-02-21 17:30 J -35991683.92 -35991683.77 -35991683.62 0.1756 0.0953
 Mercury -103253-09-26 14:52 J -35991466.00 -35991465.88 -35991465.76 0.1867 0.0676
 Mercury -103251-09-02 14:52 J -35990759.94 -35990759.88 -35990759.82 0.1849 0.1615
 Venus -103249-10-08 15:35 J -35989993.02 -35989992.85 -35989992.68 0.1755 0.0229
 Mercury -103244-04-05 09:35 J -35988353.24 -35988353.10 -35988352.96 0.1653 0.0509
 Mercury -103243-02-16 20:09 J -35988035.75 -35988035.66 -35988035.56 0.1871 0.1284
 Mercury -103242-03-12 13:40 J -35987647.00 -35987646.93 -35987646.87 0.1667 0.1463
 Mercury -103241-01-23 21:21 J -35987329.71 -35987329.61 -35987329.51 0.1854 0.1086
 Earth -103236-01-13 13:26 J -35985513.14 -35985512.94 -35985512.75 0.1742 0.0167
 Moon -103236-01-13 14:09 J -35985513.09 -35985512.91 -35985512.73 0.1742 0.0159 *
 Mercury -103235-08-26 15:35 J -35984922.97 -35984922.85 -35984922.74 0.1650 0.0947
 Mercury -103233-08-01 17:59 J -35984216.87 -35984216.75 -35984216.63 0.1663 0.0959
 Mercury -103232-06-15 03:35 J -35983899.47 -35983899.35 -35983899.23 0.1859 0.0542

Mercury -103225-01-16 21:35 J -35981492.67 -35981492.60 -35981492.52 0.1647 0.1373

Mercury -103224-12-22 23:16 J -35980786.67 -35980786.53 -35980786.39 0.1660 0.0479

Mercury -103223-11-05 09:35 J -35980469.23 -35980469.10 -35980468.97 0.1863 0.0051

Venus -103221-02-21 05:02 J -35979996.45 -35979996.29 -35979996.12 0.1767 0.0715

Venus -103217-10-07 17:02 J -35978305.84 -35978305.79 -35978305.73 0.1745 0.1647

Venus -103215-08-06 21:35 J -35977637.69 -35977637.60 -35977637.51 0.1768 0.1491

Mercury -103214-05-15 04:33 J -35977356.46 -35977356.31 -35977356.17 0.1656 0.0051

Mercury -103213-03-27 15:06 J -35977038.99 -35977038.87 -35977038.75 0.1867 0.0622

Mercury -103211-03-03 14:52 J -35976332.93 -35976332.88 -35976332.82 0.1850 0.1666

Mercury -103205-10-04 10:04 J -35973926.22 -35973926.08 -35973925.94 0.1653 0.0455

Mercury -103204-08-17 20:23 J -35973608.75 -35973608.65 -35973608.56 0.1871 0.1234

Mercury -103203-09-10 13:54 J -35973219.98 -35973219.92 -35973219.86 0.1667 0.1518

Mercury -103202-07-24 21:35 J -35972902.70 -35972902.60 -35972902.50 0.1854 0.1138

Mercury -103195-02-24 15:50 J -35970495.96 -35970495.84 -35970495.72 0.1650 0.0899

Mercury -103194-01-08 01:11 J -35970178.46 -35970178.45 -35970178.44 0.1875 0.1863

Mercury -103193-01-31 18:42 J -35969789.84 -35969789.72 -35969789.60 0.1663 0.1017

Mercury -103193-12-14 03:50 J -35969472.46 -35969472.34 -35969472.22 0.1859 0.0591

Venus -103188-12-19 00:57 J -35967641.59 -35967641.46 -35967641.33 0.1753 0.1200

Mercury -103186-07-17 21:50 J -35967065.67 -35967065.59 -35967065.51 0.1647 0.1330

Mercury -103184-06-22 23:30 J -35966359.66 -35966359.52 -35966359.38 0.1660 0.0523

Mercury -103183-05-06 09:50 J -35966042.22 -35966042.09 -35966041.97 0.1863 0.0068

Venus -103183-08-06 01:26 J -35965950.61 -35965950.44 -35965950.27 0.1758 0.0025

Mercury -103175-11-13 04:47 J -35962929.45 -35962929.30 -35962929.15 0.1657 0.0054

Mercury -103174-09-26 15:21 J -35962611.98 -35962611.86 -35962611.74 0.1867 0.0566

Mercury -103172-09-01 15:21 J -35961905.91 -35961905.86 -35961905.82 0.1850 0.1718

Mercury -103165-04-04 10:18 J -35959499.21 -35959499.07 -35959498.93 0.1653 0.0407

Mercury -103164-02-15 20:37 J -35959181.74 -35959181.64 -35959181.54 0.1871 0.1179

Mercury -103163-03-11 14:23 J -35958792.94 -35958792.90 -35958792.85 0.1667 0.1576

Mercury -103162-01-22 21:35 J -35958475.69 -35958475.60 -35958475.50 0.1854 0.1190

Moon -103157-01-17 01:40 J -35956655.45 -35956655.43 -35956655.40 0.1746 0.1729

Earth -103157-01-17 09:06 J -35956655.15 -35956655.12 -35956655.08 0.1746 0.1710
 Mercury -103156-08-25 16:18 J -35956068.95 -35956068.82 -35956068.70 0.1650 0.0850
 Venus -103156-12-18 11:30 J -35955954.19 -35955954.02 -35955953.84 0.1764 0.0439
 Mercury -103155-07-09 01:25 J -35955751.47 -35955751.44 -35955751.40 0.1874 0.1807
 Mercury -103154-08-01 18:57 J -35955362.82 -35955362.71 -35955362.59 0.1663 0.1069
 Mercury -103153-06-14 04:04 J -35955045.45 -35955045.33 -35955045.22 0.1859 0.0644
 Venus -103151-08-05 03:06 J -35954263.47 -35954263.37 -35954263.28 0.1748 0.1450
 Venus -103149-06-03 07:11 J -35953595.24 -35953595.20 -35953595.17 0.1771 0.1721
 Mercury -103146-01-15 22:18 J -35952638.66 -35952638.57 -35952638.48 0.1647 0.1280
 Mercury -103145-12-21 23:59 J -35951932.64 -35951932.50 -35951932.36 0.1660 0.0580
 Mercury -103144-11-04 09:49 J -35951615.21 -35951615.09 -35951614.96 0.1863 0.0083
 Mercury -103135-05-14 05:16 J -35948502.43 -35948502.28 -35948502.14 0.1656 0.0115
 Mercury -103134-03-27 15:21 J -35948184.98 -35948184.86 -35948184.73 0.1867 0.0522
 Mercury -103132-03-02 15:21 J -35947478.90 -35947478.86 -35947478.83 0.1850 0.1761
 Mercury -103126-10-04 10:33 J -35945072.20 -35945072.06 -35945071.91 0.1653 0.0362
 Mercury -103125-08-16 20:52 J -35944754.73 -35944754.63 -35944754.52 0.1871 0.1119
 Mercury -103124-09-09 14:52 J -35944365.91 -35944365.88 -35944365.85 0.1667 0.1626
 Mercury -103123-07-23 21:49 J -35944048.68 -35944048.59 -35944048.49 0.1855 0.1239
 Venus -103122-10-16 07:54 J -35943599.26 -35943599.17 -35943599.07 0.1750 0.1460
 Venus -103117-06-02 10:47 J -35941908.22 -35941908.05 -35941907.88 0.1761 0.0203
 Mercury -103116-02-23 16:33 J -35941641.94 -35941641.81 -35941641.68 0.1650 0.0801
 Mercury -103115-01-07 01:40 J -35941324.47 -35941324.43 -35941324.38 0.1875 0.1753
 Mercury -103114-01-30 19:25 J -35940935.80 -35940935.69 -35940935.58 0.1663 0.1120
 Mercury -103114-12-14 04:18 J -35940618.44 -35940618.32 -35940618.20 0.1859 0.0698
 Mercury -103107-07-16 22:33 J -35938211.65 -35938211.56 -35938211.47 0.1647 0.1234
 Mercury -103105-06-22 00:13 J -35937505.62 -35937505.49 -35937505.35 0.1660 0.0634
 Mercury -103104-05-05 10:04 J -35937188.21 -35937188.08 -35937187.95 0.1863 0.0125
 Mercury -103096-11-12 05:45 J -35934075.41 -35934075.26 -35934075.12 0.1656 0.0166
 Mercury -103095-09-25 15:49 J -35933757.97 -35933757.84 -35933757.72 0.1867 0.0459
 Mercury -103093-08-31 15:35 J -35933051.87 -35933051.85 -35933051.83 0.1850 0.1815

Venus -103090-10-15 17:59 J -35931911.93 -35931911.75 -35931911.58 0.1760 0.0160
 Mercury -103086-04-04 11:01 J -35930645.18 -35930645.04 -35930644.90 0.1653 0.0306
 Mercury -103085-02-15 20:52 J -35930327.73 -35930327.63 -35930327.52 0.1871 0.1075
 Venus -103085-06-01 12:57 J -35930221.08 -35930220.96 -35930220.85 0.1751 0.1251
 Mercury -103083-01-21 22:04 J -35929621.67 -35929621.58 -35929621.49 0.1854 0.1289
 Mercury -103077-08-24 16:47 J -35927214.93 -35927214.80 -35927214.67 0.1650 0.0756
 Mercury -103076-07-08 01:54 J -35926897.47 -35926897.42 -35926897.36 0.1875 0.1699
 Mercury -103075-07-31 19:54 J -35926508.78 -35926508.67 -35926508.57 0.1663 0.1175
 Mercury -103074-06-14 04:18 J -35926191.44 -35926191.32 -35926191.21 0.1859 0.0741
 Mercury -103067-01-14 22:47 J -35923784.64 -35923784.55 -35923784.45 0.1647 0.1188
 Mercury -103066-12-22 00:42 J -35923078.60 -35923078.47 -35923078.34 0.1660 0.0682
 Mercury -103065-11-03 10:18 J -35922761.19 -35922761.07 -35922760.94 0.1863 0.0187
 Mercury -103058-06-07 05:16 J -35920354.31 -35920354.28 -35920354.25 0.1644 0.1603
 Moon -103057-07-21 02:37 J -35919944.57 -35919944.39 -35919944.21 0.1786 0.0691
 Earth -103057-07-21 08:52 J -35919944.31 -35919944.13 -35919943.96 0.1786 0.0623 *
 Mercury -103056-05-13 05:59 J -35919648.40 -35919648.25 -35919648.11 0.1656 0.0209
 Venus -103056-08-12 15:35 J -35919556.89 -35919556.85 -35919556.82 0.1747 0.1703
 Mercury -103055-03-26 16:04 J -35919330.96 -35919330.83 -35919330.71 0.1867 0.0413
 Venus -103051-03-30 20:09 J -35917865.83 -35917865.66 -35917865.50 0.1764 0.0429
 Mercury -103047-10-03 11:30 J -35916218.17 -35916218.02 -35916217.88 0.1653 0.0256
 Mercury -103046-08-16 21:21 J -35915900.72 -35915900.61 -35915900.50 0.1871 0.1015
 Mercury -103044-07-22 22:04 J -35915194.66 -35915194.58 -35915194.49 0.1854 0.1339
 Mercury -103037-02-23 17:16 J -35912787.91 -35912787.78 -35912787.65 0.1650 0.0704
 Mercury -103036-01-06 02:09 J -35912470.47 -35912470.41 -35912470.35 0.1875 0.1644
 Mercury -103035-01-29 20:23 J -35912081.75 -35912081.65 -35912081.55 0.1663 0.1231
 Mercury -103035-12-13 04:33 J -35911764.42 -35911764.31 -35911764.20 0.1859 0.0797
 Moon -103031-01-10 23:59 J -35910639.67 -35910639.50 -35910639.34 0.1731 0.1077
 Earth -103031-01-11 03:49 J -35910639.49 -35910639.34 -35910639.19 0.1731 0.1113 *
 Mercury -103028-07-15 23:16 J -35909357.63 -35909357.53 -35909357.43 0.1647 0.1139
 Mercury -103026-06-22 01:11 J -35908651.58 -35908651.45 -35908651.32 0.1660 0.0737

Mercury -103025-05-04 10:33 J -35908334.19 -35908334.06 -35908333.94 0.1863 0.0236

Venus -103024-08-12 01:11 J -35907869.63 -35907869.45 -35907869.28 0.1757 0.0111

Venus -103019-03-29 22:33 J -35906178.69 -35906178.56 -35906178.42 0.1754 0.1047

Mercury -103019-12-06 05:30 J -35905927.31 -35905927.27 -35905927.23 0.1644 0.1560

Mercury -103017-11-11 06:13 J -35905221.38 -35905221.24 -35905221.09 0.1656 0.0262

Mercury -103016-09-24 16:04 J -35904903.95 -35904903.83 -35904903.70 0.1868 0.0358

Mercury -103007-04-03 11:45 J -35901791.16 -35901791.01 -35901790.87 0.1653 0.0214

Mercury -103006-02-14 21:35 J -35901473.71 -35901473.60 -35901473.49 0.1871 0.0959

Mercury -103004-01-20 22:18 J -35900767.65 -35900767.57 -35900767.49 0.1855 0.1390

103RD MILLENNIUM BCE

This is a list of transits visible from Mars in the 103rd millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -102998-08-24 17:30 J | -35898360.90 | -35898360.77 | -35898360.63 | 0.1650 | 0.0655 | | |
| Mercury | -102997-07-07 02:23 J | -35898043.46 | -35898043.40 | -35898043.33 | 0.1875 | 0.1588 | | |
| Mercury | -102996-07-30 20:37 J | -35897654.73 | -35897654.64 | -35897654.55 | 0.1663 | 0.1280 | | |
| Mercury | -102995-06-13 04:47 J | -35897337.41 | -35897337.30 | -35897337.19 | 0.1859 | 0.0849 | | |
| Venus | -102992-08-11 12:28 J | -35896182.05 | -35896181.98 | -35896181.90 | 0.1767 | 0.1592 | | |
| Mercury | -102988-01-13 23:30 J | -35894930.62 | -35894930.52 | -35894930.41 | 0.1647 | 0.1091 | | |
| Mercury | -102987-12-21 01:40 J | -35894224.56 | -35894224.43 | -35894224.30 | 0.1660 | 0.0792 | | |
| Mercury | -102986-11-03 10:47 J | -35893907.18 | -35893907.05 | -35893906.93 | 0.1863 | 0.0288 | | |

Venus -102985-01-26 05:01 J -35893823.44 -35893823.29 -35893823.13 0.1767 0.0660

Mercury -102979-06-06 05:59 J -35891500.31 -35891500.25 -35891500.20 0.1644 0.1513

Earth -102978-07-24 21:49 J -35891086.75 -35891086.59 -35891086.42 0.1782 0.0768

Moon -102978-07-25 01:40 J -35891086.61 -35891086.43 -35891086.25 0.1781 0.0765 *

Mercury -102977-05-12 06:42 J -35890794.37 -35890794.22 -35890794.08 0.1656 0.0309

Mercury -102976-03-25 16:18 J -35890476.95 -35890476.82 -35890476.69 0.1867 0.0304

Mercury -102968-10-02 12:13 J -35887364.14 -35887363.99 -35887363.85 0.1653 0.0156

Mercury -102967-08-15 21:35 J -35887046.71 -35887046.60 -35887046.48 0.1871 0.0911

Mercury -102965-07-21 22:33 J -35886340.64 -35886340.56 -35886340.48 0.1854 0.1440

Mercury -102958-02-22 17:59 J -35883933.89 -35883933.75 -35883933.62 0.1650 0.0610

Venus -102958-06-09 08:09 J -35883827.33 -35883827.16 -35883826.99 0.1754 0.0368

Mercury -102957-01-06 02:37 J -35883616.46 -35883616.39 -35883616.31 0.1875 0.1534

Mercury -102956-01-28 21:06 J -35883227.71 -35883227.62 -35883227.53 0.1663 0.1338

Mercury -102956-12-12 04:47 J -35882910.41 -35882910.30 -35882910.19 0.1859 0.0897

Venus -102953-01-25 08:09 J -35882136.31 -35882136.16 -35882136.01 0.1757 0.0836

Earth -102952-01-13 20:52 J -35881781.82 -35881781.63 -35881781.43 0.1735 0.0337

Moon -102952-01-14 03:06 J -35881781.58 -35881781.37 -35881781.17 0.1735 0.0305 *

Mercury -102949-07-14 23:45 J -35880503.62 -35880503.51 -35880503.40 0.1647 0.1047

Mercury -102947-06-21 01:54 J -35879797.55 -35879797.42 -35879797.30 0.1659 0.0838

Mercury -102946-05-04 10:47 J -35879480.17 -35879480.05 -35879479.92 0.1864 0.0339

Mercury -102940-12-05 06:13 J -35877073.30 -35877073.24 -35877073.18 0.1644 0.1464

Mercury -102938-11-11 07:11 J -35876367.35 -35876367.20 -35876367.06 0.1656 0.0365

Mercury -102937-09-23 16:33 J -35876049.93 -35876049.81 -35876049.68 0.1867 0.0252

Mercury -102928-04-02 12:28 J -35872937.12 -35872936.98 -35872936.83 0.1653 0.0112

Mercury -102927-02-13 22:04 J -35872619.70 -35872619.58 -35872619.47 0.1871 0.0856

Venus -102926-06-08 19:40 J -35872139.79 -35872139.68 -35872139.56 0.1764 0.1326

Mercury -102925-01-20 22:47 J -35871913.63 -35871913.55 -35871913.48 0.1854 0.1491

Venus -102920-11-22 14:09 J -35869781.05 -35869780.91 -35869780.76 0.1771 0.0896

Mercury -102919-08-23 18:13 J -35869506.88 -35869506.74 -35869506.60 0.1650 0.0558

Mercury -102918-07-07 02:52 J -35869189.45 -35869189.38 -35869189.30 0.1875 0.1480

Mercury -102917-07-29 21:35 J -35868800.68 -35868800.60 -35868800.52 0.1663 0.1390

Mercury -102916-06-12 05:01 J -35868483.40 -35868483.29 -35868483.18 0.1859 0.0948

Mercury -102909-01-14 00:13 J -35866076.60 -35866076.49 -35866076.38 0.1647 0.0995

Mercury -102908-12-20 02:23 J -35865370.53 -35865370.40 -35865370.28 0.1660 0.0896

Mercury -102907-11-02 11:01 J -35865053.16 -35865053.04 -35865052.91 0.1863 0.0387

Mercury -102900-06-05 06:28 J -35862646.30 -35862646.23 -35862646.16 0.1644 0.1422

Mercury -102898-05-12 07:25 J -35861940.33 -35861940.19 -35861940.05 0.1656 0.0412

Mercury -102897-03-24 16:47 J -35861622.93 -35861622.80 -35861622.68 0.1868 0.0205

Venus -102892-04-05 15:49 J -35859785.01 -35859784.84 -35859784.68 0.1751 0.0618

Mercury -102889-10-01 12:42 J -35858510.11 -35858509.97 -35858509.82 0.1653 0.0073

Mercury -102888-08-14 22:18 J -35858192.69 -35858192.57 -35858192.45 0.1871 0.0793

Venus -102888-11-21 17:59 J -35858093.91 -35858093.75 -35858093.59 0.1760 0.0629

Mercury -102886-07-21 22:47 J -35857486.61 -35857486.55 -35857486.48 0.1855 0.1541

Mercury -102879-02-21 18:42 J -35855079.86 -35855079.72 -35855079.59 0.1650 0.0510

Mercury -102878-01-05 03:06 J -35854762.45 -35854762.37 -35854762.28 0.1875 0.1425

Mercury -102877-01-28 21:49 J -35854373.66 -35854373.59 -35854373.52 0.1663 0.1443

Mercury -102877-12-11 05:16 J -35854056.38 -35854056.28 -35854056.17 0.1859 0.1004

Mercury -102870-07-15 00:28 J -35851649.59 -35851649.48 -35851649.36 0.1647 0.0949

Mercury -102868-06-20 02:37 J -35850943.51 -35850943.39 -35850943.26 0.1660 0.0951

Mercury -102867-05-03 11:16 J -35850626.16 -35850626.03 -35850625.91 0.1864 0.0439

Mercury -102861-12-04 06:57 J -35848219.29 -35848219.21 -35848219.13 0.1644 0.1370

Venus -102860-04-05 02:09 J -35848097.55 -35848097.41 -35848097.27 0.1761 0.1047

Mercury -102859-11-10 07:54 J -35847513.31 -35847513.17 -35847513.03 0.1656 0.0467

Mercury -102858-09-23 17:01 J -35847195.92 -35847195.79 -35847195.66 0.1867 0.0141

Venus -102854-09-19 22:47 J -35845738.68 -35845738.55 -35845738.42 0.1774 0.1144

Mercury -102849-04-01 13:11 J -35844083.09 -35844082.95 -35844082.80 0.1653 0.0018

Mercury -102848-02-12 22:18 J -35843765.69 -35843765.57 -35843765.45 0.1872 0.0750

Mercury -102846-01-19 23:01 J -35843059.60 -35843059.54 -35843059.48 0.1855 0.1590

Mercury -102840-08-22 18:57 J -35840652.85 -35840652.71 -35840652.57 0.1650 0.0464

Mercury -102839-07-06 03:21 J -35840335.44 -35840335.36 -35840335.27 0.1875 0.1371

Mercury -102838-07-29 22:18 J -35839946.63 -35839946.57 -35839946.51 0.1663 0.1498

Mercury -102837-06-11 05:16 J -35839629.38 -35839629.28 -35839629.18 0.1859 0.1048

Mercury -102830-01-13 00:57 J -35837222.58 -35837222.46 -35837222.34 0.1647 0.0899

Mercury -102829-12-19 03:06 J -35836516.49 -35836516.37 -35836516.25 0.1659 0.0999

Mercury -102828-11-01 11:30 J -35836199.14 -35836199.02 -35836198.89 0.1864 0.0498

Venus -102826-01-31 23:01 J -35835742.69 -35835742.54 -35835742.38 0.1747 0.0872

Venus -102822-09-19 02:52 J -35834051.55 -35834051.38 -35834051.22 0.1763 0.0396

Mercury -102821-06-04 07:11 J -35833792.28 -35833792.20 -35833792.12 0.1644 0.1325

Mercury -102819-05-11 08:09 J -35833086.30 -35833086.16 -35833086.02 0.1656 0.0516

Mercury -102818-03-24 17:16 J -35832768.91 -35832768.78 -35832768.66 0.1868 0.0109

Mercury -102810-10-01 13:40 J -35829656.08 -35829655.93 -35829655.79 0.1653 0.0052

Mercury -102809-08-13 22:33 J -35829338.68 -35829338.56 -35829338.44 0.1872 0.0692

Mercury -102807-07-20 23:01 J -35828632.59 -35828632.54 -35828632.48 0.1855 0.1641

Mercury -102800-02-20 19:25 J -35826225.83 -35826225.69 -35826225.55 0.1650 0.0411

Mercury -102799-01-04 03:35 J -35825908.44 -35825908.35 -35825908.25 0.1875 0.1316

Mercury -102798-01-27 22:47 J -35825519.60 -35825519.55 -35825519.50 0.1663 0.1556

Mercury -102798-12-11 05:30 J -35825202.37 -35825202.27 -35825202.16 0.1859 0.1108

Venus -102794-01-31 09:21 J -35824055.27 -35824055.11 -35824054.95 0.1758 0.0780

Mercury -102791-07-14 01:11 J -35822795.57 -35822795.45 -35822795.33 0.1647 0.0852

Mercury -102789-06-19 03:35 J -35822089.47 -35822089.35 -35822089.24 0.1659 0.1054

Mercury -102788-05-02 11:30 J -35821772.14 -35821772.02 -35821771.90 0.1864 0.0541

Venus -102788-07-17 07:40 J -35821696.29 -35821696.18 -35821696.08 0.1777 0.1395

Mercury -102782-12-04 07:25 J -35819365.28 -35819365.19 -35819365.10 0.1644 0.1281

Mercury -102780-11-09 08:37 J -35818659.28 -35818659.14 -35818659.00 0.1656 0.0568

Mercury -102779-09-22 17:16 J -35818341.90 -35818341.78 -35818341.65 0.1868 0.0065

Moon -102773-07-21 19:54 J -35816212.84 -35816212.67 -35816212.50 0.1793 0.0426

Earth -102773-07-21 22:18 J -35816212.75 -35816212.57 -35816212.39 0.1793 0.0420 *

Mercury -102770-04-01 13:54 J -35815229.07 -35815228.92 -35815228.77 0.1653 0.0095

Mercury -102769-02-12 23:01 J -35814911.67 -35814911.54 -35814911.42 0.1872 0.0636

Mercury -102767-01-18 23:16 J -35814205.57 -35814205.53 -35814205.48 0.1855 0.1693

Mercury -102761-08-21 19:40 J -35811798.82 -35811798.68 -35811798.54 0.1650 0.0359
 Venus -102761-11-28 06:42 J -35811700.35 -35811700.22 -35811700.08 0.1744 0.1118
 Mercury -102760-07-05 03:49 J -35811481.43 -35811481.34 -35811481.24 0.1875 0.1260
 Mercury -102759-07-28 23:01 J -35811092.57 -35811092.54 -35811092.50 0.1663 0.1606
 Mercury -102758-06-11 05:45 J -35810775.36 -35810775.26 -35810775.16 0.1859 0.1156
 Venus -102756-07-16 12:28 J -35810009.15 -35810008.98 -35810008.81 0.1767 0.0179
 Mercury -102751-01-12 01:40 J -35808368.56 -35808368.43 -35808368.31 0.1647 0.0802
 Mercury -102750-12-19 03:49 J -35807662.44 -35807662.34 -35807662.23 0.1659 0.1111
 Mercury -102749-10-31 11:45 J -35807345.13 -35807345.01 -35807344.89 0.1864 0.0598
 Moon -102747-01-11 09:49 J -35806908.25 -35806908.09 -35806907.93 0.1724 0.0811
 Earth -102747-01-11 13:54 J -35806908.09 -35806907.92 -35806907.75 0.1725 0.0869 *
 Mercury -102742-06-04 07:40 J -35804938.27 -35804938.18 -35804938.08 0.1644 0.1233
 Mercury -102740-05-10 08:52 J -35804232.26 -35804232.13 -35804231.99 0.1656 0.0621
 Mercury -102739-03-23 17:30 J -35803914.90 -35803914.77 -35803914.64 0.1868 0.0042
 Mercury -102731-09-30 14:23 J -35800802.05 -35800801.90 -35800801.76 0.1653 0.0150
 Mercury -102730-08-13 23:01 J -35800484.66 -35800484.54 -35800484.42 0.1872 0.0585
 Venus -102729-11-27 16:04 J -35800013.00 -35800012.83 -35800012.66 0.1754 0.0503
 Mercury -102728-07-19 23:30 J -35799778.56 -35799778.52 -35799778.48 0.1855 0.1740
 Venus -102724-07-15 15:06 J -35798321.92 -35798321.87 -35798321.82 0.1757 0.1668
 Venus -102722-05-14 16:33 J -35797653.87 -35797653.81 -35797653.74 0.1780 0.1643
 Mercury -102721-02-20 19:54 J -35797371.81 -35797371.67 -35797371.53 0.1649 0.0313
 Mercury -102720-01-03 04:04 J -35797054.42 -35797054.33 -35797054.23 0.1876 0.1206
 Mercury -102719-12-10 05:45 J -35796348.35 -35796348.26 -35796348.16 0.1860 0.1204
 Mercury -102712-07-13 01:54 J -35793941.55 -35793941.42 -35793941.30 0.1647 0.0757
 Mercury -102711-05-26 08:52 J -35793624.15 -35793624.13 -35793624.11 0.1879 0.1846
 Mercury -102710-06-19 04:04 J -35793235.43 -35793235.33 -35793235.22 0.1659 0.1156
 Mercury -102709-05-01 11:59 J -35792918.12 -35792918.00 -35792917.88 0.1864 0.0650
 Mercury -102703-12-03 08:09 J -35790511.26 -35790511.16 -35790511.06 0.1644 0.1182
 Mercury -102701-11-08 09:21 J -35789805.24 -35789805.11 -35789804.97 0.1656 0.0676
 Mercury -102700-09-21 17:45 J -35789487.88 -35789487.76 -35789487.63 0.1868 0.0087

Venus -102695-09-25 13:54 J -35787658.02 -35787657.92 -35787657.81 0.1741 0.1373
 Moon -102694-07-25 05:01 J -35787355.44 -35787355.29 -35787355.13 0.1789 0.0977
 Earth -102694-07-25 12:42 J -35787355.12 -35787354.97 -35787354.81 0.1788 0.0992
 Mercury -102693-04-24 14:37 J -35787080.92 -35787080.89 -35787080.86 0.1641 0.1600
 Mercury -102691-03-31 14:37 J -35786375.03 -35786374.89 -35786374.74 0.1653 0.0202
 Mercury -102690-02-11 23:16 J -35786057.65 -35786057.53 -35786057.41 0.1872 0.0529
 Venus -102690-05-13 21:21 J -35785966.78 -35785966.61 -35785966.44 0.1770 0.0066
 Mercury -102688-01-17 23:30 J -35785351.54 -35785351.52 -35785351.49 0.1855 0.1791
 Mercury -102682-08-21 20:23 J -35782944.80 -35782944.65 -35782944.51 0.1649 0.0267
 Mercury -102681-07-04 04:18 J -35782627.42 -35782627.32 -35782627.22 0.1875 0.1153
 Mercury -102679-06-10 05:59 J -35781921.34 -35781921.25 -35781921.16 0.1859 0.1255
 Mercury -102672-01-11 02:09 J -35779514.54 -35779514.41 -35779514.28 0.1647 0.0707
 Mercury -102672-11-24 09:06 J -35779197.16 -35779197.12 -35779197.09 0.1879 0.1793
 Mercury -102671-12-18 04:47 J -35778808.40 -35778808.30 -35778808.20 0.1659 0.1217
 Mercury -102670-10-31 12:13 J -35778491.11 -35778490.99 -35778490.87 0.1864 0.0701
 Moon -102668-01-13 23:01 J -35778050.74 -35778050.54 -35778050.34 0.1728 0.0305
 Earth -102668-01-14 06:13 J -35778050.43 -35778050.24 -35778050.06 0.1729 0.0526 *
 Mercury -102663-06-03 08:23 J -35776084.25 -35776084.15 -35776084.05 0.1644 0.1140
 Venus -102663-09-24 22:47 J -35775970.73 -35775970.55 -35775970.38 0.1751 0.0230
 Mercury -102661-05-09 09:35 J -35775378.23 -35775378.10 -35775377.96 0.1656 0.0724
 Mercury -102660-03-22 17:59 J -35775060.88 -35775060.75 -35775060.62 0.1868 0.0126
 Venus -102658-05-13 00:28 J -35774279.57 -35774279.48 -35774279.38 0.1760 0.1456
 Mercury -102654-10-24 14:52 J -35772653.92 -35772653.88 -35772653.84 0.1641 0.1553
 Mercury -102652-09-29 14:52 J -35771948.02 -35771947.88 -35771947.73 0.1653 0.0251
 Mercury -102651-08-12 23:30 J -35771630.64 -35771630.52 -35771630.39 0.1872 0.0473
 Mercury -102649-07-18 23:45 J -35770924.52 -35770924.51 -35770924.50 0.1855 0.1841
 Mercury -102642-02-19 20:37 J -35768517.78 -35768517.64 -35768517.49 0.1650 0.0211
 Mercury -102641-01-03 04:33 J -35768200.41 -35768200.31 -35768200.20 0.1876 0.1096
 Mercury -102640-12-09 06:13 J -35767494.32 -35767494.24 -35767494.15 0.1859 0.1312
 Mercury -102633-07-12 02:37 J -35765087.52 -35765087.39 -35765087.26 0.1646 0.0657

Mercury -102632-05-25 09:21 J -35764770.16 -35764770.11 -35764770.06 0.1879 0.1736

Mercury -102631-06-18 05:01 J -35764381.38 -35764381.29 -35764381.19 0.1659 0.1269

Mercury -102630-05-01 12:13 J -35764064.10 -35764063.99 -35764063.87 0.1864 0.0753

Venus -102629-07-22 22:18 J -35763615.64 -35763615.57 -35763615.51 0.1738 0.1607

Venus -102624-03-10 06:13 J -35761924.40 -35761924.24 -35761924.07 0.1773 0.0298

Mercury -102624-12-02 08:52 J -35761657.24 -35761657.13 -35761657.03 0.1644 0.1088

Mercury -102622-11-08 10:04 J -35760951.21 -35760951.08 -35760950.95 0.1656 0.0779

Mercury -102621-09-20 18:13 J -35760633.87 -35760633.74 -35760633.61 0.1868 0.0177

Mercury -102614-04-24 15:06 J -35758226.92 -35758226.87 -35758226.82 0.1641 0.1511

Mercury -102612-03-30 15:21 J -35757521.00 -35757520.86 -35757520.71 0.1652 0.0301

Mercury -102611-02-10 23:30 J -35757203.64 -35757203.52 -35757203.39 0.1872 0.0429

Mercury -102603-08-20 20:52 J -35754090.77 -35754090.63 -35754090.48 0.1649 0.0165

Mercury -102602-07-04 04:47 J -35753773.41 -35753773.30 -35753773.19 0.1876 0.1041

Mercury -102600-06-09 06:13 J -35753067.32 -35753067.24 -35753067.15 0.1860 0.1355

Venus -102597-07-22 06:28 J -35751928.41 -35751928.23 -35751928.05 0.1748 0.0023

Mercury -102593-01-11 02:52 J -35750660.51 -35750660.38 -35750660.25 0.1647 0.0608

Mercury -102593-11-23 09:35 J -35750343.15 -35750343.10 -35750343.04 0.1879 0.1678

Venus -102592-03-09 09:49 J -35750237.21 -35750237.09 -35750236.97 0.1763 0.1239

Mercury -102592-12-17 05:30 J -35749954.36 -35749954.27 -35749954.19 0.1659 0.1319

Mercury -102591-10-30 12:42 J -35749637.09 -35749636.97 -35749636.86 0.1864 0.0810

Mercury -102584-06-02 09:06 J -35747230.23 -35747230.12 -35747230.01 0.1644 0.1043

Mercury -102582-05-09 10:33 J -35746524.19 -35746524.06 -35746523.94 0.1656 0.0831

Mercury -102581-03-21 18:13 J -35746206.86 -35746206.74 -35746206.61 0.1868 0.0231

Mercury -102575-10-23 15:35 J -35743799.92 -35743799.85 -35743799.79 0.1641 0.1460

Mercury -102573-09-28 15:49 J -35743093.98 -35743093.84 -35743093.70 0.1653 0.0354

Mercury -102572-08-11 23:59 J -35742776.63 -35742776.50 -35742776.38 0.1872 0.0367

Earth -102568-07-19 17:59 J -35741338.79 -35741338.75 -35741338.70 0.1804 0.1741

Moon -102568-07-19 18:13 J -35741338.79 -35741338.74 -35741338.68 0.1804 0.1721 *

Venus -102565-07-21 16:18 J -35740240.87 -35740240.82 -35740240.76 0.1758 0.1653

Mercury -102563-02-18 21:21 J -35739663.75 -35739663.61 -35739663.46 0.1649 0.0109

Mercury -102562-01-02 05:01 J -35739346.40 -35739346.29 -35739346.18 0.1876 0.0988
 Mercury -102561-12-08 06:42 J -35738640.30 -35738640.22 -35738640.14 0.1859 0.1413
 Venus -102558-01-05 15:06 J -35737882.03 -35737881.87 -35737881.71 0.1776 0.0543
 Mercury -102554-07-12 03:06 J -35736233.50 -35736233.37 -35736233.23 0.1646 0.0562
 Mercury -102553-05-24 09:35 J -35735916.16 -35735916.10 -35735916.03 0.1879 0.1632
 Mercury -102552-06-17 05:45 J -35735527.34 -35735527.26 -35735527.18 0.1659 0.1374
 Mercury -102551-04-30 12:28 J -35735210.09 -35735209.98 -35735209.86 0.1864 0.0854
 Mercury -102545-12-01 09:21 J -35732803.23 -35732803.11 -35732803.00 0.1644 0.0997
 Mercury -102543-11-07 10:47 J -35732097.17 -35732097.05 -35732096.92 0.1656 0.0883
 Mercury -102542-09-20 18:28 J -35731779.85 -35731779.73 -35731779.60 0.1868 0.0287
 Mercury -102535-04-23 15:49 J -35729372.91 -35729372.84 -35729372.77 0.1641 0.1414
 Mercury -102533-03-29 16:04 J -35728666.97 -35728666.83 -35728666.69 0.1652 0.0402
 Mercury -102532-02-10 00:13 J -35728349.62 -35728349.49 -35728349.36 0.1872 0.0313
 Venus -102531-05-19 13:25 J -35727886.11 -35727885.94 -35727885.76 0.1745 0.0289
 Venus -102526-01-04 19:11 J -35726194.84 -35726194.70 -35726194.57 0.1766 0.1014
 Mercury -102524-08-19 21:35 J -35725236.74 -35725236.60 -35725236.45 0.1649 0.0072
 Mercury -102523-07-03 05:16 J -35724919.39 -35724919.28 -35724919.17 0.1876 0.0935
 Mercury -102521-06-08 06:42 J -35724213.30 -35724213.22 -35724213.14 0.1859 0.1459
 Mercury -102514-01-10 03:35 J -35721806.49 -35721806.35 -35721806.21 0.1646 0.0510
 Mercury -102514-11-23 10:04 J -35721489.15 -35721489.08 -35721489.01 0.1879 0.1569
 Mercury -102513-12-16 06:13 J -35721100.31 -35721100.24 -35721100.16 0.1659 0.1432
 Mercury -102512-10-29 12:57 J -35720783.07 -35720782.96 -35720782.85 0.1864 0.0910
 Mercury -102505-06-01 09:35 J -35718376.21 -35718376.10 -35718375.98 0.1644 0.0947
 Mercury -102503-05-08 11:16 J -35717670.15 -35717670.03 -35717669.91 0.1656 0.0936
 Mercury -102502-03-21 18:42 J -35717352.85 -35717352.72 -35717352.59 0.1868 0.0333
 Venus -102499-05-18 23:45 J -35716198.62 -35716198.51 -35716198.41 0.1755 0.1388
 Mercury -102496-10-22 16:04 J -35714945.91 -35714945.83 -35714945.75 0.1641 0.1370
 Mercury -102494-09-28 16:33 J -35714239.95 -35714239.81 -35714239.67 0.1652 0.0457
 Mercury -102493-08-11 00:13 J -35713922.62 -35713922.49 -35713922.36 0.1872 0.0263
 Venus -102493-11-01 23:30 J -35713839.67 -35713839.52 -35713839.37 0.1780 0.0798

Earth -102489-07-22 10:04 J -35712481.27 -35712481.08 -35712480.90 0.1799 0.0249
 Moon -102489-07-22 17:30 J -35712480.97 -35712480.77 -35712480.58 0.1799 0.0233 *
 Mercury -102484-02-17 21:49 J -35710809.73 -35710809.59 -35710809.44 0.1649 0.0046
 Mercury -102483-01-01 05:30 J -35710492.39 -35710492.27 -35710492.16 0.1876 0.0877
 Mercury -102482-12-08 06:42 J -35709786.29 -35709786.22 -35709786.14 0.1860 0.1510
 Mercury -102475-07-11 03:49 J -35707379.48 -35707379.34 -35707379.20 0.1646 0.0462
 Mercury -102474-05-24 10:18 J -35707062.15 -35707062.07 -35707062.00 0.1879 0.1516
 Mercury -102473-06-16 06:28 J -35706673.29 -35706673.23 -35706673.16 0.1659 0.1479
 Mercury -102472-04-29 13:11 J -35706356.06 -35706355.95 -35706355.85 0.1864 0.0964
 Mercury -102466-12-01 10:04 J -35703949.20 -35703949.08 -35703948.96 0.1644 0.0897
 Venus -102465-03-15 21:35 J -35703843.77 -35703843.60 -35703843.43 0.1741 0.0531
 Mercury -102464-11-06 11:45 J -35703243.13 -35703243.01 -35703242.90 0.1656 0.0992
 Earth -102463-01-12 00:57 J -35703176.64 -35703176.46 -35703176.28 0.1718 0.0617
 Moon -102463-01-12 08:37 J -35703176.33 -35703176.14 -35703175.95 0.1719 0.0410 *
 Mercury -102463-09-19 18:57 J -35702925.84 -35702925.71 -35702925.59 0.1868 0.0388
 Venus -102461-11-01 04:18 J -35702152.47 -35702152.32 -35702152.16 0.1769 0.0792
 Mercury -102456-04-22 16:18 J -35700518.90 -35700518.82 -35700518.74 0.1641 0.1323
 Mercury -102454-03-29 16:47 J -35699812.94 -35699812.80 -35699812.66 0.1652 0.0507
 Mercury -102453-02-10 00:28 J -35699495.61 -35699495.48 -35699495.35 0.1872 0.0208
 Mercury -102445-08-18 22:18 J -35696382.71 -35696382.57 -35696382.42 0.1649 0.0042
 Mercury -102444-07-02 05:30 J -35696065.38 -35696065.27 -35696065.15 0.1876 0.0829
 Mercury -102442-06-08 06:57 J -35695359.27 -35695359.21 -35695359.14 0.1860 0.1560
 Mercury -102435-01-09 04:18 J -35692952.46 -35692952.32 -35692952.18 0.1646 0.0414
 Mercury -102435-11-22 10:33 J -35692635.14 -35692635.06 -35692634.98 0.1880 0.1462
 Mercury -102434-12-16 07:11 J -35692246.26 -35692246.20 -35692246.15 0.1659 0.1539
 Venus -102433-03-15 06:42 J -35692156.36 -35692156.22 -35692156.09 0.1752 0.1115
 Mercury -102433-10-28 13:11 J -35691929.06 -35691928.95 -35691928.84 0.1864 0.1011
 Venus -102427-08-30 07:40 J -35689797.31 -35689797.18 -35689797.04 0.1783 0.1065
 Mercury -102426-06-01 10:04 J -35689522.20 -35689522.08 -35689521.95 0.1643 0.0856
 Mercury -102424-05-07 11:59 J -35688816.12 -35688816.00 -35688815.89 0.1655 0.1038

Mercury -102423-03-20 18:57 J -35688498.83 -35688498.71 -35688498.58 0.1869 0.0439

Mercury -102417-10-21 16:47 J -35686091.89 -35686091.80 -35686091.72 0.1641 0.1276

Mercury -102415-09-27 17:01 J -35685385.92 -35685385.79 -35685385.65 0.1652 0.0558

Mercury -102414-08-11 00:42 J -35685068.60 -35685068.47 -35685068.34 0.1872 0.0155

Earth -102410-07-26 01:11 J -35683623.60 -35683623.45 -35683623.31 0.1795 0.1182

Moon -102410-07-26 04:47 J -35683623.41 -35683623.30 -35683623.18 0.1795 0.1343 *

Mercury -102405-02-17 22:47 J -35681955.70 -35681955.55 -35681955.41 0.1649 0.0094

Mercury -102405-12-31 05:45 J -35681638.37 -35681638.26 -35681638.14 0.1876 0.0772

Mercury -102403-12-07 07:11 J -35680932.26 -35680932.20 -35680932.14 0.1860 0.1615

Venus -102399-01-11 05:01 J -35679801.45 -35679801.29 -35679801.13 0.1738 0.0782

Mercury -102396-07-10 04:33 J -35678525.45 -35678525.31 -35678525.17 0.1646 0.0364

Mercury -102395-05-23 10:47 J -35678208.14 -35678208.05 -35678207.97 0.1879 0.1408

Venus -102395-08-29 12:57 J -35678110.13 -35678109.96 -35678109.80 0.1773 0.0543

Mercury -102394-06-16 07:25 J -35677819.23 -35677819.19 -35677819.15 0.1659 0.1590

Mercury -102393-04-28 13:25 J -35677502.05 -35677501.94 -35677501.84 0.1864 0.1064

Mercury -102387-11-30 10:33 J -35675095.18 -35675095.06 -35675094.93 0.1643 0.0803

Mercury -102385-11-05 12:28 J -35674389.09 -35674388.98 -35674388.87 0.1656 0.1096

Earth -102384-01-14 15:21 J -35674319.04 -35674318.86 -35674318.68 0.1722 0.0716

Moon -102384-01-14 16:47 J -35674318.97 -35674318.80 -35674318.62 0.1722 0.0536 *

Mercury -102384-09-18 19:11 J -35674071.82 -35674071.70 -35674071.57 0.1868 0.0496

Mercury -102377-04-21 16:47 J -35671664.89 -35671664.80 -35671664.70 0.1641 0.1232

Mercury -102375-03-28 17:30 J -35670958.90 -35670958.77 -35670958.63 0.1652 0.0611

Mercury -102374-02-09 00:42 J -35670641.60 -35670641.47 -35670641.34 0.1872 0.0110

Venus -102367-01-10 13:54 J -35668114.08 -35668113.92 -35668113.77 0.1749 0.0851

Mercury -102366-08-18 23:01 J -35667528.69 -35667528.54 -35667528.40 0.1649 0.0146

Mercury -102365-07-01 06:13 J -35667211.36 -35667211.24 -35667211.12 0.1876 0.0717

Mercury -102363-06-07 07:11 J -35666505.25 -35666505.20 -35666505.15 0.1860 0.1659

Venus -102361-06-26 16:04 J -35665754.94 -35665754.83 -35665754.72 0.1786 0.1329

Mercury -102356-01-08 04:47 J -35664098.44 -35664098.30 -35664098.16 0.1646 0.0314

Mercury -102356-11-21 11:01 J -35663781.13 -35663781.04 -35663780.95 0.1879 0.1349

Mercury -102355-12-15 07:40 J -35663392.20 -35663392.18 -35663392.16 0.1659 0.1641

Mercury -102354-10-28 13:40 J -35663075.03 -35663074.93 -35663074.83 0.1864 0.1119

Mercury -102347-05-31 10:47 J -35660668.17 -35660668.05 -35660667.92 0.1643 0.0757

Mercury -102345-05-06 12:42 J -35659962.07 -35659961.97 -35659961.86 0.1656 0.1148

Mercury -102344-03-19 19:25 J -35659644.81 -35659644.69 -35659644.57 0.1868 0.0543

Mercury -102338-10-21 17:16 J -35657237.88 -35657237.78 -35657237.68 0.1641 0.1180

Mercury -102336-09-26 17:59 J -35656531.89 -35656531.75 -35656531.62 0.1652 0.0664

Mercury -102335-08-10 01:11 J -35656214.58 -35656214.45 -35656214.32 0.1872 0.0065

Venus -102334-11-08 12:57 J -35655759.10 -35655758.96 -35655758.82 0.1735 0.1027

Venus -102329-06-25 22:04 J -35654067.75 -35654067.58 -35654067.41 0.1776 0.0312

Mercury -102328-03-12 23:45 J -35653807.54 -35653807.51 -35653807.48 0.1638 0.1597

Mercury -102326-02-16 23:30 J -35653101.67 -35653101.52 -35653101.38 0.1649 0.0200

Mercury -102326-12-31 06:13 J -35652784.36 -35652784.24 -35652784.12 0.1876 0.0664

Mercury -102324-12-06 07:25 J -35652078.23 -35652078.19 -35652078.14 0.1860 0.1714

Mercury -102317-07-09 05:01 J -35649671.43 -35649671.29 -35649671.14 0.1646 0.0268

Mercury -102316-05-22 11:01 J -35649354.13 -35649354.04 -35649353.94 0.1880 0.1301

Mercury -102314-04-28 13:40 J -35648648.03 -35648647.93 -35648647.84 0.1864 0.1163

Mercury -102308-11-29 11:16 J -35646241.16 -35646241.03 -35646240.90 0.1643 0.0709

Mercury -102306-11-05 13:11 J -35645535.05 -35645534.95 -35645534.85 0.1655 0.1201

Mercury -102305-09-17 19:40 J -35645217.80 -35645217.68 -35645217.56 0.1869 0.0599

Venus -102302-11-07 20:52 J -35644071.80 -35644071.63 -35644071.46 0.1745 0.0577

Mercury -102298-04-21 17:30 J -35642810.87 -35642810.77 -35642810.67 0.1641 0.1135

Mercury -102296-03-27 18:13 J -35642104.87 -35642104.74 -35642104.61 0.1652 0.0713

Mercury -102295-02-08 01:11 J -35641787.57 -35641787.45 -35641787.32 0.1872 0.0066

Venus -102295-04-24 00:42 J -35641712.55 -35641712.47 -35641712.40 0.1789 0.1593

Mercury -102289-09-10 23:59 J -35639380.54 -35639380.50 -35639380.45 0.1638 0.1551

Mercury -102287-08-17 23:45 J -35638674.66 -35638674.51 -35638674.37 0.1649 0.0244

Mercury -102286-07-01 06:28 J -35638357.35 -35638357.23 -35638357.11 0.1876 0.0610

Mercury -102284-06-06 07:25 J -35637651.22 -35637651.19 -35637651.15 0.1860 0.1763

Moon -102284-07-19 19:54 J -35637607.75 -35637607.67 -35637607.59 0.1811 0.1613

Earth -102284-07-20 01:54 J -35637607.49 -35637607.42 -35637607.34 0.1811 0.1646
 Mercury -102277-01-08 05:30 J -35635244.41 -35635244.27 -35635244.12 0.1646 0.0213
 Mercury -102277-11-20 11:30 J -35634927.12 -35634927.02 -35634926.92 0.1880 0.1239
 Mercury -102275-10-27 13:54 J -35634221.02 -35634220.92 -35634220.83 0.1864 0.1220
 Mercury -102268-05-30 11:30 J -35631814.15 -35631814.02 -35631813.89 0.1643 0.0658
 Venus -102268-09-04 20:37 J -35631716.76 -35631716.64 -35631716.52 0.1732 0.1275
 Mercury -102266-05-06 13:25 J -35631108.03 -35631107.94 -35631107.84 0.1655 0.1254
 Mercury -102265-03-18 19:40 J -35630790.80 -35630790.68 -35630790.56 0.1868 0.0650
 Venus -102263-04-23 06:28 J -35630025.40 -35630025.23 -35630025.06 0.1779 0.0073
 Mercury -102259-10-20 17:45 J -35628383.86 -35628383.76 -35628383.65 0.1641 0.1090
 Earth -102258-01-09 21:49 J -35628302.64 -35628302.59 -35628302.54 0.1708 0.1643
 Mercury -102257-09-25 18:28 J -35627677.86 -35627677.73 -35627677.60 0.1652 0.0768
 Mercury -102256-08-09 01:25 J -35627360.57 -35627360.44 -35627360.32 0.1873 0.0078
 Mercury -102249-03-12 00:13 J -35624953.54 -35624953.49 -35624953.43 0.1638 0.1507
 Mercury -102247-02-15 23:59 J -35624247.64 -35624247.50 -35624247.36 0.1649 0.0291
 Mercury -102247-12-30 06:42 J -35623930.34 -35623930.22 -35623930.09 0.1876 0.0551
 Mercury -102245-12-05 07:40 J -35623224.20 -35623224.18 -35623224.15 0.1860 0.1814
 Mercury -102238-07-09 05:45 J -35620817.40 -35620817.26 -35620817.11 0.1646 0.0167
 Mercury -102237-05-21 11:30 J -35620500.12 -35620500.02 -35620499.92 0.1880 0.1188
 Venus -102236-09-04 04:04 J -35620029.51 -35620029.33 -35620029.16 0.1742 0.0312
 Mercury -102235-04-27 14:09 J -35619794.01 -35619793.91 -35619793.82 0.1864 0.1273
 Venus -102231-04-22 10:47 J -35618338.11 -35618338.05 -35618337.99 0.1769 0.1637
 Mercury -102229-11-28 11:59 J -35617387.14 -35617387.00 -35617386.87 0.1643 0.0611
 Mercury -102228-10-11 16:18 J -35617069.85 -35617069.82 -35617069.80 0.1883 0.1836
 Mercury -102227-11-04 13:54 J -35616681.01 -35616680.92 -35616680.83 0.1656 0.1309
 Mercury -102226-09-17 19:54 J -35616363.79 -35616363.67 -35616363.55 0.1869 0.0702
 Mercury -102219-04-20 17:59 J -35613956.86 -35613956.75 -35613956.64 0.1641 0.1042
 Mercury -102217-03-26 18:57 J -35613250.84 -35613250.71 -35613250.58 0.1652 0.0819
 Mercury -102216-02-07 01:40 J -35612933.56 -35612933.43 -35612933.30 0.1873 0.0119
 Mercury -102210-09-11 00:42 J -35610526.53 -35610526.47 -35610526.41 0.1638 0.1458

Mercury -102208-08-17 00:28 J -35609820.63 -35609820.48 -35609820.34 0.1649 0.0347

Mercury -102207-06-30 06:42 J -35609503.34 -35609503.22 -35609503.09 0.1876 0.0506

Moon -102205-07-22 14:37 J -35608750.09 -35608749.89 -35608749.69 0.1807 0.0295

Earth -102205-07-22 19:54 J -35608749.86 -35608749.67 -35608749.48 0.1806 0.0106 *

Venus -102202-07-03 05:16 J -35607674.37 -35607674.28 -35607674.20 0.1729 0.1507

Mercury -102198-01-07 06:13 J -35606390.39 -35606390.24 -35606390.10 0.1646 0.0124

Mercury -102198-11-20 11:45 J -35606073.11 -35606073.01 -35606072.90 0.1880 0.1133

Venus -102197-02-18 15:06 J -35605983.04 -35605982.87 -35605982.70 0.1783 0.0193

Mercury -102196-10-26 14:09 J -35605367.00 -35605366.91 -35605366.82 0.1864 0.1319

Mercury -102189-05-29 11:59 J -35602960.13 -35602960.00 -35602959.86 0.1643 0.0565

Mercury -102188-04-11 16:33 J -35602642.85 -35602642.81 -35602642.77 0.1883 0.1782

Mercury -102187-05-05 14:09 J -35602253.99 -35602253.91 -35602253.83 0.1655 0.1357

Mercury -102186-03-18 20:09 J -35601936.78 -35601936.66 -35601936.55 0.1869 0.0754

Mercury -102180-10-19 18:28 J -35599529.84 -35599529.73 -35599529.62 0.1641 0.0991

Moon -102179-01-12 08:37 J -35599445.35 -35599445.14 -35599444.93 0.1712 0.0191

Earth -102179-01-12 12:28 J -35599445.17 -35599444.98 -35599444.79 0.1712 0.0365 *

Mercury -102178-09-25 19:11 J -35598823.82 -35598823.70 -35598823.57 0.1652 0.0872

Mercury -102177-08-08 01:54 J -35598506.55 -35598506.42 -35598506.29 0.1872 0.0172

Mercury -102170-03-12 00:57 J -35596099.53 -35596099.46 -35596099.39 0.1638 0.1412

Venus -102170-07-02 11:59 J -35595987.17 -35595987.00 -35595986.82 0.1739 0.0077

Mercury -102168-02-15 00:42 J -35595393.61 -35595393.47 -35595393.33 0.1649 0.0399

Mercury -102168-12-29 07:11 J -35595076.33 -35595076.20 -35595076.08 0.1877 0.0449

Venus -102165-02-17 19:40 J -35594295.78 -35594295.68 -35594295.58 0.1772 0.1406

Mercury -102159-07-08 06:28 J -35591963.38 -35591963.23 -35591963.09 0.1646 0.0068

Mercury -102158-05-21 11:59 J -35591646.11 -35591646.00 -35591645.89 0.1880 0.1079

Mercury -102156-04-26 14:09 J -35590939.99 -35590939.91 -35590939.82 0.1865 0.1371

Mercury -102150-11-28 12:28 J -35588533.12 -35588532.98 -35588532.84 0.1643 0.0510

Mercury -102149-10-10 16:33 J -35588215.86 -35588215.81 -35588215.76 0.1883 0.1730

Mercury -102148-11-03 14:37 J -35587826.96 -35587826.89 -35587826.82 0.1655 0.1416

Mercury -102147-09-16 20:23 J -35587509.77 -35587509.65 -35587509.54 0.1869 0.0809

Mercury -102140-04-19 18:42 J -35585102.84 -35585102.72 -35585102.61 0.1640 0.0948

Mercury -102138-03-26 19:40 J -35584396.80 -35584396.68 -35584396.56 0.1652 0.0924

Venus -102138-07-01 20:37 J -35584299.67 -35584299.64 -35584299.61 0.1749 0.1718

Mercury -102137-02-07 01:54 J -35584079.55 -35584079.42 -35584079.29 0.1873 0.0217

Venus -102132-12-15 23:30 J -35581940.69 -35581940.52 -35581940.36 0.1786 0.0456

Mercury -102131-09-10 01:11 J -35581672.53 -35581672.45 -35581672.37 0.1638 0.1367

Mercury -102129-08-16 00:57 J -35580966.60 -35580966.46 -35580966.32 0.1649 0.0442

Mercury -102128-06-29 07:11 J -35580649.32 -35580649.20 -35580649.07 0.1877 0.0395

Earth -102126-07-26 11:45 J -35579892.13 -35579892.01 -35579891.88 0.1802 0.1348

Moon -102126-07-26 16:47 J -35579891.91 -35579891.80 -35579891.70 0.1802 0.1517 *

Mercury -102119-01-06 06:42 J -35577536.36 -35577536.22 -35577536.07 0.1646 0.0048

Mercury -102119-11-19 12:13 J -35577219.10 -35577218.99 -35577218.88 0.1880 0.1021

Mercury -102117-10-25 14:37 J -35576512.97 -35576512.89 -35576512.81 0.1864 0.1429

Mercury -102110-05-29 12:42 J -35574106.11 -35574105.97 -35574105.83 0.1643 0.0464

Mercury -102109-04-10 16:47 J -35573788.85 -35573788.80 -35573788.74 0.1883 0.1673

Mercury -102108-05-04 14:52 J -35573399.94 -35573399.88 -35573399.81 0.1655 0.1471

Mercury -102107-03-17 20:23 J -35573082.76 -35573082.65 -35573082.54 0.1869 0.0858

Venus -102104-04-28 19:25 J -35571944.87 -35571944.69 -35571944.52 0.1735 0.0201

Mercury -102101-10-18 18:57 J -35570675.83 -35570675.71 -35570675.59 0.1640 0.0897

Earth -102100-01-15 02:09 J -35570587.58 -35570587.41 -35570587.25 0.1716 0.0923

Moon -102100-01-15 08:09 J -35570587.34 -35570587.16 -35570586.97 0.1716 0.0784 *

Venus -102100-12-15 04:33 J -35570253.44 -35570253.31 -35570253.18 0.1775 0.1167

Mercury -102099-09-24 20:09 J -35569969.78 -35569969.66 -35569969.55 0.1652 0.0978

Mercury -102098-08-08 02:09 J -35569652.54 -35569652.41 -35569652.28 0.1873 0.0275

Mercury -102091-03-11 01:25 J -35567245.52 -35567245.44 -35567245.36 0.1638 0.1321

Mercury -102089-02-15 01:25 J -35566539.58 -35566539.44 -35566539.30 0.1649 0.0500

Mercury -102089-12-28 07:25 J -35566222.32 -35566222.19 -35566222.06 0.1877 0.0340

Mercury -102080-07-07 07:11 J -35563109.35 -35563109.20 -35563109.06 0.1646 0.0063

Mercury -102079-05-20 12:28 J -35562792.09 -35562791.98 -35562791.87 0.1880 0.0971

Mercury -102077-04-25 14:23 J -35562085.97 -35562085.90 -35562085.82 0.1865 0.1471

Venus -102072-04-28 04:04 J -35560257.42 -35560257.33 -35560257.23 0.1746 0.1457

Mercury -102071-11-27 12:57 J -35559679.10 -35559678.96 -35559678.82 0.1643 0.0417

Mercury -102070-10-10 17:16 J -35559361.85 -35559361.78 -35559361.71 0.1883 0.1610

Mercury -102069-11-02 15:21 J -35558972.92 -35558972.86 -35558972.81 0.1655 0.1520

Mercury -102068-09-15 20:37 J -35558655.75 -35558655.64 -35558655.53 0.1869 0.0915

Venus -102066-10-13 07:25 J -35557898.35 -35557898.19 -35557898.04 0.1789 0.0730

Mercury -102061-04-18 19:11 J -35556248.82 -35556248.70 -35556248.57 0.1640 0.0852

Mercury -102059-03-25 20:23 J -35555542.77 -35555542.65 -35555542.54 0.1652 0.1028

Mercury -102058-02-06 02:23 J -35555225.53 -35555225.40 -35555225.28 0.1873 0.0329

Mercury -102052-09-09 01:54 J -35552818.51 -35552818.42 -35552818.34 0.1638 0.1273

Mercury -102050-08-16 01:40 J -35552112.56 -35552112.43 -35552112.29 0.1649 0.0553

Mercury -102049-06-28 07:40 J -35551795.31 -35551795.18 -35551795.05 0.1877 0.0284

Mercury -102040-01-05 07:25 J -35548682.33 -35548682.19 -35548682.04 0.1646 0.0093

Mercury -102040-11-18 12:42 J -35548365.08 -35548364.97 -35548364.86 0.1880 0.0910

Venus -102038-02-24 03:49 J -35547902.52 -35547902.34 -35547902.17 0.1732 0.0437

Mercury -102038-10-25 14:52 J -35547658.95 -35547658.88 -35547658.81 0.1865 0.1530

Venus -102034-10-12 13:25 J -35546211.09 -35546210.94 -35546210.80 0.1778 0.0927

Mercury -102031-05-28 13:25 J -35545252.08 -35545251.94 -35545251.80 0.1643 0.0366

Mercury -102030-04-10 17:16 J -35544934.85 -35544934.78 -35544934.71 0.1883 0.1568

Mercury -102029-05-03 15:35 J -35544545.89 -35544545.85 -35544545.80 0.1655 0.1576

Mercury -102028-03-16 20:37 J -35544228.75 -35544228.64 -35544228.53 0.1869 0.0962

Mercury -102022-10-18 19:25 J -35541821.81 -35541821.69 -35541821.56 0.1640 0.0806

Mercury -102020-09-23 20:37 J -35541115.75 -35541115.64 -35541115.52 0.1652 0.1083

Mercury -102019-08-07 02:23 J -35540798.52 -35540798.40 -35540798.27 0.1873 0.0378

Mercury -102012-03-10 02:09 J -35538391.51 -35538391.41 -35538391.32 0.1638 0.1226

Mercury -102010-02-14 02:09 J -35537685.55 -35537685.41 -35537685.28 0.1649 0.0602

Mercury -102010-12-28 07:54 J -35537368.30 -35537368.17 -35537368.04 0.1877 0.0225

Venus -102006-02-23 11:30 J -35536215.15 -35536215.02 -35536214.89 0.1743 0.1191

Mercury -102001-07-06 07:40 J -35534255.32 -35534255.18 -35534255.03 0.1646 0.0144

102ND MILLENNIUM BCE

This is a list of transits visible from Mars in the 102nd millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -102000-05-19 12:57 J | -35533938.08 | -35533937.96 | -35533937.85 | 0.1880 | 0.0862 | | |
| Earth | -102000-07-20 08:09 J | -35533876.25 | -35533876.16 | -35533876.06 | 0.1818 | 0.1574 | | |
| Moon | -102000-07-20 14:23 J | -35533876.01 | -35533875.90 | -35533875.78 | 0.1818 | 0.1386 | | |
| Venus | -102000-08-09 15:21 J | -35533856.00 | -35533855.86 | -35533855.72 | 0.1793 | 0.1013 | | |
| Mercury | -101998-04-25 14:52 J | -35533231.94 | -35533231.88 | -35533231.81 | 0.1865 | 0.1580 | | |
| Mercury | -101992-11-26 13:40 J | -35530825.07 | -35530824.93 | -35530824.79 | 0.1643 | 0.0315 | | |
| Mercury | -101991-10-09 17:30 J | -35530507.84 | -35530507.77 | -35530507.69 | 0.1883 | 0.1504 | | |
| Mercury | -101990-11-02 16:04 J | -35530118.85 | -35530118.83 | -35530118.81 | 0.1655 | 0.1633 | | |
| Mercury | -101989-09-14 20:52 J | -35529801.73 | -35529801.63 | -35529801.52 | 0.1869 | 0.1018 | | |
| Mercury | -101982-04-18 19:54 J | -35527394.80 | -35527394.67 | -35527394.54 | 0.1640 | 0.0753 | | |
| Mercury | -101980-03-24 21:06 J | -35526688.72 | -35526688.62 | -35526688.51 | 0.1652 | 0.1137 | | |
| Mercury | -101979-02-05 02:37 J | -35526371.51 | -35526371.39 | -35526371.26 | 0.1873 | 0.0436 | | |
| Earth | -101974-01-10 11:30 J | -35524571.14 | -35524571.02 | -35524570.90 | 0.1702 | 0.1336 | | |
| Moon | -101974-01-10 15:49 J | -35524570.93 | -35524570.84 | -35524570.75 | 0.1702 | 0.1490 | * | |
| Mercury | -101973-09-08 02:23 J | -35523964.50 | -35523964.40 | -35523964.30 | 0.1638 | 0.1179 | | |
| Venus | -101973-12-21 11:30 J | -35523860.18 | -35523860.02 | -35523859.86 | 0.1729 | 0.0683 | | |
| Mercury | -101971-08-15 02:23 J | -35523258.53 | -35523258.40 | -35523258.26 | 0.1649 | 0.0655 | | |

Mercury -101970-06-28 07:54 J -35522941.30 -35522941.17 -35522941.04 0.1877 0.0180

Venus -101968-08-08 21:35 J -35522168.76 -35522168.60 -35522168.44 0.1782 0.0666

Mercury -101963-01-29 08:52 J -35520534.15 -35520534.13 -35520534.10 0.1635 0.1595

Mercury -101961-01-05 08:09 J -35519828.31 -35519828.16 -35519828.02 0.1645 0.0189

Mercury -101961-11-17 13:11 J -35519511.07 -35519510.95 -35519510.84 0.1881 0.0804

Mercury -101959-10-24 14:52 J -35518804.93 -35518804.88 -35518804.82 0.1865 0.1628

Mercury -101952-05-27 13:54 J -35516398.06 -35516397.92 -35516397.78 0.1643 0.0268

Mercury -101951-04-09 17:45 J -35516080.84 -35516080.76 -35516080.67 0.1883 0.1448

Mercury -101949-03-15 21:06 J -35515374.72 -35515374.62 -35515374.52 0.1869 0.1070

Mercury -101943-10-17 20:23 J -35512967.78 -35512967.65 -35512967.52 0.1640 0.0703

Mercury -101941-09-22 21:21 J -35512261.71 -35512261.61 -35512261.50 0.1652 0.1191

Venus -101941-12-20 19:11 J -35512172.85 -35512172.70 -35512172.55 0.1740 0.0934

Mercury -101940-08-06 02:52 J -35511944.50 -35511944.38 -35511944.25 0.1873 0.0490

Venus -101934-06-06 23:16 J -35509813.65 -35509813.53 -35509813.41 0.1796 0.1293

Mercury -101933-03-09 02:37 J -35509537.49 -35509537.39 -35509537.29 0.1638 0.1132

Mercury -101931-02-13 02:52 J -35508831.51 -35508831.38 -35508831.25 0.1649 0.0708

Mercury -101931-12-27 08:09 J -35508514.29 -35508514.16 -35508514.03 0.1877 0.0128

Mercury -101924-07-30 09:21 J -35506107.15 -35506107.11 -35506107.07 0.1635 0.1546

Mercury -101922-07-06 08:23 J -35505401.29 -35505401.15 -35505401.00 0.1645 0.0239

Mercury -101921-05-18 13:11 J -35505084.07 -35505083.95 -35505083.83 0.1880 0.0750

Moon -101921-07-23 00:57 J -35505018.64 -35505018.46 -35505018.28 0.1813 0.0217

Earth -101921-07-23 03:06 J -35505018.56 -35505018.37 -35505018.18 0.1813 0.0015 *

Mercury -101919-04-24 15:06 J -35504377.92 -35504377.87 -35504377.82 0.1865 0.1681

Mercury -101913-11-25 14:23 J -35501971.04 -35501970.90 -35501970.76 0.1643 0.0213

Mercury -101912-10-08 17:59 J -35501653.84 -35501653.75 -35501653.66 0.1884 0.1394

Mercury -101910-09-14 21:21 J -35500947.71 -35500947.61 -35500947.51 0.1869 0.1123

Venus -101907-10-18 19:54 J -35499817.82 -35499817.67 -35499817.52 0.1726 0.0922

Mercury -101903-04-17 20:23 J -35498540.78 -35498540.65 -35498540.52 0.1640 0.0660

Venus -101902-06-06 06:28 J -35498126.39 -35498126.23 -35498126.06 0.1785 0.0422

Mercury -101901-03-23 21:49 J -35497834.69 -35497834.59 -35497834.49 0.1652 0.1242

Mercury -101900-02-04 02:52 J -35497517.50 -35497517.38 -35497517.25 0.1873 0.0539

Moon -101895-01-12 19:25 J -35495713.87 -35495713.69 -35495713.50 0.1706 0.0043

Earth -101895-01-13 00:28 J -35495713.67 -35495713.48 -35495713.28 0.1706 0.0112 *

Mercury -101894-09-08 02:52 J -35495110.48 -35495110.38 -35495110.27 0.1638 0.1085

Mercury -101892-08-14 03:06 J -35494404.50 -35494404.37 -35494404.24 0.1648 0.0755

Mercury -101891-06-27 08:23 J -35494087.27 -35494087.15 -35494087.02 0.1877 0.0085

Mercury -101884-01-28 09:35 J -35491680.15 -35491680.10 -35491680.04 0.1635 0.1498

Mercury -101882-01-04 08:52 J -35490974.27 -35490974.13 -35490973.99 0.1646 0.0294

Mercury -101882-11-17 13:25 J -35490657.06 -35490656.94 -35490656.81 0.1880 0.0692

Mercury -101880-10-23 15:21 J -35489950.90 -35489950.86 -35489950.81 0.1865 0.1739

Venus -101875-10-18 02:23 J -35488130.56 -35488130.40 -35488130.23 0.1736 0.0668

Mercury -101873-05-26 14:37 J -35487544.03 -35487543.89 -35487543.74 0.1643 0.0166

Mercury -101872-04-08 18:13 J -35487226.83 -35487226.74 -35487226.65 0.1884 0.1337

Mercury -101870-03-15 21:21 J -35486520.71 -35486520.61 -35486520.51 0.1869 0.1174

Venus -101868-04-03 07:25 J -35485771.27 -35485771.19 -35485771.11 0.1799 0.1573

Mercury -101864-10-16 20:52 J -35484113.76 -35484113.63 -35484113.50 0.1640 0.0606

Mercury -101862-09-22 22:18 J -35483407.66 -35483407.57 -35483407.48 0.1652 0.1297

Mercury -101861-08-05 03:06 J -35483090.49 -35483090.37 -35483090.24 0.1873 0.0598

Mercury -101854-03-09 03:06 J -35480683.47 -35480683.37 -35480683.26 0.1638 0.1038

Mercury -101852-02-12 03:35 J -35479977.48 -35479977.35 -35479977.22 0.1648 0.0814

Mercury -101852-12-26 08:37 J -35479660.27 -35479660.14 -35479660.01 0.1877 0.0030

Mercury -101845-07-29 09:49 J -35477253.15 -35477253.09 -35477253.03 0.1635 0.1456

Mercury -101843-07-05 09:06 J -35476547.26 -35476547.12 -35476546.98 0.1645 0.0340

Mercury -101842-05-18 13:40 J -35476230.05 -35476229.93 -35476229.81 0.1881 0.0637

Moon -101842-07-26 14:09 J -35476160.98 -35476160.91 -35476160.84 0.1809 0.1663

Earth -101842-07-26 21:49 J -35476160.69 -35476160.59 -35476160.48 0.1809 0.1504

Venus -101841-08-15 03:49 J -35475775.46 -35475775.34 -35475775.21 0.1723 0.1162

Mercury -101840-04-23 15:21 J -35475523.89 -35475523.86 -35475523.82 0.1865 0.1781

Venus -101836-04-02 14:23 J -35474084.07 -35474083.90 -35474083.73 0.1789 0.0159

Mercury -101834-11-25 14:52 J -35473117.02 -35473116.88 -35473116.73 0.1643 0.0122

Mercury -101833-10-07 18:42 J -35472799.82 -35472799.72 -35472799.63 0.1884 0.1277
 Mercury -101831-09-13 21:35 J -35472093.69 -35472093.60 -35472093.50 0.1869 0.1231
 Mercury -101824-04-16 21:06 J -35469686.75 -35469686.62 -35469686.48 0.1640 0.0558
 Mercury -101822-03-23 22:33 J -35468980.64 -35468980.56 -35468980.47 0.1652 0.1351
 Mercury -101821-02-04 03:21 J -35468663.48 -35468663.36 -35468663.24 0.1873 0.0649
 Moon -101816-01-15 07:11 J -35466856.38 -35466856.20 -35466856.03 0.1709 0.0825
 Earth -101816-01-15 14:09 J -35466856.05 -35466855.91 -35466855.76 0.1710 0.1150 *
 Mercury -101815-09-07 03:35 J -35466256.46 -35466256.35 -35466256.24 0.1637 0.0987
 Mercury -101813-08-13 03:49 J -35465550.46 -35465550.34 -35465550.21 0.1648 0.0866
 Mercury -101812-06-26 08:52 J -35465233.26 -35465233.13 -35465233.00 0.1877 0.0059
 Venus -101809-08-14 10:04 J -35464088.25 -35464088.08 -35464087.90 0.1733 0.0410
 Mercury -101805-01-28 10:04 J -35462826.15 -35462826.08 -35462826.00 0.1635 0.1406
 Mercury -101803-01-03 09:35 J -35462120.25 -35462120.10 -35462119.96 0.1645 0.0398
 Mercury -101803-11-16 13:54 J -35461803.04 -35461802.92 -35461802.79 0.1881 0.0580
 Mercury -101801-10-22 15:35 J -35461096.86 -35461096.85 -35461096.83 0.1865 0.1839
 Mercury -101794-05-26 15:21 J -35458690.01 -35458689.86 -35458689.72 0.1642 0.0074
 Mercury -101793-04-07 18:28 J -35458372.82 -35458372.73 -35458372.63 0.1884 0.1232
 Mercury -101791-03-14 21:35 J -35457666.69 -35457666.60 -35457666.50 0.1869 0.1279
 Mercury -101785-10-15 21:21 J -35455259.74 -35455259.61 -35455259.47 0.1640 0.0511
 Mercury -101784-08-28 23:16 J -35454942.53 -35454942.53 -35454942.53 0.1887 0.1884
 Mercury -101783-09-21 23:01 J -35454553.62 -35454553.54 -35454553.47 0.1652 0.1405
 Mercury -101782-08-05 03:35 J -35454236.47 -35454236.35 -35454236.23 0.1874 0.0702
 Mercury -101775-03-08 03:49 J -35451829.46 -35451829.34 -35451829.22 0.1638 0.0940
 Venus -101775-06-12 12:57 J -35451733.07 -35451732.96 -35451732.86 0.1720 0.1387
 Mercury -101773-02-12 04:04 J -35451123.45 -35451123.33 -35451123.20 0.1648 0.0917
 Mercury -101773-12-25 09:06 J -35450806.25 -35450806.12 -35450805.99 0.1877 0.0108
 Venus -101770-01-28 22:47 J -35450041.72 -35450041.55 -35450041.38 0.1792 0.0114
 Mercury -101766-07-29 10:18 J -35448399.14 -35448399.07 -35448398.99 0.1635 0.1361
 Mercury -101764-07-04 09:49 J -35447693.23 -35447693.09 -35447692.95 0.1645 0.0446
 Mercury -101763-05-17 14:09 J -35447376.04 -35447375.91 -35447375.79 0.1881 0.0531

Mercury -101755-11-24 15:35 J -35444262.99 -35444262.85 -35444262.70 0.1643 0.0052

Mercury -101754-10-07 18:57 J -35443945.81 -35443945.71 -35443945.60 0.1884 0.1165

Mercury -101752-09-12 21:49 J -35443239.67 -35443239.59 -35443239.50 0.1869 0.1336

Mercury -101745-04-15 21:49 J -35440832.73 -35440832.59 -35440832.45 0.1640 0.0459

Mercury -101744-02-26 23:16 J -35440515.55 -35440515.53 -35440515.50 0.1887 0.1836

Mercury -101743-03-22 23:16 J -35440126.59 -35440126.53 -35440126.46 0.1652 0.1461

Venus -101743-06-11 18:42 J -35440045.90 -35440045.72 -35440045.55 0.1730 0.0171

Mercury -101742-02-03 03:49 J -35439809.46 -35439809.34 -35439809.23 0.1873 0.0758

Venus -101738-01-28 04:33 J -35438354.39 -35438354.31 -35438354.23 0.1781 0.1557

Mercury -101736-09-06 04:04 J -35437402.45 -35437402.33 -35437402.21 0.1637 0.0893

Mercury -101734-08-13 04:33 J -35436696.43 -35436696.31 -35436696.19 0.1648 0.0970

Mercury -101733-06-25 09:06 J -35436379.25 -35436379.12 -35436378.99 0.1877 0.0149

Mercury -101726-01-27 10:33 J -35433972.14 -35433972.06 -35433971.97 0.1635 0.1316

Mercury -101724-01-02 10:04 J -35433266.22 -35433266.08 -35433265.94 0.1645 0.0497

Mercury -101724-11-15 14:23 J -35432949.03 -35432948.90 -35432948.77 0.1881 0.0467

Moon -101716-07-20 13:11 J -35430145.10 -35430144.95 -35430144.80 0.1825 0.1280

Earth -101716-07-20 14:09 J -35430145.02 -35430144.91 -35430144.81 0.1825 0.1504 *

Mercury -101715-05-25 15:49 J -35429835.98 -35429835.84 -35429835.69 0.1643 0.0060

Mercury -101714-04-07 19:11 J -35429518.80 -35429518.70 -35429518.59 0.1884 0.1109

Mercury -101712-03-13 22:04 J -35428812.66 -35428812.58 -35428812.49 0.1870 0.1390

Venus -101709-04-08 21:21 J -35427690.67 -35427690.61 -35427690.56 0.1717 0.1620

Mercury -101706-10-15 22:04 J -35426405.72 -35426405.58 -35426405.44 0.1640 0.0409

Mercury -101705-08-27 23:45 J -35426088.55 -35426088.51 -35426088.47 0.1887 0.1774

Venus -101705-11-25 06:57 J -35425999.38 -35425999.21 -35425999.05 0.1795 0.0389

Mercury -101704-09-20 23:45 J -35425699.57 -35425699.51 -35425699.45 0.1652 0.1514

Mercury -101703-08-04 03:49 J -35425382.45 -35425382.34 -35425382.22 0.1873 0.0814

Mercury -101696-03-07 04:18 J -35422975.44 -35422975.32 -35422975.19 0.1637 0.0846

Mercury -101694-02-11 05:01 J -35422269.41 -35422269.29 -35422269.18 0.1648 0.1026

Mercury -101694-12-25 09:21 J -35421952.23 -35421952.11 -35421951.98 0.1877 0.0217

Earth -101690-01-11 03:06 J -35420839.53 -35420839.37 -35420839.22 0.1696 0.1010

Moon -101690-01-11 07:40 J -35420839.33 -35420839.18 -35420839.03 0.1697 0.1156 *
 Mercury -101687-07-28 11:01 J -35419545.13 -35419545.04 -35419544.95 0.1635 0.1265
 Mercury -101685-07-03 10:33 J -35418839.20 -35418839.06 -35418838.92 0.1645 0.0551
 Mercury -101684-05-16 14:37 J -35418522.02 -35418521.89 -35418521.77 0.1881 0.0418
 Venus -101677-04-08 02:23 J -35416003.58 -35416003.40 -35416003.22 0.1727 0.0085
 Mercury -101676-11-23 16:18 J -35415408.96 -35415408.82 -35415408.67 0.1642 0.0092
 Mercury -101675-10-06 19:25 J -35415091.80 -35415091.69 -35415091.58 0.1884 0.1057
 Mercury -101673-09-11 22:18 J -35414385.65 -35414385.57 -35414385.49 0.1869 0.1440
 Venus -101673-11-24 13:11 J -35414312.07 -35414311.95 -35414311.84 0.1785 0.1306
 Mercury -101666-04-15 22:18 J -35411978.71 -35411978.57 -35411978.43 0.1640 0.0364
 Mercury -101665-02-26 23:59 J -35411661.55 -35411661.50 -35411661.45 0.1887 0.1717
 Mercury -101664-03-21 23:59 J -35411272.54 -35411272.50 -35411272.45 0.1651 0.1568
 Mercury -101663-02-02 04:04 J -35410955.44 -35410955.33 -35410955.22 0.1874 0.0862
 Mercury -101657-09-05 04:47 J -35408548.43 -35408548.30 -35408548.18 0.1637 0.0794
 Mercury -101655-08-12 05:16 J -35407842.39 -35407842.28 -35407842.17 0.1648 0.1075
 Mercury -101654-06-25 09:35 J -35407525.22 -35407525.10 -35407524.97 0.1877 0.0275
 Mercury -101647-01-26 11:16 J -35405118.12 -35405118.03 -35405117.93 0.1635 0.1217
 Mercury -101645-01-02 11:01 J -35404412.18 -35404412.04 -35404411.91 0.1645 0.0608
 Venus -101645-04-07 10:04 J -35404316.16 -35404316.08 -35404316.01 0.1737 0.1556
 Mercury -101645-11-14 14:52 J -35404095.01 -35404094.88 -35404094.75 0.1881 0.0356
 Venus -101639-09-22 14:23 J -35401957.06 -35401956.90 -35401956.74 0.1799 0.0679
 Mercury -101638-06-18 18:13 J -35401687.75 -35401687.74 -35401687.73 0.1633 0.1627
 Earth -101637-07-23 09:49 J -35401287.28 -35401287.09 -35401286.90 0.1820 0.0090
 Moon -101637-07-23 17:16 J -35401286.97 -35401286.78 -35401286.58 0.1820 0.0052 *
 Mercury -101636-05-24 16:33 J -35400981.95 -35400981.81 -35400981.66 0.1642 0.0146
 Mercury -101635-04-06 19:40 J -35400664.79 -35400664.68 -35400664.57 0.1884 0.0999
 Mercury -101633-03-12 22:18 J -35399958.64 -35399958.57 -35399958.49 0.1870 0.1492
 Mercury -101627-10-14 22:47 J -35397551.69 -35397551.55 -35397551.41 0.1640 0.0308
 Mercury -101626-08-28 00:13 J -35397234.55 -35397234.49 -35397234.43 0.1887 0.1662
 Mercury -101625-09-20 00:28 J -35396845.50 -35396845.48 -35396845.45 0.1651 0.1624

Mercury -101624-08-03 04:18 J -35396528.43 -35396528.32 -35396528.21 0.1874 0.0920

Mercury -101617-03-06 05:01 J -35394121.42 -35394121.29 -35394121.16 0.1637 0.0746

Mercury -101615-02-10 05:45 J -35393415.36 -35393415.26 -35393415.15 0.1648 0.1135

Mercury -101615-12-24 09:49 J -35393098.22 -35393098.09 -35393097.97 0.1878 0.0320

Earth -101611-01-13 15:06 J -35391982.06 -35391981.87 -35391981.67 0.1700 0.0177

Moon -101611-01-13 22:47 J -35391981.74 -35391981.55 -35391981.37 0.1700 0.0495 *

Venus -101611-02-03 11:16 J -35391961.21 -35391961.03 -35391960.86 0.1723 0.0318

Mercury -101608-07-27 11:30 J -35390691.12 -35390691.02 -35390690.92 0.1635 0.1173

Venus -101607-09-21 21:35 J -35390269.74 -35390269.60 -35390269.46 0.1788 0.1051

Mercury -101606-07-03 11:01 J -35389985.17 -35389985.04 -35389984.90 0.1645 0.0654

Mercury -101605-05-15 14:52 J -35389668.00 -35389667.88 -35389667.75 0.1881 0.0308

Mercury -101599-12-17 18:28 J -35387260.76 -35387260.73 -35387260.70 0.1633 0.1579

Mercury -101597-11-22 17:01 J -35386554.94 -35386554.79 -35386554.65 0.1642 0.0193

Mercury -101596-10-05 19:54 J -35386237.78 -35386237.67 -35386237.55 0.1884 0.0937

Mercury -101594-09-11 22:47 J -35385531.62 -35385531.55 -35385531.49 0.1870 0.1552

Mercury -101587-04-14 23:01 J -35383124.68 -35383124.54 -35383124.39 0.1640 0.0259

Mercury -101586-02-26 00:28 J -35382807.55 -35382807.48 -35382807.42 0.1887 0.1604

Mercury -101584-02-01 04:33 J -35382101.42 -35382101.31 -35382101.20 0.1874 0.0974

Venus -101579-02-02 17:45 J -35380273.88 -35380273.76 -35380273.64 0.1733 0.1296

Mercury -101578-09-05 05:16 J -35379694.41 -35379694.28 -35379694.15 0.1637 0.0698

Mercury -101576-08-11 05:59 J -35378988.35 -35378988.25 -35378988.14 0.1648 0.1188

Mercury -101575-06-24 10:04 J -35378671.21 -35378671.08 -35378670.96 0.1878 0.0377

Venus -101573-07-19 22:04 J -35377914.72 -35377914.58 -35377914.44 0.1802 0.0971

Mercury -101568-01-25 11:59 J -35376264.10 -35376264.00 -35376263.90 0.1635 0.1121

Mercury -101566-01-01 11:30 J -35375558.15 -35375558.02 -35375557.88 0.1645 0.0711

Mercury -101566-11-14 15:21 J -35375240.99 -35375240.86 -35375240.74 0.1881 0.0253

Mercury -101559-06-17 18:42 J -35372833.77 -35372833.72 -35372833.68 0.1633 0.1536

Earth -101558-07-27 06:13 J -35372429.32 -35372429.24 -35372429.16 0.1816 0.1640

Mercury -101557-05-23 17:16 J -35372127.92 -35372127.78 -35372127.63 0.1642 0.0245

Mercury -101556-04-05 19:54 J -35371810.78 -35371810.67 -35371810.55 0.1885 0.0890

Mercury -101554-03-12 22:47 J -35371104.62 -35371104.55 -35371104.49 0.1870 0.1598
 Mercury -101548-10-13 23:16 J -35368697.67 -35368697.53 -35368697.38 0.1639 0.0213
 Mercury -101547-08-27 00:42 J -35368380.54 -35368380.47 -35368380.39 0.1888 0.1539
 Venus -101546-12-01 19:25 J -35367918.86 -35367918.69 -35367918.52 0.1720 0.0558
 Mercury -101545-08-02 04:33 J -35367674.41 -35367674.31 -35367674.20 0.1874 0.1027
 Venus -101541-07-19 05:45 J -35366227.42 -35366227.26 -35366227.11 0.1791 0.0784
 Mercury -101538-03-06 05:45 J -35365267.39 -35365267.26 -35365267.13 0.1637 0.0648
 Mercury -101536-02-09 06:28 J -35364561.33 -35364561.23 -35364561.14 0.1648 0.1239
 Mercury -101536-12-23 10:18 J -35364244.19 -35364244.07 -35364243.94 0.1878 0.0436
 Earth -101532-01-16 03:35 J -35363124.46 -35363124.35 -35363124.24 0.1704 0.1391
 Moon -101532-01-16 04:33 J -35363124.44 -35363124.31 -35363124.18 0.1704 0.1179 *
 Mercury -101529-07-26 12:13 J -35361837.10 -35361836.99 -35361836.88 0.1635 0.1074
 Mercury -101527-07-02 11:59 J -35361131.13 -35361131.00 -35361130.87 0.1645 0.0763
 Mercury -101526-05-15 15:21 J -35360813.99 -35360813.86 -35360813.73 0.1881 0.0191
 Mercury -101520-12-16 19:11 J -35358406.76 -35358406.70 -35358406.65 0.1633 0.1484
 Mercury -101518-11-22 17:45 J -35357700.90 -35357700.76 -35357700.62 0.1642 0.0298
 Mercury -101517-10-04 20:23 J -35357383.77 -35357383.65 -35357383.53 0.1884 0.0823
 Mercury -101515-09-10 23:01 J -35356677.60 -35356677.54 -35356677.49 0.1870 0.1656
 Venus -101514-12-01 01:54 J -35356231.56 -35356231.42 -35356231.28 0.1730 0.1044
 Mercury -101508-04-13 23:45 J -35354270.66 -35354270.51 -35354270.37 0.1639 0.0158
 Mercury -101507-02-25 00:42 J -35353953.54 -35353953.47 -35353953.39 0.1887 0.1493
 Venus -101507-05-17 05:45 J -35353872.38 -35353872.26 -35353872.13 0.1806 0.1267
 Mercury -101505-02-01 04:47 J -35353247.40 -35353247.30 -35353247.19 0.1874 0.1082
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 Mercury -101497-08-10 06:42 J -35350134.30 -35350134.22 -35350134.13 0.1648 0.1296
 Mercury -101496-06-23 10:18 J -35349817.19 -35349817.07 -35349816.95 0.1878 0.0481
 Mercury -101489-01-25 12:28 J -35347410.09 -35347409.98 -35347409.87 0.1635 0.1026
 Mercury -101488-12-31 12:13 J -35346704.11 -35346703.99 -35346703.86 0.1645 0.0816
 Mercury -101487-11-13 15:49 J -35346386.97 -35346386.84 -35346386.72 0.1882 0.0141
 Moon -101485-01-09 07:40 J -35345965.23 -35345965.18 -35345965.13 0.1687 0.1612

Mercury -101480-06-16 19:25 J -35343979.76 -35343979.69 -35343979.63 0.1633 0.1439
 Venus -101480-09-28 04:04 J -35343876.49 -35343876.33 -35343876.17 0.1717 0.0789
 Mercury -101478-05-23 17:59 J -35343273.89 -35343273.75 -35343273.61 0.1642 0.0347
 Mercury -101477-04-04 20:37 J -35342956.76 -35342956.64 -35342956.52 0.1884 0.0768
 Mercury -101475-03-11 23:16 J -35342250.58 -35342250.53 -35342250.49 0.1870 0.1710
 Venus -101475-05-16 14:23 J -35342185.06 -35342184.90 -35342184.74 0.1795 0.0526
 Mercury -101469-10-12 23:59 J -35339843.64 -35339843.50 -35339843.35 0.1640 0.0114
 Mercury -101468-08-26 01:11 J -35339526.53 -35339526.45 -35339526.37 0.1888 0.1427
 Mercury -101466-08-02 05:01 J -35338820.39 -35338820.29 -35338820.19 0.1874 0.1136
 Mercury -101459-03-05 06:13 J -35336413.37 -35336413.24 -35336413.10 0.1637 0.0549
 Mercury -101457-02-09 07:11 J -35335707.28 -35335707.20 -35335707.11 0.1648 0.1355
 Mercury -101457-12-22 10:33 J -35335390.18 -35335390.06 -35335389.93 0.1878 0.0550
 Mercury -101450-07-26 12:42 J -35332983.08 -35332982.97 -35332982.85 0.1635 0.0978
 Mercury -101448-07-01 12:42 J -35332277.10 -35332276.97 -35332276.85 0.1645 0.0870
 Venus -101448-09-27 09:35 J -35332189.25 -35332189.10 -35332188.94 0.1727 0.0789
 Mercury -101447-05-14 15:49 J -35331959.97 -35331959.84 -35331959.71 0.1881 0.0077
 Venus -101441-03-13 13:25 J -35329830.02 -35329829.94 -35329829.85 0.1809 0.1564
 Mercury -101441-12-15 19:25 J -35329552.76 -35329552.69 -35329552.61 0.1632 0.1395
 Mercury -101439-11-21 18:28 J -35328846.87 -35328846.73 -35328846.59 0.1642 0.0402
 Mercury -101438-10-04 20:52 J -35328529.75 -35328529.63 -35328529.51 0.1885 0.0716
 Mercury -101436-09-09 23:16 J -35327823.57 -35327823.53 -35327823.49 0.1870 0.1759
 Moon -101432-07-20 12:28 J -35326414.11 -35326413.98 -35326413.85 0.1833 0.1286
 Earth -101432-07-20 18:42 J -35326413.83 -35326413.72 -35326413.60 0.1832 0.1446
 Mercury -101429-04-13 00:13 J -35325416.63 -35325416.49 -35325416.34 0.1639 0.0065
 Mercury -101428-02-24 01:25 J -35325099.53 -35325099.44 -35325099.35 0.1888 0.1368
 Mercury -101426-01-31 05:16 J -35324393.38 -35324393.28 -35324393.19 0.1874 0.1191
 Mercury -101420-09-03 06:42 J -35321986.36 -35321986.22 -35321986.08 0.1637 0.0496
 Mercury -101418-08-10 07:25 J -35321280.26 -35321280.19 -35321280.11 0.1648 0.1404
 Mercury -101417-06-22 11:01 J -35320963.17 -35320963.04 -35320962.92 0.1878 0.0605
 Venus -101414-07-26 12:57 J -35319834.10 -35319833.96 -35319833.82 0.1714 0.1016

Mercury -101410-01-24 13:11 J -35318556.07 -35318555.95 -35318555.83 0.1635 0.0926

Venus -101409-03-12 22:04 J -35318142.75 -35318142.58 -35318142.41 0.1798 0.0245

Mercury -101409-12-30 13:11 J -35317850.07 -35317849.95 -35317849.83 0.1645 0.0927

Mercury -101408-11-12 16:04 J -35317532.96 -35317532.83 -35317532.70 0.1881 0.0028

Moon -101406-01-11 13:11 J -35317108.11 -35317107.95 -35317107.79 0.1691 0.0970

Earth -101406-01-11 20:23 J -35317107.82 -35317107.65 -35317107.47 0.1691 0.0662 *

Mercury -101401-06-15 19:54 J -35315125.75 -35315125.67 -35315125.59 0.1632 0.1344

Mercury -101399-05-22 18:42 J -35314419.86 -35314419.72 -35314419.58 0.1642 0.0453

Mercury -101398-04-04 21:06 J -35314102.74 -35314102.62 -35314102.50 0.1885 0.0656

Mercury -101396-03-10 23:30 J -35313396.55 -35313396.52 -35313396.50 0.1870 0.1814

Mercury -101390-10-13 00:42 J -35310989.61 -35310989.47 -35310989.32 0.1639 0.0036

Mercury -101389-08-25 01:40 J -35310672.52 -35310672.43 -35310672.34 0.1888 0.1313

Mercury -101387-08-01 05:30 J -35309966.37 -35309966.27 -35309966.18 0.1874 0.1248

Venus -101382-07-25 17:59 J -35308146.92 -35308146.75 -35308146.58 0.1724 0.0542

Mercury -101380-03-04 06:57 J -35307559.35 -35307559.21 -35307559.07 0.1637 0.0448

Mercury -101378-02-08 08:09 J -35306853.23 -35306853.16 -35306853.10 0.1648 0.1464

Mercury -101378-12-22 11:01 J -35306536.16 -35306536.04 -35306535.92 0.1878 0.0652

Mercury -101371-07-25 13:25 J -35304129.06 -35304128.94 -35304128.82 0.1634 0.0882

Mercury -101369-06-30 13:11 J -35303423.06 -35303422.95 -35303422.83 0.1645 0.0975

Mercury -101368-05-13 16:18 J -35303105.95 -35303105.82 -35303105.69 0.1882 0.0040

Mercury -101362-12-15 20:09 J -35300698.74 -35300698.66 -35300698.57 0.1632 0.1295

Mercury -101360-11-20 19:11 J -35299992.84 -35299992.70 -35299992.56 0.1642 0.0509

Mercury -101359-10-03 21:21 J -35299675.73 -35299675.61 -35299675.48 0.1885 0.0593

Moon -101353-07-23 10:47 J -35297556.25 -35297556.05 -35297555.84 0.1828 0.0154

Earth -101353-07-23 16:18 J -35297556.01 -35297555.82 -35297555.63 0.1828 0.0187 *

Mercury -101350-04-13 01:11 J -35296562.60 -35296562.45 -35296562.31 0.1639 0.0063

Mercury -101349-02-24 01:54 J -35296245.52 -35296245.42 -35296245.32 0.1888 0.1253

Venus -101348-05-22 22:04 J -35295791.70 -35295791.58 -35295791.46 0.1712 0.1236

Mercury -101347-01-30 05:30 J -35295539.36 -35295539.27 -35295539.18 0.1874 0.1302

Venus -101343-01-08 06:13 J -35294100.41 -35294100.24 -35294100.07 0.1802 0.0041

Mercury -101341-09-02 07:11 J -35293132.34 -35293132.20 -35293132.06 0.1637 0.0399

Mercury -101339-08-09 08:23 J -35292426.21 -35292426.15 -35292426.10 0.1648 0.1516

Mercury -101338-06-22 11:16 J -35292109.15 -35292109.03 -35292108.91 0.1878 0.0710

Mercury -101331-01-23 13:40 J -35289702.05 -35289701.93 -35289701.80 0.1634 0.0830

Mercury -101330-12-30 13:54 J -35288996.04 -35288995.92 -35288995.81 0.1645 0.1035

Mercury -101329-11-11 16:33 J -35288678.94 -35288678.81 -35288678.68 0.1881 0.0097

Moon -101327-01-14 05:59 J -35288250.44 -35288250.25 -35288250.06 0.1694 0.0683

Earth -101327-01-14 07:54 J -35288250.36 -35288250.17 -35288249.99 0.1694 0.0489 *

Mercury -101322-06-15 20:23 J -35286271.74 -35286271.65 -35286271.56 0.1632 0.1251

Mercury -101320-05-21 19:25 J -35285565.83 -35285565.69 -35285565.55 0.1642 0.0560

Mercury -101319-04-03 21:21 J -35285248.73 -35285248.61 -35285248.48 0.1885 0.0545

Venus -101316-05-22 02:37 J -35284104.56 -35284104.39 -35284104.21 0.1721 0.0307

Venus -101311-01-07 13:11 J -35282412.99 -35282412.95 -35282412.90 0.1791 0.1710

Mercury -101311-10-12 01:25 J -35282135.59 -35282135.44 -35282135.30 0.1639 0.0105

Mercury -101310-08-25 02:23 J -35281818.50 -35281818.40 -35281818.30 0.1888 0.1190

Mercury -101308-07-31 05:45 J -35281112.35 -35281112.26 -35281112.17 0.1874 0.1355

Mercury -101301-03-03 07:40 J -35278705.32 -35278705.18 -35278705.04 0.1637 0.0346

Mercury -101300-01-14 06:28 J -35278388.25 -35278388.23 -35278388.22 0.1891 0.1875

Mercury -101299-02-07 08:37 J -35277999.18 -35277999.14 -35277999.09 0.1648 0.1572

Mercury -101299-12-21 11:30 J -35277682.13 -35277682.02 -35277681.90 0.1878 0.0771

Mercury -101292-07-24 14:09 J -35275275.04 -35275274.91 -35275274.79 0.1634 0.0779

Mercury -101290-06-30 14:09 J -35274569.02 -35274568.91 -35274568.80 0.1645 0.1089

Mercury -101289-05-12 16:47 J -35274251.93 -35274251.80 -35274251.67 0.1882 0.0160

Mercury -101283-12-14 20:52 J -35271844.73 -35271844.63 -35271844.54 0.1632 0.1198

Venus -101282-03-20 06:57 J -35271749.30 -35271749.21 -35271749.12 0.1708 0.1461

Mercury -101281-11-19 19:54 J -35271138.81 -35271138.67 -35271138.54 0.1642 0.0616

Mercury -101280-10-02 21:49 J -35270821.71 -35270821.59 -35270821.46 0.1885 0.0478

Venus -101278-11-05 13:40 J -35270058.09 -35270057.93 -35270057.76 0.1805 0.0329

Earth -101274-07-27 13:54 J -35268697.96 -35268697.92 -35268697.88 0.1823 0.1768

Mercury -101273-05-06 03:35 J -35268414.36 -35268414.35 -35268414.33 0.1630 0.1610

Mercury -101271-04-12 01:40 J -35267708.57 -35267708.43 -35267708.28 0.1639 0.0156

Mercury -101270-02-23 02:23 J -35267391.51 -35267391.40 -35267391.30 0.1888 0.1143

Mercury -101268-01-29 05:59 J -35266685.33 -35266685.25 -35266685.17 0.1874 0.1410

Mercury -101262-09-02 07:54 J -35264278.31 -35264278.17 -35264278.03 0.1637 0.0296

Mercury -101261-07-15 06:42 J -35263961.25 -35263961.22 -35263961.19 0.1891 0.1814

Mercury -101260-08-08 09:06 J -35263572.13 -35263572.12 -35263572.10 0.1648 0.1629

Mercury -101259-06-21 11:30 J -35263255.13 -35263255.02 -35263254.90 0.1878 0.0818

Mercury -101252-01-22 14:23 J -35260848.03 -35260847.90 -35260847.77 0.1634 0.0730

Mercury -101251-12-29 14:23 J -35260142.00 -35260141.90 -35260141.79 0.1645 0.1141

Venus -101250-03-19 11:01 J -35260062.22 -35260062.04 -35260061.86 0.1718 0.0063

Mercury -101250-11-11 17:01 J -35259824.92 -35259824.79 -35259824.66 0.1882 0.0216

Earth -101248-01-16 19:11 J -35259392.73 -35259392.70 -35259392.66 0.1698 0.1663

Moon -101248-01-17 02:23 J -35259392.50 -35259392.40 -35259392.31 0.1698 0.1482

Venus -101246-11-04 21:21 J -35258370.71 -35258370.61 -35258370.51 0.1794 0.1442

Mercury -101243-06-14 21:06 J -35257417.72 -35257417.62 -35257417.52 0.1632 0.1152

Mercury -101241-05-20 20:09 J -35256711.79 -35256711.66 -35256711.53 0.1642 0.0666

Mercury -101240-04-02 22:04 J -35256394.71 -35256394.58 -35256394.46 0.1885 0.0426

Mercury -101234-11-05 04:04 J -35253987.37 -35253987.33 -35253987.29 0.1630 0.1560

Mercury -101232-10-11 02:09 J -35253281.55 -35253281.41 -35253281.27 0.1639 0.0207

Mercury -101231-08-24 02:37 J -35252964.49 -35252964.39 -35252964.28 0.1888 0.1077

Mercury -101229-07-30 06:13 J -35252258.32 -35252258.24 -35252258.17 0.1874 0.1466

Mercury -101222-03-03 08:23 J -35249851.30 -35249851.15 -35249851.01 0.1637 0.0244

Mercury -101221-01-14 06:57 J -35249534.25 -35249534.21 -35249534.16 0.1891 0.1755

Mercury -101220-12-20 11:59 J -35248828.12 -35248828.00 -35248827.89 0.1878 0.0883

Venus -101218-03-18 17:30 J -35248374.81 -35248374.77 -35248374.74 0.1728 0.1688

Venus -101216-01-14 16:04 J -35247706.85 -35247706.83 -35247706.80 0.1706 0.1681

Mercury -101213-07-23 14:37 J -35246421.02 -35246420.89 -35246420.76 0.1634 0.0681

Venus -101212-09-01 20:52 J -35246015.79 -35246015.63 -35246015.46 0.1809 0.0637

Mercury -101211-06-29 14:52 J -35245714.98 -35245714.88 -35245714.78 0.1645 0.1196

Mercury -101210-05-12 17:01 J -35245397.91 -35245397.79 -35245397.66 0.1882 0.0268

Mercury -101204-12-13 21:21 J -35242990.71 -35242990.61 -35242990.51 0.1632 0.1105

Mercury -101202-11-19 20:37 J -35242284.77 -35242284.64 -35242284.51 0.1642 0.0722

Earth -101201-01-10 04:47 J -35242233.40 -35242233.30 -35242233.19 0.1682 0.1407

Moon -101201-01-10 11:45 J -35242233.15 -35242233.01 -35242232.87 0.1682 0.1137

Mercury -101201-10-01 22:18 J -35241967.70 -35241967.57 -35241967.45 0.1885 0.0370

Mercury -101194-05-06 04:18 J -35239560.37 -35239560.32 -35239560.27 0.1630 0.1513

Mercury -101192-04-11 02:23 J -35238854.54 -35238854.40 -35238854.26 0.1639 0.0255

Mercury -101191-02-22 03:06 J -35238537.48 -35238537.37 -35238537.26 0.1888 0.1017

Mercury -101189-01-29 06:13 J -35237831.31 -35237831.24 -35237831.16 0.1875 0.1523

Venus -101184-01-13 20:09 J -35236019.84 -35236019.66 -35236019.48 0.1715 0.0160

Mercury -101183-09-01 08:37 J -35235424.28 -35235424.14 -35235424.00 0.1637 0.0191

Mercury -101182-07-15 07:11 J -35235107.25 -35235107.20 -35235107.14 0.1891 0.1696

Mercury -101180-06-20 11:59 J -35234401.11 -35234401.00 -35234400.88 0.1878 0.0938

Venus -101180-09-01 05:30 J -35234328.40 -35234328.27 -35234328.14 0.1798 0.1173

Mercury -101173-01-22 15:06 J -35231994.00 -35231993.87 -35231993.74 0.1634 0.0629

Mercury -101172-12-28 15:21 J -35231287.95 -35231287.86 -35231287.77 0.1645 0.1254

Mercury -101171-11-10 17:30 J -35230970.90 -35230970.77 -35230970.65 0.1882 0.0330

Mercury -101164-06-13 21:35 J -35228563.70 -35228563.60 -35228563.49 0.1632 0.1055

Mercury -101162-05-20 20:52 J -35227857.76 -35227857.63 -35227857.50 0.1642 0.0776

Mercury -101161-04-01 22:33 J -35227540.69 -35227540.56 -35227540.43 0.1885 0.0310

Mercury -101155-11-04 04:33 J -35225133.37 -35225133.31 -35225133.25 0.1630 0.1466

Mercury -101153-10-10 02:52 J -35224427.52 -35224427.38 -35224427.24 0.1639 0.0313

Venus -101152-01-13 01:25 J -35224332.53 -35224332.44 -35224332.34 0.1724 0.1438

Mercury -101152-08-23 03:06 J -35224110.48 -35224110.37 -35224110.26 0.1888 0.0963

Mercury -101150-07-30 06:28 J -35223404.29 -35223404.23 -35223404.16 0.1874 0.1576

Earth -101148-07-20 22:18 J -35222682.69 -35222682.57 -35222682.45 0.1839 0.1404

Moon -101148-07-21 05:45 J -35222682.41 -35222682.26 -35222682.10 0.1839 0.1015

Venus -101146-06-30 04:33 J -35221973.46 -35221973.31 -35221973.17 0.1812 0.0938

Mercury -101143-03-02 08:52 J -35220997.27 -35220997.13 -35220996.99 0.1636 0.0143

Mercury -101142-01-13 07:25 J -35220680.25 -35220680.19 -35220680.12 0.1891 0.1637

Mercury -101141-12-19 12:13 J -35219974.10 -35219973.99 -35219973.88 0.1878 0.0988

Mercury -101134-07-23 15:21 J -35217567.00 -35217566.86 -35217566.73 0.1634 0.0582

Mercury -101132-06-28 15:35 J -35216860.94 -35216860.85 -35216860.76 0.1644 0.1303

Mercury -101131-05-11 17:45 J -35216543.89 -35216543.76 -35216543.64 0.1882 0.0386

Mercury -101125-12-12 22:04 J -35214136.69 -35214136.58 -35214136.47 0.1632 0.1002

Mercury -101123-11-18 21:21 J -35213430.74 -35213430.61 -35213430.48 0.1642 0.0831

Earth -101122-01-12 15:35 J -35213376.04 -35213375.85 -35213375.66 0.1686 0.0302

Moon -101122-01-12 17:30 J -35213375.94 -35213375.77 -35213375.60 0.1686 0.0501 *

Mercury -101122-10-01 22:47 J -35213113.68 -35213113.55 -35213113.42 0.1885 0.0245

Venus -101119-11-11 04:47 J -35211977.48 -35211977.30 -35211977.13 0.1712 0.0402

Mercury -101115-05-05 04:47 J -35210706.36 -35210706.30 -35210706.23 0.1630 0.1419

Venus -101114-06-29 13:25 J -35210286.09 -35210285.94 -35210285.80 0.1801 0.0895

Mercury -101113-04-10 03:06 J -35210000.51 -35210000.37 -35210000.23 0.1639 0.0365

Mercury -101112-02-21 03:21 J -35209683.47 -35209683.36 -35209683.24 0.1888 0.0903

Mercury -101110-01-28 06:42 J -35208977.28 -35208977.22 -35208977.16 0.1874 0.1630

Mercury -101104-08-31 09:21 J -35206570.26 -35206570.11 -35206569.97 0.1636 0.0097

Mercury -101103-07-14 07:40 J -35206253.25 -35206253.18 -35206253.11 0.1891 0.1579

Mercury -101101-06-19 12:28 J -35205547.09 -35205546.98 -35205546.88 0.1878 0.1046

Mercury -101094-01-21 15:49 J -35203139.98 -35203139.84 -35203139.71 0.1634 0.0529

Mercury -101093-12-27 16:04 J -35202433.91 -35202433.83 -35202433.75 0.1645 0.1366

Mercury -101092-11-09 17:45 J -35202116.88 -35202116.76 -35202116.63 0.1882 0.0443

Venus -101087-11-10 10:04 J -35200290.21 -35200290.08 -35200289.96 0.1722 0.1189

Mercury -101085-06-12 22:18 J -35199709.69 -35199709.57 -35199709.46 0.1632 0.0960

Mercury -101083-05-19 21:35 J -35199003.72 -35199003.60 -35199003.48 0.1642 0.0882

Mercury -101082-04-01 22:47 J -35198686.68 -35198686.55 -35198686.42 0.1886 0.0200

Venus -101080-04-26 11:45 J -35197931.13 -35197931.01 -35197930.88 0.1815 0.1251

Mercury -101076-11-03 05:16 J -35196279.36 -35196279.28 -35196279.21 0.1630 0.1370

Mercury -101074-10-10 03:21 J -35195573.50 -35195573.36 -35195573.22 0.1639 0.0415

Mercury -101073-08-22 03:49 J -35195256.46 -35195256.34 -35195256.22 0.1888 0.0838

Mercury -101071-07-29 06:57 J -35194550.27 -35194550.21 -35194550.16 0.1875 0.1686

Moon -101069-07-23 19:40 J -35193824.86 -35193824.68 -35193824.50 0.1835 0.0049
 Earth -101069-07-23 20:37 J -35193824.83 -35193824.64 -35193824.45 0.1835 0.0251 *
 Mercury -101064-03-01 09:35 J -35192143.24 -35192143.10 -35192142.95 0.1636 0.0049
 Mercury -101063-01-12 07:54 J -35191826.24 -35191826.17 -35191826.09 0.1891 0.1519
 Mercury -101062-12-19 12:42 J -35191120.07 -35191119.97 -35191119.87 0.1878 0.1108
 Mercury -101055-07-22 16:04 J -35188712.97 -35188712.83 -35188712.70 0.1634 0.0479
 Mercury -101053-06-27 16:33 J -35188006.89 -35188006.81 -35188006.74 0.1645 0.1419
 Venus -101053-09-07 13:40 J -35187935.09 -35187934.93 -35187934.76 0.1709 0.0624
 Mercury -101052-05-10 17:59 J -35187689.87 -35187689.75 -35187689.62 0.1882 0.0494
 Venus -101048-04-25 21:35 J -35186243.76 -35186243.60 -35186243.43 0.1804 0.0625
 Mercury -101046-12-12 22:33 J -35185282.67 -35185282.56 -35185282.44 0.1632 0.0906
 Mercury -101044-11-17 22:04 J -35184576.70 -35184576.58 -35184576.46 0.1642 0.0939
 Moon -101043-01-14 19:25 J -35184518.84 -35184518.69 -35184518.55 0.1689 0.0999
 Earth -101043-01-15 01:11 J -35184518.62 -35184518.45 -35184518.28 0.1689 0.0802 *
 Mercury -101043-09-30 23:16 J -35184259.66 -35184259.53 -35184259.40 0.1885 0.0135
 Mercury -101036-05-04 05:30 J -35181852.35 -35181852.27 -35181852.19 0.1630 0.1324
 Mercury -101034-04-10 03:49 J -35181146.48 -35181146.34 -35181146.20 0.1639 0.0471
 Mercury -101033-02-21 03:49 J -35180829.46 -35180829.34 -35180829.22 0.1889 0.0789
 Mercury -101031-01-27 07:11 J -35180123.25 -35180123.20 -35180123.16 0.1874 0.1742
 Mercury -101025-08-30 09:49 J -35177716.23 -35177716.09 -35177715.94 0.1636 0.0038
 Mercury -101024-07-13 08:23 J -35177399.23 -35177399.15 -35177399.07 0.1892 0.1457
 Mercury -101022-06-19 12:42 J -35176693.07 -35176692.97 -35176692.87 0.1879 0.1155
 Venus -101021-09-06 18:13 J -35176247.88 -35176247.74 -35176247.59 0.1718 0.0943
 Mercury -101015-01-20 16:18 J -35174285.96 -35174285.82 -35174285.68 0.1634 0.0428
 Venus -101014-02-21 19:11 J -35173888.79 -35173888.70 -35173888.62 0.1818 0.1564
 Mercury -101014-12-27 16:47 J -35173579.86 -35173579.80 -35173579.74 0.1644 0.1471
 Mercury -101013-11-08 18:28 J -35173262.86 -35173262.73 -35173262.61 0.1882 0.0561
 Mercury -101006-06-12 22:47 J -35170855.67 -35170855.55 -35170855.42 0.1632 0.0859
 Mercury -101004-05-18 22:18 J -35170149.68 -35170149.57 -35170149.45 0.1642 0.0992
 Mercury -101003-03-31 23:16 J -35169832.66 -35169832.53 -35169832.40 0.1885 0.0100

101ST MILLENNIUM BCE

This is a list of transits visible from Mars in the 101st millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -100997-11-02 05:45 J | -35167425.34 | -35167425.26 | -35167425.17 | 0.1630 | 0.1273 | | |
| Mercury | -100995-10-09 04:18 J | -35166719.46 | -35166719.32 | -35166719.18 | 0.1639 | 0.0526 | | |
| Mercury | -100994-08-22 04:18 J | -35166402.44 | -35166402.32 | -35166402.20 | 0.1889 | 0.0723 | | |
| Mercury | -100992-07-28 07:11 J | -35165696.23 | -35165696.20 | -35165696.17 | 0.1875 | 0.1795 | | |
| Venus | -100987-07-05 23:01 J | -35163892.69 | -35163892.54 | -35163892.38 | 0.1706 | 0.0845 | | |
| Mercury | -100985-02-29 10:18 J | -35163289.21 | -35163289.07 | -35163288.93 | 0.1636 | 0.0068 | | |
| Mercury | -100984-01-11 08:37 J | -35162972.23 | -35162972.14 | -35162972.06 | 0.1891 | 0.1400 | | |
| Mercury | -100983-12-18 12:57 J | -35162266.05 | -35162265.96 | -35162265.86 | 0.1879 | 0.1219 | | |
| Venus | -100982-02-21 05:01 J | -35162201.46 | -35162201.29 | -35162201.12 | 0.1808 | 0.0325 | | |
| Mercury | -100976-07-21 16:33 J | -35159858.95 | -35159858.81 | -35159858.67 | 0.1634 | 0.0379 | | |
| Mercury | -100974-06-27 17:16 J | -35159152.83 | -35159152.78 | -35159152.73 | 0.1644 | 0.1529 | | |
| Mercury | -100973-05-09 18:28 J | -35158835.86 | -35158835.73 | -35158835.61 | 0.1882 | 0.0607 | | |
| Mercury | -100967-12-11 23:16 J | -35156428.66 | -35156428.53 | -35156428.41 | 0.1632 | 0.0810 | | |
| Mercury | -100965-11-16 22:47 J | -35155722.66 | -35155722.55 | -35155722.44 | 0.1641 | 0.1048 | | |
| Moon | -100964-01-17 05:30 J | -35155661.31 | -35155661.27 | -35155661.24 | 0.1692 | 0.1655 | | |
| Mercury | -100964-09-29 23:45 J | -35155405.64 | -35155405.51 | -35155405.39 | 0.1886 | 0.0071 | | |
| Mercury | -100957-05-03 05:59 J | -35152998.34 | -35152998.25 | -35152998.15 | 0.1630 | 0.1226 | | |

Mercury -100955-04-09 04:33 J -35152292.45 -35152292.31 -35152292.18 0.1639 0.0575

Venus -100955-07-05 03:06 J -35152205.53 -35152205.37 -35152205.21 0.1715 0.0701

Mercury -100954-02-20 04:33 J -35151975.43 -35151975.31 -35151975.19 0.1889 0.0664

Mercury -100952-01-26 07:25 J -35151269.20 -35151269.19 -35151269.17 0.1875 0.1852

Mercury -100946-08-30 10:33 J -35148862.20 -35148862.06 -35148861.91 0.1636 0.0124

Mercury -100945-07-12 08:52 J -35148545.23 -35148545.13 -35148545.04 0.1892 0.1342

Mercury -100943-06-18 13:11 J -35147839.04 -35147838.95 -35147838.86 0.1878 0.1271

Mercury -100936-01-19 17:01 J -35145431.93 -35145431.79 -35145431.65 0.1634 0.0325

Mercury -100935-12-26 17:45 J -35144725.80 -35144725.76 -35144725.73 0.1644 0.1588

Mercury -100934-11-08 18:42 J -35144408.84 -35144408.72 -35144408.60 0.1882 0.0669

Mercury -100927-06-11 23:30 J -35142001.64 -35142001.52 -35142001.39 0.1632 0.0757

Mercury -100925-05-17 23:01 J -35141295.64 -35141295.54 -35141295.43 0.1641 0.1103

Mercury -100924-03-30 23:45 J -35140978.64 -35140978.51 -35140978.38 0.1886 0.0068

Venus -100921-05-02 08:23 J -35139850.29 -35139850.15 -35139850.01 0.1703 0.1062

Mercury -100918-11-02 06:13 J -35138571.33 -35138571.24 -35138571.14 0.1630 0.1179

Moon -100917-01-10 21:35 J -35138501.77 -35138501.60 -35138501.42 0.1677 0.0815

Earth -100917-01-11 00:57 J -35138501.61 -35138501.46 -35138501.30 0.1677 0.1021 *

Venus -100917-12-18 12:42 J -35138159.14 -35138158.97 -35138158.80 0.1811 0.0037

Mercury -100916-10-08 04:47 J -35137865.43 -35137865.30 -35137865.16 0.1639 0.0633

Mercury -100915-08-21 04:33 J -35137548.43 -35137548.31 -35137548.18 0.1889 0.0612

Mercury -100908-03-24 13:25 J -35135140.97 -35135140.94 -35135140.92 0.1628 0.1589

Mercury -100906-02-28 10:47 J -35134435.19 -35134435.05 -35134434.90 0.1636 0.0174

Mercury -100905-01-11 09:06 J -35134118.22 -35134118.12 -35134118.02 0.1892 0.1279

Mercury -100904-12-17 13:25 J -35133412.03 -35133411.94 -35133411.85 0.1879 0.1325

Mercury -100897-07-20 17:16 J -35131004.92 -35131004.78 -35131004.64 0.1634 0.0275

Mercury -100895-06-26 17:59 J -35130298.76 -35130298.75 -35130298.74 0.1644 0.1638

Mercury -100894-05-09 18:57 J -35129981.83 -35129981.71 -35129981.59 0.1883 0.0726

Venus -100889-05-01 11:59 J -35128163.17 -35128163.00 -35128162.83 0.1712 0.0471

Mercury -100888-12-10 23:59 J -35127574.63 -35127574.50 -35127574.38 0.1632 0.0708

Mercury -100886-11-16 23:30 J -35126868.62 -35126868.52 -35126868.42 0.1642 0.1158

Mercury -100885-09-29 00:13 J -35126551.62 -35126551.49 -35126551.37 0.1886 0.0122

Mercury -100878-05-03 06:42 J -35124144.32 -35124144.22 -35124144.12 0.1630 0.1130

Mercury -100876-04-08 05:16 J -35123438.41 -35123438.28 -35123438.15 0.1639 0.0684

Mercury -100875-02-19 04:47 J -35123121.42 -35123121.30 -35123121.17 0.1889 0.0552

Mercury -100869-09-22 13:40 J -35120713.97 -35120713.93 -35120713.88 0.1628 0.1537

Mercury -100867-08-29 11:16 J -35120008.17 -35120008.03 -35120007.89 0.1636 0.0225

Mercury -100866-07-12 09:21 J -35119691.21 -35119691.11 -35119691.01 0.1892 0.1222

Mercury -100864-06-17 13:40 J -35118985.02 -35118984.93 -35118984.85 0.1879 0.1383

Moon -100864-07-20 21:21 J -35118951.78 -35118951.61 -35118951.45 0.1846 0.1163

Earth -100864-07-20 23:59 J -35118951.63 -35118951.50 -35118951.38 0.1846 0.1395 *

Mercury -100857-01-19 17:30 J -35116577.91 -35116577.77 -35116577.62 0.1634 0.0227

Venus -100855-02-27 17:45 J -35115807.88 -35115807.76 -35115807.65 0.1700 0.1281

Mercury -100855-11-07 19:11 J -35115554.82 -35115554.70 -35115554.59 0.1882 0.0782

Venus -100851-10-15 19:54 J -35114116.84 -35114116.67 -35114116.50 0.1815 0.0287

Mercury -100848-06-10 23:59 J -35113147.63 -35113147.50 -35113147.37 0.1631 0.0663

Mercury -100846-05-17 23:45 J -35112441.61 -35112441.51 -35112441.41 0.1641 0.1209

Mercury -100845-03-30 00:13 J -35112124.62 -35112124.49 -35112124.36 0.1886 0.0154

Mercury -100839-11-01 06:57 J -35109717.31 -35109717.21 -35109717.10 0.1630 0.1079

Earth -100838-01-13 10:47 J -35109644.25 -35109644.05 -35109643.86 0.1680 0.0070

Moon -100838-01-13 15:35 J -35109644.05 -35109643.85 -35109643.64 0.1681 0.0147 *

Mercury -100837-10-07 05:30 J -35109011.40 -35109011.27 -35109011.14 0.1639 0.0736

Mercury -100836-08-20 05:16 J -35108694.41 -35108694.28 -35108694.15 0.1889 0.0485

Mercury -100829-03-23 13:54 J -35106286.97 -35106286.92 -35106286.86 0.1628 0.1490

Mercury -100827-02-27 11:45 J -35105581.16 -35105581.01 -35105580.87 0.1636 0.0281

Mercury -100826-01-10 09:35 J -35105264.20 -35105264.10 -35105264.00 0.1892 0.1161

Mercury -100825-12-16 13:54 J -35104558.00 -35104557.92 -35104557.84 0.1879 0.1442

Venus -100823-02-26 20:37 J -35104120.82 -35104120.64 -35104120.47 0.1709 0.0230

Venus -100819-10-15 04:33 J -35102429.39 -35102429.31 -35102429.22 0.1804 0.1563

Mercury -100818-07-20 17:59 J -35102150.90 -35102150.75 -35102150.61 0.1634 0.0179

Mercury -100817-06-01 13:40 J -35101833.95 -35101833.93 -35101833.91 0.1894 0.1853

Mercury -100815-05-08 19:11 J -35101127.81 -35101127.70 -35101127.58 0.1883 0.0836

Mercury -100809-12-10 00:28 J -35098720.61 -35098720.48 -35098720.35 0.1631 0.0607

Mercury -100807-11-16 00:13 J -35098014.58 -35098014.49 -35098014.40 0.1641 0.1268

Mercury -100806-09-29 00:28 J -35097697.61 -35097697.48 -35097697.35 0.1886 0.0221

Mercury -100799-05-02 07:11 J -35095290.31 -35095290.20 -35095290.09 0.1629 0.1033

Mercury -100797-04-07 05:59 J -35094584.38 -35094584.25 -35094584.12 0.1639 0.0793

Mercury -100796-02-18 05:16 J -35094267.41 -35094267.28 -35094267.15 0.1889 0.0437

Mercury -100790-09-22 14:09 J -35091859.97 -35091859.91 -35091859.85 0.1628 0.1444

Venus -100790-12-26 03:06 J -35091765.45 -35091765.37 -35091765.29 0.1698 0.1497

Mercury -100788-08-28 11:45 J -35091154.15 -35091154.01 -35091153.86 0.1636 0.0330

Mercury -100787-07-11 09:49 J -35090837.19 -35090837.09 -35090836.98 0.1892 0.1101

Mercury -100785-06-16 13:54 J -35090131.00 -35090130.92 -35090130.85 0.1879 0.1490

Earth -100785-07-23 23:16 J -35090093.72 -35090093.53 -35090093.34 0.1842 0.0291

Moon -100785-07-24 06:57 J -35090093.41 -35090093.21 -35090093.01 0.1841 0.0104 *

Venus -100785-08-12 02:37 J -35090074.55 -35090074.39 -35090074.23 0.1818 0.0612

Mercury -100778-01-18 18:13 J -35087723.88 -35087723.74 -35087723.60 0.1634 0.0121

Mercury -100778-12-01 13:54 J -35087406.96 -35087406.92 -35087406.88 0.1894 0.1790

Mercury -100776-11-06 19:40 J -35086700.80 -35086700.68 -35086700.57 0.1883 0.0900

Mercury -100769-06-10 00:42 J -35084293.60 -35084293.47 -35084293.33 0.1631 0.0558

Mercury -100767-05-17 00:28 J -35083587.56 -35083587.48 -35083587.39 0.1641 0.1324

Mercury -100766-03-30 00:42 J -35083270.60 -35083270.47 -35083270.34 0.1886 0.0271

Mercury -100760-10-31 07:40 J -35080863.30 -35080863.18 -35080863.07 0.1629 0.0981

Earth -100759-01-15 19:40 J -35080786.82 -35080786.68 -35080786.53 0.1684 0.1122

Moon -100759-01-16 02:23 J -35080786.50 -35080786.40 -35080786.30 0.1684 0.1400

Mercury -100758-10-07 06:13 J -35080157.36 -35080157.24 -35080157.11 0.1639 0.0848

Venus -100758-12-25 05:59 J -35080078.43 -35080078.25 -35080078.07 0.1706 0.0017

Mercury -100757-08-19 05:45 J -35079840.39 -35079840.26 -35079840.14 0.1889 0.0375

Venus -100753-08-11 12:28 J -35078387.10 -35078386.98 -35078386.86 0.1807 0.1276

Mercury -100750-03-23 14:23 J -35077432.97 -35077432.90 -35077432.83 0.1628 0.1396

Mercury -100748-02-26 12:13 J -35076727.13 -35076726.99 -35076726.85 0.1636 0.0384

Mercury -100747-01-09 10:04 J -35076410.19 -35076410.08 -35076409.97 0.1892 0.1046
 Mercury -100746-12-16 14:09 J -35075703.98 -35075703.91 -35075703.84 0.1879 0.1551
 Mercury -100739-07-19 18:28 J -35073296.87 -35073296.73 -35073296.58 0.1633 0.0072
 Mercury -100738-06-01 14:09 J -35072979.96 -35072979.91 -35072979.86 0.1895 0.1738
 Mercury -100736-05-07 19:40 J -35072273.79 -35072273.68 -35072273.57 0.1883 0.0948
 Mercury -100730-12-10 00:57 J -35069866.59 -35069866.46 -35069866.32 0.1631 0.0509
 Mercury -100728-11-15 00:57 J -35069160.54 -35069160.46 -35069160.38 0.1641 0.1377
 Mercury -100727-09-28 00:57 J -35068843.59 -35068843.46 -35068843.33 0.1886 0.0331
 Venus -100726-12-24 10:04 J -35068391.14 -35068391.08 -35068391.01 0.1716 0.1592
 Mercury -100720-05-01 07:54 J -35066436.29 -35066436.17 -35066436.06 0.1629 0.0935
 Venus -100719-06-09 09:35 J -35066032.24 -35066032.10 -35066031.95 0.1822 0.0937
 Mercury -100718-04-07 06:28 J -35065730.35 -35065730.23 -35065730.11 0.1638 0.0897
 Mercury -100717-02-18 05:45 J -35065413.38 -35065413.26 -35065413.13 0.1889 0.0320
 Earth -100712-01-08 13:54 J -35063626.95 -35063626.92 -35063626.89 0.1669 0.1644
 Mercury -100711-09-21 14:52 J -35063005.96 -35063005.88 -35063005.81 0.1628 0.1348
 Mercury -100709-08-27 12:42 J -35062300.11 -35062299.97 -35062299.83 0.1636 0.0438
 Mercury -100708-07-10 10:18 J -35061983.18 -35061983.07 -35061982.96 0.1892 0.0985
 Mercury -100706-06-16 14:23 J -35061276.97 -35061276.90 -35061276.84 0.1879 0.1606
 Mercury -100699-01-17 18:57 J -35058869.86 -35058869.71 -35058869.57 0.1633 0.0023
 Mercury -100699-11-30 14:37 J -35058552.95 -35058552.89 -35058552.83 0.1895 0.1669
 Mercury -100697-11-05 19:54 J -35057846.78 -35057846.67 -35057846.56 0.1883 0.1011
 Venus -100692-10-21 14:37 J -35056036.07 -35056035.89 -35056035.72 0.1703 0.0227
 Mercury -100690-06-10 01:25 J -35055439.58 -35055439.44 -35055439.31 0.1631 0.0459
 Mercury -100688-05-16 01:11 J -35054733.52 -35054733.45 -35054733.38 0.1641 0.1433
 Mercury -100687-03-29 01:11 J -35054416.58 -35054416.45 -35054416.33 0.1886 0.0389
 Venus -100687-06-08 19:40 J -35054344.82 -35054344.68 -35054344.53 0.1811 0.0978
 Mercury -100681-10-30 08:09 J -35052009.28 -35052009.16 -35052009.05 0.1629 0.0886
 Mercury -100679-10-06 06:57 J -35051303.33 -35051303.21 -35051303.09 0.1638 0.0954
 Mercury -100678-08-19 05:59 J -35050986.38 -35050986.25 -35050986.12 0.1889 0.0262
 Mercury -100671-03-22 14:52 J -35048578.96 -35048578.88 -35048578.79 0.1628 0.1303

Mercury -100669-02-26 12:57 J -35047873.10 -35047872.96 -35047872.82 0.1636 0.0487

Mercury -100668-01-08 10:33 J -35047556.17 -35047556.06 -35047555.94 0.1892 0.0922

Mercury -100667-12-15 14:23 J -35046849.95 -35046849.90 -35046849.84 0.1879 0.1660

Mercury -100660-07-18 19:11 J -35044442.85 -35044442.70 -35044442.56 0.1633 0.0041

Venus -100660-10-20 18:42 J -35044348.82 -35044348.72 -35044348.61 0.1713 0.1348

Mercury -100659-05-31 14:37 J -35044125.95 -35044125.89 -35044125.82 0.1895 0.1614

Mercury -100657-05-06 20:09 J -35043419.77 -35043419.66 -35043419.56 0.1883 0.1066

Venus -100653-04-05 16:18 J -35041989.94 -35041989.82 -35041989.70 0.1825 0.1272

Mercury -100651-12-09 01:40 J -35041012.57 -35041012.43 -35041012.29 0.1631 0.0405

Mercury -100649-11-14 01:40 J -35040306.49 -35040306.43 -35040306.37 0.1641 0.1490

Mercury -100648-09-27 01:11 J -35039989.57 -35039989.45 -35039989.32 0.1886 0.0451

Mercury -100641-04-30 08:23 J -35037582.27 -35037582.15 -35037582.03 0.1629 0.0835

Mercury -100639-04-06 07:25 J -35036876.31 -35036876.19 -35036876.08 0.1638 0.1010

Mercury -100638-02-17 06:13 J -35036559.37 -35036559.24 -35036559.11 0.1889 0.0198

Moon -100633-01-11 18:13 J -35034769.91 -35034769.74 -35034769.57 0.1672 0.0446

Earth -100633-01-11 21:35 J -35034769.78 -35034769.60 -35034769.42 0.1672 0.0640 *

Mercury -100632-09-20 15:21 J -35034151.95 -35034151.86 -35034151.77 0.1627 0.1250

Mercury -100630-08-27 13:11 J -35033446.08 -35033445.95 -35033445.81 0.1636 0.0543

Mercury -100629-07-09 10:47 J -35033129.17 -35033129.05 -35033128.94 0.1892 0.0868

Mercury -100627-06-15 14:37 J -35032422.94 -35032422.89 -35032422.84 0.1879 0.1715

Venus -100626-08-18 23:59 J -35031993.67 -35031993.50 -35031993.33 0.1700 0.0445

Venus -100621-04-05 03:35 J -35030302.51 -35030302.35 -35030302.19 0.1814 0.0686

Mercury -100620-01-16 19:25 J -35030015.83 -35030015.69 -35030015.54 0.1633 0.0089

Mercury -100620-11-29 14:52 J -35029698.95 -35029698.88 -35029698.80 0.1895 0.1556

Mercury -100618-11-05 20:09 J -35028992.76 -35028992.66 -35028992.56 0.1883 0.1119

Mercury -100611-06-09 01:54 J -35026585.56 -35026585.42 -35026585.28 0.1631 0.0362

Mercury -100609-05-15 01:54 J -35025879.47 -35025879.42 -35025879.37 0.1641 0.1541

Mercury -100608-03-28 01:25 J -35025562.56 -35025562.44 -35025562.31 0.1887 0.0501

Mercury -100602-10-30 08:37 J -35023155.26 -35023155.14 -35023155.01 0.1629 0.0784

Mercury -100600-10-05 07:40 J -35022449.29 -35022449.18 -35022449.07 0.1638 0.1062

Mercury -100599-08-18 06:28 J -35022132.36 -35022132.23 -35022132.10 0.1889 0.0149

Venus -100594-08-18 03:21 J -35020306.49 -35020306.36 -35020306.22 0.1710 0.1107

Mercury -100592-03-21 15:35 J -35019724.94 -35019724.85 -35019724.76 0.1627 0.1203

Mercury -100590-02-25 13:40 J -35019019.07 -35019018.93 -35019018.80 0.1636 0.0596

Mercury -100589-01-08 11:01 J -35018702.16 -35018702.04 -35018701.92 0.1892 0.0807

Mercury -100588-12-14 14:52 J -35017995.92 -35017995.88 -35017995.84 0.1879 0.1773

Venus -100587-01-31 23:16 J -35017947.61 -35017947.53 -35017947.45 0.1828 0.1608

Mercury -100583-08-11 22:47 J -35016294.57 -35016294.55 -35016294.54 0.1626 0.1610

Mercury -100581-07-17 19:40 J -35015588.82 -35015588.68 -35015588.53 0.1633 0.0143

Mercury -100580-05-30 15:06 J -35015271.95 -35015271.87 -35015271.79 0.1895 0.1496

Moon -100580-07-20 16:04 J -35015220.96 -35015220.83 -35015220.69 0.1853 0.1282

Earth -100580-07-20 22:04 J -35015220.70 -35015220.58 -35015220.46 0.1853 0.1448 *

Mercury -100578-05-06 20:23 J -35014565.75 -35014565.65 -35014565.55 0.1883 0.1176

Mercury -100572-12-08 02:23 J -35012158.54 -35012158.40 -35012158.26 0.1631 0.0305

Mercury -100570-11-14 02:23 J -35011452.43 -35011452.40 -35011452.37 0.1641 0.1602

Mercury -100569-09-26 01:40 J -35011135.55 -35011135.43 -35011135.30 0.1886 0.0564

Mercury -100562-04-30 08:52 J -35008728.26 -35008728.13 -35008728.00 0.1629 0.0738

Mercury -100560-04-05 07:54 J -35008022.27 -35008022.17 -35008022.06 0.1638 0.1119

Venus -100560-06-15 09:35 J -35007951.26 -35007951.10 -35007950.94 0.1698 0.0664

Mercury -100559-02-16 06:28 J -35007705.36 -35007705.23 -35007705.10 0.1890 0.0102

Venus -100555-01-31 10:18 J -35006260.23 -35006260.07 -35006259.90 0.1818 0.0369

Moon -100554-01-13 23:30 J -35005912.72 -35005912.52 -35005912.33 0.1675 0.0139

Earth -100554-01-14 05:59 J -35005912.43 -35005912.25 -35005912.06 0.1675 0.0404 *

Mercury -100553-09-19 15:49 J -35005297.94 -35005297.84 -35005297.74 0.1627 0.1157

Mercury -100551-08-26 13:54 J -35004592.06 -35004591.92 -35004591.79 0.1635 0.0645

Mercury -100550-07-09 11:16 J -35004275.15 -35004275.03 -35004274.91 0.1893 0.0746

Mercury -100548-06-14 14:52 J -35003568.91 -35003568.88 -35003568.85 0.1880 0.1822

Mercury -100543-02-09 23:01 J -35001867.58 -35001867.54 -35001867.50 0.1626 0.1562

Mercury -100541-01-16 20:09 J -35001161.80 -35001161.66 -35001161.52 0.1633 0.0193

Mercury -100541-11-28 15:35 J -35000844.94 -35000844.85 -35000844.77 0.1895 0.1432

Mercury -100539-11-04 20:37 J -35000138.73 -35000138.64 -35000138.54 0.1883 0.1241
 Mercury -100532-06-08 02:37 J -34997731.53 -34997731.39 -34997731.25 0.1631 0.0255
 Mercury -100529-03-27 01:54 J -34996708.54 -34996708.42 -34996708.30 0.1886 0.0616
 Venus -100528-06-14 12:28 J -34996264.13 -34996263.98 -34996263.83 0.1707 0.0869
 Mercury -100523-10-29 09:21 J -34994301.24 -34994301.11 -34994300.99 0.1629 0.0686
 Mercury -100521-10-04 08:23 J -34993595.25 -34993595.15 -34993595.05 0.1638 0.1172
 Mercury -100520-08-17 06:57 J -34993278.34 -34993278.21 -34993278.08 0.1890 0.0028
 Mercury -100513-03-20 16:04 J -34990870.93 -34990870.83 -34990870.73 0.1627 0.1107
 Mercury -100511-02-24 14:09 J -34990165.04 -34990164.91 -34990164.77 0.1636 0.0705
 Mercury -100510-01-07 11:30 J -34989848.14 -34989848.02 -34989847.90 0.1892 0.0692
 Mercury -100504-08-10 23:16 J -34987440.58 -34987440.53 -34987440.49 0.1625 0.1518
 Mercury -100502-07-17 20:23 J -34986734.79 -34986734.65 -34986734.51 0.1633 0.0243
 Mercury -100501-05-29 15:35 J -34986417.94 -34986417.85 -34986417.76 0.1895 0.1379
 Moon -100501-07-23 15:49 J -34986363.04 -34986362.84 -34986362.64 0.1849 0.0036
 Earth -100501-07-23 23:30 J -34986362.71 -34986362.52 -34986362.33 0.1849 0.0292 *
 Mercury -100499-05-05 20:37 J -34985711.73 -34985711.64 -34985711.55 0.1883 0.1286
 Venus -100494-04-12 19:11 J -34983908.85 -34983908.70 -34983908.55 0.1695 0.0879
 Mercury -100493-12-07 02:52 J -34983304.53 -34983304.38 -34983304.24 0.1631 0.0209
 Mercury -100490-09-26 02:09 J -34982281.53 -34982281.41 -34982281.29 0.1887 0.0676
 Venus -100490-11-28 17:45 J -34982217.94 -34982217.76 -34982217.59 0.1821 0.0072
 Mercury -100483-04-29 09:35 J -34979874.23 -34979874.10 -34979873.97 0.1629 0.0638
 Mercury -100481-04-04 08:37 J -34979168.24 -34979168.14 -34979168.04 0.1638 0.1224
 Mercury -100480-02-15 07:11 J -34978851.33 -34978851.20 -34978851.07 0.1890 0.0048
 Earth -100475-01-16 14:37 J -34977054.99 -34977054.89 -34977054.80 0.1678 0.1436
 Moon -100475-01-16 14:52 J -34977054.93 -34977054.88 -34977054.84 0.1678 0.1633 *
 Mercury -100474-09-19 16:18 J -34976443.92 -34976443.82 -34976443.71 0.1627 0.1058
 Mercury -100472-08-25 14:37 J -34975738.02 -34975737.89 -34975737.76 0.1635 0.0756
 Mercury -100471-07-08 11:45 J -34975421.14 -34975421.01 -34975420.89 0.1893 0.0631
 Mercury -100464-02-08 23:30 J -34973013.58 -34973013.52 -34973013.46 0.1625 0.1467
 Mercury -100462-01-15 20:52 J -34972307.78 -34972307.63 -34972307.49 0.1633 0.0301

Venus -100462-04-11 21:21 J -34972221.77 -34972221.61 -34972221.44 0.1704 0.0642
 Mercury -100462-11-28 16:04 J -34971990.93 -34971990.83 -34971990.74 0.1895 0.1312
 Mercury -100460-11-03 21:06 J -34971284.71 -34971284.62 -34971284.54 0.1883 0.1351
 Mercury -100453-06-07 03:06 J -34968877.51 -34968877.37 -34968877.23 0.1631 0.0152
 Mercury -100450-03-27 02:09 J -34967854.53 -34967854.41 -34967854.29 0.1887 0.0730
 Mercury -100444-10-28 09:49 J -34965447.23 -34965447.09 -34965446.96 0.1629 0.0587
 Mercury -100442-10-04 09:06 J -34964741.21 -34964741.12 -34964741.03 0.1638 0.1283
 Mercury -100441-08-16 07:11 J -34964424.33 -34964424.20 -34964424.07 0.1890 0.0094
 Mercury -100434-03-20 16:33 J -34962016.92 -34962016.81 -34962016.70 0.1627 0.1011
 Mercury -100432-02-23 14:52 J -34961311.01 -34961310.88 -34961310.75 0.1635 0.0807
 Mercury -100431-01-06 11:59 J -34960994.12 -34960994.00 -34960993.87 0.1893 0.0566
 Earth -100428-01-09 11:45 J -34959895.14 -34959895.01 -34959894.89 0.1664 0.1243
 Moon -100428-01-09 15:06 J -34959894.98 -34959894.87 -34959894.77 0.1665 0.1412 *
 Venus -100428-02-07 04:33 J -34959866.44 -34959866.31 -34959866.18 0.1692 0.1096
 Mercury -100425-08-09 23:45 J -34958586.57 -34958586.51 -34958586.44 0.1625 0.1420
 Venus -100424-09-24 23:59 J -34958175.67 -34958175.50 -34958175.33 0.1825 0.0287
 Mercury -100423-07-16 21:06 J -34957880.77 -34957880.62 -34957880.48 0.1633 0.0351
 Mercury -100422-05-29 16:04 J -34957563.93 -34957563.83 -34957563.73 0.1895 0.1258
 Mercury -100420-05-04 21:06 J -34956857.70 -34956857.62 -34956857.53 0.1883 0.1405
 Mercury -100414-12-07 03:35 J -34954450.50 -34954450.35 -34954450.21 0.1631 0.0112
 Mercury -100411-09-25 02:23 J -34953427.51 -34953427.40 -34953427.28 0.1887 0.0792
 Mercury -100404-04-28 10:04 J -34951020.21 -34951020.08 -34951019.94 0.1629 0.0535
 Mercury -100402-04-04 09:21 J -34950314.19 -34950314.11 -34950314.02 0.1638 0.1338
 Mercury -100401-02-15 07:25 J -34949997.32 -34949997.19 -34949997.06 0.1890 0.0162
 Venus -100396-02-06 06:28 J -34948179.41 -34948179.23 -34948179.06 0.1701 0.0405
 Mercury -100395-09-18 17:01 J -34947589.91 -34947589.79 -34947589.68 0.1627 0.0961
 Mercury -100393-08-24 15:06 J -34946883.99 -34946883.87 -34946883.74 0.1635 0.0864
 Mercury -100392-07-07 11:59 J -34946567.12 -34946567.00 -34946566.87 0.1893 0.0517
 Venus -100392-09-24 10:04 J -34946488.15 -34946488.08 -34946488.01 0.1814 0.1640
 Mercury -100385-02-08 23:59 J -34944159.57 -34944159.50 -34944159.43 0.1625 0.1376

Mercury -100383-01-14 21:21 J -34943453.75 -34943453.61 -34943453.47 0.1633 0.0401
 Mercury -100383-11-27 16:18 J -34943136.92 -34943136.82 -34943136.72 0.1896 0.1197
 Mercury -100381-11-02 21:21 J -34942430.69 -34942430.61 -34942430.53 0.1883 0.1459
 Mercury -100374-06-07 03:35 J -34940023.49 -34940023.35 -34940023.20 0.1631 0.0061
 Mercury -100373-04-18 20:23 J -34939706.65 -34939706.65 -34939706.65 0.1898 0.1896
 Mercury -100371-03-26 02:37 J -34939000.50 -34939000.39 -34939000.27 0.1887 0.0847
 Mercury -100365-10-27 10:18 J -34936593.20 -34936593.07 -34936592.93 0.1629 0.0486
 Mercury -100363-10-03 09:35 J -34935887.17 -34935887.10 -34935887.02 0.1638 0.1392
 Venus -100363-12-05 14:09 J -34935824.02 -34935823.91 -34935823.80 0.1690 0.1311
 Mercury -100362-08-16 07:54 J -34935570.30 -34935570.17 -34935570.05 0.1890 0.0224
 Venus -100358-07-23 06:28 J -34934133.40 -34934133.23 -34934133.07 0.1828 0.0636
 Mercury -100355-03-19 17:16 J -34933162.90 -34933162.78 -34933162.67 0.1627 0.0912
 Mercury -100353-02-23 15:35 J -34932456.97 -34932456.85 -34932456.73 0.1635 0.0918
 Mercury -100352-01-05 12:13 J -34932140.11 -34932139.99 -34932139.86 0.1893 0.0455
 Earth -100349-01-12 17:30 J -34931037.95 -34931037.77 -34931037.58 0.1667 0.0278
 Moon -100349-01-13 00:13 J -34931037.68 -34931037.49 -34931037.30 0.1668 0.0011 *
 Mercury -100346-08-10 00:13 J -34929732.57 -34929732.49 -34929732.41 0.1625 0.1325
 Mercury -100344-07-15 21:35 J -34929026.74 -34929026.60 -34929026.46 0.1633 0.0455
 Mercury -100343-05-28 16:33 J -34928709.91 -34928709.81 -34928709.70 0.1895 0.1138
 Mercury -100341-05-03 21:21 J -34928003.68 -34928003.61 -34928003.53 0.1884 0.1517
 Mercury -100335-12-06 04:04 J -34925596.47 -34925596.33 -34925596.19 0.1631 0.0012
 Mercury -100334-10-18 20:37 J -34925279.67 -34925279.64 -34925279.61 0.1898 0.1841
 Mercury -100332-09-24 02:52 J -34924573.49 -34924573.38 -34924573.27 0.1887 0.0905
 Venus -100331-12-04 16:04 J -34924137.01 -34924136.83 -34924136.66 0.1698 0.0188
 Venus -100326-07-22 17:30 J -34922445.88 -34922445.77 -34922445.65 0.1817 0.1339
 Mercury -100325-04-27 10:33 J -34922166.20 -34922166.06 -34922165.92 0.1628 0.0438
 Mercury -100323-04-03 10:04 J -34921460.15 -34921460.08 -34921460.01 0.1638 0.1447
 Mercury -100322-02-14 07:40 J -34921143.30 -34921143.18 -34921143.05 0.1890 0.0269
 Mercury -100316-09-17 17:30 J -34918735.89 -34918735.77 -34918735.65 0.1627 0.0864
 Mercury -100314-08-24 15:49 J -34918029.96 -34918029.84 -34918029.73 0.1635 0.0967

Mercury -100313-07-06 12:42 J -34917713.10 -34917712.97 -34917712.84 0.1893 0.0392
 Mercury -100306-02-08 00:42 J -34915305.56 -34915305.47 -34915305.39 0.1625 0.1276
 Mercury -100304-01-13 22:04 J -34914599.72 -34914599.58 -34914599.44 0.1633 0.0510
 Mercury -100304-11-26 16:47 J -34914282.90 -34914282.80 -34914282.69 0.1895 0.1076
 Mercury -100302-11-02 21:49 J -34913576.66 -34913576.59 -34913576.52 0.1883 0.1579
 Venus -100297-10-01 23:45 J -34911781.58 -34911781.51 -34911781.44 0.1687 0.1526
 Earth -100296-07-20 17:01 J -34911489.89 -34911489.79 -34911489.68 0.1860 0.1557
 Moon -100296-07-21 02:09 J -34911489.55 -34911489.41 -34911489.27 0.1860 0.1273
 Mercury -100295-06-06 04:18 J -34911169.46 -34911169.32 -34911169.18 0.1631 0.0056
 Mercury -100294-04-18 20:52 J -34910852.67 -34910852.63 -34910852.59 0.1898 0.1780
 Mercury -100292-03-25 02:52 J -34910146.49 -34910146.38 -34910146.27 0.1887 0.0960
 Venus -100292-05-19 12:57 J -34910091.10 -34910090.96 -34910090.81 0.1831 0.0980
 Mercury -100286-10-27 11:01 J -34907739.18 -34907739.04 -34907738.90 0.1629 0.0385
 Mercury -100284-10-02 10:18 J -34907033.12 -34907033.07 -34907033.01 0.1638 0.1504
 Mercury -100283-08-15 08:09 J -34906716.29 -34906716.16 -34906716.03 0.1890 0.0328
 Mercury -100276-03-18 17:45 J -34904308.88 -34904308.76 -34904308.64 0.1627 0.0812
 Mercury -100274-02-22 16:18 J -34903602.93 -34903602.82 -34903602.71 0.1635 0.1028
 Mercury -100273-01-05 12:42 J -34903286.10 -34903285.97 -34903285.84 0.1893 0.0336
 Earth -100270-01-15 01:54 J -34902180.59 -34902180.42 -34902180.25 0.1670 0.0742
 Moon -100270-01-15 02:52 J -34902180.55 -34902180.38 -34902180.21 0.1670 0.0538 *
 Mercury -100267-08-09 00:42 J -34900878.56 -34900878.47 -34900878.38 0.1625 0.1232
 Mercury -100265-07-14 22:18 J -34900172.71 -34900172.57 -34900172.44 0.1633 0.0560
 Venus -100265-10-01 00:57 J -34900094.64 -34900094.46 -34900094.29 0.1695 0.0065
 Mercury -100264-05-27 17:01 J -34899855.90 -34899855.79 -34899855.68 0.1896 0.1020
 Mercury -100262-05-03 21:35 J -34899149.66 -34899149.60 -34899149.53 0.1884 0.1625
 Venus -100260-05-19 00:28 J -34898403.62 -34898403.48 -34898403.34 0.1821 0.1021
 Mercury -100256-12-05 04:33 J -34896742.45 -34896742.31 -34896742.16 0.1631 0.0107
 Mercury -100255-10-17 21:21 J -34896425.67 -34896425.61 -34896425.56 0.1898 0.1713
 Mercury -100253-09-23 03:21 J -34895719.47 -34895719.36 -34895719.26 0.1887 0.1023
 Mercury -100246-04-27 11:16 J -34893312.17 -34893312.03 -34893311.89 0.1629 0.0333

Mercury -100244-04-02 10:47 J -34892606.09 -34892606.05 -34892606.01 0.1638 0.1559

Mercury -100243-02-13 08:23 J -34892289.28 -34892289.15 -34892289.02 0.1890 0.0388

Mercury -100237-09-16 17:59 J -34889881.87 -34889881.75 -34889881.62 0.1627 0.0762

Mercury -100235-08-23 16:33 J -34889175.92 -34889175.81 -34889175.70 0.1635 0.1081

Mercury -100234-07-06 12:57 J -34888859.09 -34888858.96 -34888858.83 0.1893 0.0275

Venus -100233-09-30 03:49 J -34888407.42 -34888407.34 -34888407.26 0.1704 0.1512

Mercury -100227-02-07 00:57 J -34886451.55 -34886451.46 -34886451.36 0.1625 0.1181

Venus -100226-03-16 19:11 J -34886048.82 -34886048.70 -34886048.58 0.1835 0.1340

Mercury -100225-01-13 22:33 J -34885745.69 -34885745.56 -34885745.42 0.1633 0.0616

Mercury -100225-11-25 17:16 J -34885428.89 -34885428.78 -34885428.66 0.1896 0.0956

Moon -100223-01-08 00:28 J -34885020.51 -34885020.48 -34885020.45 0.1657 0.1626

Mercury -100223-11-01 22:04 J -34884722.64 -34884722.58 -34884722.53 0.1884 0.1688

Mercury -100218-06-30 08:23 J -34883021.18 -34883021.15 -34883021.13 0.1623 0.1589

Earth -100217-07-23 20:37 J -34882631.84 -34882631.64 -34882631.45 0.1856 0.0238

Moon -100217-07-23 21:49 J -34882631.76 -34882631.59 -34882631.41 0.1856 0.0157 *

Mercury -100216-06-05 05:01 J -34882315.44 -34882315.29 -34882315.15 0.1630 0.0167

Mercury -100215-04-17 21:06 J -34881998.68 -34881998.62 -34881998.55 0.1898 0.1666

Mercury -100213-03-24 03:21 J -34881292.46 -34881292.36 -34881292.26 0.1887 0.1074

Mercury -100207-10-26 11:30 J -34878885.16 -34878885.02 -34878884.88 0.1628 0.0283

Mercury -100205-10-01 11:01 J -34878179.06 -34878179.04 -34878179.02 0.1638 0.1617

Mercury -100204-08-14 08:23 J -34877862.27 -34877862.15 -34877862.02 0.1891 0.0442

Venus -100199-07-29 10:47 J -34876052.22 -34876052.05 -34876051.88 0.1692 0.0259

Mercury -100197-03-17 18:13 J -34875454.87 -34875454.74 -34875454.61 0.1627 0.0714

Mercury -100195-02-21 16:47 J -34874748.90 -34874748.80 -34874748.70 0.1635 0.1132

Mercury -100194-01-04 13:25 J -34874432.07 -34874431.94 -34874431.81 0.1893 0.0219

Venus -100194-03-16 07:40 J -34874361.34 -34874361.18 -34874361.02 0.1824 0.0708

Mercury -100188-08-08 01:25 J -34872024.54 -34872024.44 -34872024.34 0.1625 0.1133

Mercury -100186-07-14 22:47 J -34871318.68 -34871318.55 -34871318.41 0.1633 0.0670

Mercury -100185-05-26 17:30 J -34871001.89 -34871001.77 -34871001.66 0.1896 0.0899

Mercury -100183-05-02 22:18 J -34870295.62 -34870295.57 -34870295.53 0.1884 0.1745

Mercury -100179-12-29 08:37 J -34868594.18 -34868594.14 -34868594.10 0.1623 0.1537
 Mercury -100177-12-04 05:16 J -34867888.42 -34867888.28 -34867888.14 0.1630 0.0216
 Mercury -100176-10-16 21:35 J -34867571.67 -34867571.60 -34867571.53 0.1898 0.1593
 Mercury -100174-09-23 03:35 J -34866865.45 -34866865.35 -34866865.25 0.1887 0.1136
 Mercury -100167-04-26 11:45 J -34864458.15 -34864458.01 -34864457.87 0.1628 0.0231
 Venus -100167-07-28 12:57 J -34864365.07 -34864364.96 -34864364.84 0.1701 0.1279
 Mercury -100164-02-12 08:37 J -34863435.26 -34863435.14 -34863435.01 0.1891 0.0506
 Venus -100160-01-11 01:40 J -34862006.50 -34862006.43 -34862006.37 0.1838 0.1698
 Mercury -100158-09-16 18:28 J -34861027.86 -34861027.73 -34861027.60 0.1626 0.0664
 Mercury -100156-08-22 17:16 J -34860321.88 -34860321.78 -34860321.68 0.1635 0.1190
 Mercury -100155-07-05 13:11 J -34860005.08 -34860004.95 -34860004.81 0.1893 0.0175
 Mercury -100148-02-06 01:25 J -34857597.54 -34857597.44 -34857597.33 0.1625 0.1086
 Mercury -100146-01-12 23:16 J -34856891.66 -34856891.53 -34856891.40 0.1632 0.0722
 Mercury -100146-11-25 17:45 J -34856574.88 -34856574.76 -34856574.64 0.1896 0.0835
 Moon -100144-01-10 02:52 J -34856163.52 -34856163.38 -34856163.24 0.1660 0.1131
 Earth -100144-01-10 10:04 J -34856163.25 -34856163.08 -34856162.92 0.1660 0.0842 *
 Mercury -100144-10-31 22:18 J -34855868.61 -34855868.57 -34855868.54 0.1884 0.1798
 Mercury -100139-06-29 08:52 J -34854167.18 -34854167.13 -34854167.08 0.1623 0.1490
 Mercury -100137-06-04 05:30 J -34853461.41 -34853461.27 -34853461.13 0.1630 0.0263
 Mercury -100136-04-16 21:49 J -34853144.66 -34853144.59 -34853144.51 0.1898 0.1534
 Mercury -100134-03-24 03:49 J -34852438.44 -34852438.34 -34852438.24 0.1888 0.1194
 Venus -100133-05-25 20:23 J -34852009.82 -34852009.65 -34852009.48 0.1689 0.0477
 Venus -100128-01-10 14:09 J -34850319.07 -34850318.91 -34850318.74 0.1828 0.0371
 Mercury -100128-10-25 12:13 J -34850031.14 -34850030.99 -34850030.85 0.1628 0.0184
 Mercury -100125-08-13 08:52 J -34849008.25 -34849008.13 -34849008.00 0.1890 0.0564
 Mercury -100118-03-17 18:57 J -34846600.85 -34846600.71 -34846600.58 0.1626 0.0614
 Mercury -100116-02-20 17:30 J -34845894.86 -34845894.77 -34845894.67 0.1635 0.1248
 Mercury -100115-01-03 13:40 J -34845578.06 -34845577.93 -34845577.80 0.1894 0.0095
 Mercury -100109-08-07 01:54 J -34843170.53 -34843170.42 -34843170.31 0.1625 0.1033
 Mercury -100107-07-13 23:30 J -34842464.64 -34842464.52 -34842464.39 0.1632 0.0777

Mercury -100106-05-26 17:59 J -34842147.87 -34842147.75 -34842147.63 0.1896 0.0776

Mercury -100104-05-01 22:33 J -34841441.58 -34841441.56 -34841441.55 0.1884 0.1857

Venus -100101-05-24 22:04 J -34840322.71 -34840322.58 -34840322.44 0.1698 0.1046

Mercury -100100-12-28 09:06 J -34839740.18 -34839740.12 -34839740.06 0.1623 0.1444

Mercury -100098-12-04 05:59 J -34839034.40 -34839034.25 -34839034.11 0.1630 0.0323

Mercury -100097-10-15 22:04 J -34838717.66 -34838717.58 -34838717.50 0.1898 0.1478

Mercury -100095-09-22 03:49 J -34838011.43 -34838011.34 -34838011.24 0.1887 0.1251

Mercury -100088-04-25 12:13 J -34835604.13 -34835603.99 -34835603.84 0.1628 0.0133

Mercury -100085-02-12 09:06 J -34834581.25 -34834581.12 -34834581.00 0.1891 0.0619

Mercury -100079-09-15 19:11 J -34832173.84 -34832173.70 -34832173.57 0.1626 0.0562

Mercury -100077-08-21 17:45 J -34831467.85 -34831467.76 -34831467.67 0.1635 0.1297

Mercury -100076-07-04 13:54 J -34831151.05 -34831150.92 -34831150.79 0.1894 0.0036

Mercury -100069-02-06 02:09 J -34828743.52 -34828743.41 -34828743.30 0.1625 0.0983

Mercury -100067-01-11 23:59 J -34828037.63 -34828037.50 -34828037.38 0.1633 0.0833

Venus -100067-03-23 06:13 J -34827967.40 -34827967.24 -34827967.08 0.1687 0.0684

Mercury -100067-11-24 18:13 J -34827720.86 -34827720.74 -34827720.62 0.1896 0.0714

Moon -100065-01-13 12:57 J -34827306.16 -34827305.96 -34827305.75 0.1663 0.0292

Earth -100065-01-13 15:35 J -34827306.04 -34827305.85 -34827305.66 0.1663 0.0102 *

Venus -100063-11-07 20:52 J -34826276.80 -34826276.63 -34826276.46 0.1831 0.0032

Mercury -100060-06-28 09:21 J -34825313.18 -34825313.11 -34825313.04 0.1623 0.1395

Mercury -100058-06-04 06:13 J -34824607.38 -34824607.24 -34824607.10 0.1630 0.0372

Mercury -100057-04-15 22:18 J -34824290.66 -34824290.57 -34824290.48 0.1899 0.1415

Mercury -100055-03-23 04:04 J -34823584.42 -34823584.33 -34823584.24 0.1888 0.1305

Mercury -100049-10-24 12:42 J -34821177.11 -34821176.97 -34821176.83 0.1628 0.0074

Mercury -100046-08-13 09:21 J -34820154.23 -34820154.11 -34820153.99 0.1891 0.0681

Mercury -100039-03-16 19:25 J -34817746.83 -34817746.69 -34817746.56 0.1626 0.0511

Mercury -100037-02-20 18:13 J -34817040.82 -34817040.74 -34817040.66 0.1635 0.1359

Mercury -100036-01-02 13:54 J -34816724.05 -34816723.92 -34816723.78 0.1894 0.0067

Venus -100035-03-22 07:40 J -34816280.33 -34816280.18 -34816280.03 0.1695 0.0823

Mercury -100030-08-07 02:23 J -34814316.52 -34814316.40 -34814316.29 0.1624 0.0940

Mercury -100028-07-13 00:13 J -34813610.61 -34813610.49 -34813610.37 0.1632 0.0883

Mercury -100027-05-25 18:28 J -34813293.86 -34813293.73 -34813293.61 0.1897 0.0659

Mercury -100021-12-27 09:35 J -34810886.18 -34810886.10 -34810886.02 0.1623 0.1346

Mercury -100019-12-03 06:28 J -34810180.37 -34810180.23 -34810180.09 0.1630 0.0424

Mercury -100018-10-15 22:47 J -34809863.64 -34809863.55 -34809863.46 0.1898 0.1346

Mercury -100016-09-21 04:18 J -34809157.40 -34809157.32 -34809157.23 0.1888 0.1371

Moon -100012-07-20 04:33 J -34807759.37 -34807759.31 -34807759.25 0.1867 0.1776

Earth -100012-07-20 10:04 J -34807759.16 -34807759.08 -34807759.00 0.1867 0.1698

Mercury -100009-04-24 12:57 J -34806750.10 -34806749.96 -34806749.81 0.1628 0.0036

Mercury -100006-02-11 09:35 J -34805727.22 -34805727.10 -34805726.98 0.1891 0.0740

Venus -100001-01-18 16:04 J -34803924.98 -34803924.83 -34803924.68 0.1684 0.0896

100TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 100th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -100000-09-14 19:40 J | -34803319.81 | -34803319.68 | -34803319.54 | 0.1626 | 0.0460 | | |
| Mercury | -99998-08-21 18:28 J | -34802613.80 | -34802613.73 | -34802613.65 | 0.1635 | 0.1413 | | |
| Mercury | -99997-07-03 14:09 J | -34802297.04 | -34802296.91 | -34802296.78 | 0.1894 | 0.0099 | | |
| Venus | -99997-09-04 02:52 J | -34802234.55 | -34802234.38 | -34802234.21 | 0.1835 | 0.0330 | | |
| Mercury | -99990-02-05 02:37 J | -34799889.51 | -34799889.39 | -34799889.27 | 0.1624 | 0.0885 | | |
| Mercury | -99988-01-11 00:28 J | -34799183.59 | -34799183.48 | -34799183.36 | 0.1632 | 0.0942 | | |

Mercury -99988-11-23 18:42 J -34798866.84 -34798866.72 -34798866.59 0.1896 0.0593

Earth -99986-01-15 22:18 J -34798448.71 -34798448.57 -34798448.42 0.1665 0.1084

Moon -99986-01-16 03:49 J -34798448.50 -34798448.34 -34798448.17 0.1666 0.0936 *

Mercury -99981-06-27 09:49 J -34796459.17 -34796459.09 -34796459.01 0.1623 0.1300

Mercury -99979-06-03 06:42 J -34795753.35 -34795753.22 -34795753.08 0.1630 0.0481

Mercury -99978-04-15 22:47 J -34795436.65 -34795436.55 -34795436.46 0.1899 0.1297

Mercury -99976-03-22 04:33 J -34794730.40 -34794730.31 -34794730.23 0.1888 0.1423

Mercury -99970-10-24 13:11 J -34792323.09 -34792322.95 -34792322.80 0.1628 0.0033

Venus -99969-01-17 16:47 J -34792237.96 -34792237.80 -34792237.63 0.1693 0.0595

Mercury -99967-08-12 09:35 J -34791300.21 -34791300.10 -34791299.98 0.1891 0.0795

Venus -99965-09-03 14:23 J -34790546.96 -34790546.90 -34790546.84 0.1824 0.1688

Mercury -99960-03-15 19:54 J -34788892.81 -34788892.67 -34788892.53 0.1626 0.0411

Mercury -99958-02-19 18:57 J -34788186.78 -34788186.71 -34788186.65 0.1635 0.1466

Mercury -99957-01-02 14:37 J -34787870.02 -34787869.89 -34787869.76 0.1894 0.0149

Mercury -99951-08-06 02:52 J -34785462.50 -34785462.38 -34785462.26 0.1624 0.0836

Mercury -99949-07-12 00:57 J -34784756.58 -34784756.46 -34784756.35 0.1632 0.0996

Mercury -99948-05-24 18:57 J -34784439.84 -34784439.71 -34784439.59 0.1896 0.0536

Mercury -99942-12-27 10:04 J -34782032.16 -34782032.08 -34782031.99 0.1623 0.1249

Mercury -99940-12-02 07:11 J -34781326.34 -34781326.20 -34781326.06 0.1630 0.0535

Earth -99939-01-09 03:06 J -34781288.47 -34781288.37 -34781288.26 0.1653 0.1368

Moon -99939-01-09 10:18 J -34781288.21 -34781288.07 -34781287.93 0.1653 0.1085

Mercury -99939-10-14 23:16 J -34781009.63 -34781009.53 -34781009.43 0.1899 0.1225

Mercury -99937-09-20 04:47 J -34780303.38 -34780303.30 -34780303.23 0.1888 0.1484

Venus -99936-11-15 01:54 J -34779882.55 -34779882.42 -34779882.29 0.1682 0.1109

Earth -99933-07-23 16:18 J -34778901.02 -34778900.82 -34778900.63 0.1863 0.0162

Moon -99933-07-23 23:30 J -34778900.73 -34778900.52 -34778900.31 0.1862 0.0171 *

Venus -99931-07-02 08:52 J -34778192.29 -34778192.13 -34778191.97 0.1838 0.0692

Mercury -99930-04-24 13:40 J -34777896.08 -34777895.93 -34777895.79 0.1628 0.0094

Mercury -99927-02-10 09:49 J -34776873.20 -34776873.09 -34776872.97 0.1891 0.0856

Mercury -99921-09-13 20:09 J -34774465.79 -34774465.66 -34774465.52 0.1626 0.0361

Mercury -99919-08-20 19:11 J -34773759.75 -34773759.70 -34773759.65 0.1635 0.1525

Mercury -99918-07-03 14:37 J -34773443.02 -34773442.89 -34773442.76 0.1894 0.0199

Mercury -99911-02-04 03:06 J -34771035.49 -34771035.37 -34771035.24 0.1624 0.0787

Mercury -99909-01-11 01:11 J -34770329.56 -34770329.45 -34770329.34 0.1632 0.1050

Mercury -99909-11-22 19:11 J -34770012.82 -34770012.70 -34770012.57 0.1897 0.0470

Venus -99904-11-14 02:37 J -34768195.56 -34768195.39 -34768195.22 0.1690 0.0378

Mercury -99902-06-27 10:18 J -34767605.16 -34767605.07 -34767604.97 0.1623 0.1201

Mercury -99900-06-02 07:25 J -34766899.33 -34766899.19 -34766899.06 0.1630 0.0585

Mercury -99899-04-14 23:30 J -34766582.63 -34766582.52 -34766582.42 0.1899 0.1167

Venus -99899-07-01 21:35 J -34766504.71 -34766504.60 -34766504.49 0.1827 0.1373

Mercury -99897-03-21 04:47 J -34765876.37 -34765876.30 -34765876.22 0.1888 0.1542

Mercury -99893-11-16 17:45 J -34764174.77 -34764174.76 -34764174.74 0.1622 0.1604

Mercury -99891-10-23 13:54 J -34763469.06 -34763468.92 -34763468.78 0.1628 0.0137

Mercury -99890-09-05 03:06 J -34763152.38 -34763152.37 -34763152.35 0.1901 0.1884

Mercury -99888-08-11 10:04 J -34762446.19 -34762446.08 -34762445.97 0.1891 0.0917

Mercury -99881-03-14 20:37 J -34760038.78 -34760038.64 -34760038.50 0.1626 0.0304

Mercury -99879-02-18 19:40 J -34759332.71 -34759332.68 -34759332.65 0.1635 0.1585

Mercury -99878-01-01 14:52 J -34759016.00 -34759015.88 -34759015.75 0.1894 0.0273

Mercury -99872-08-05 03:35 J -34756608.48 -34756608.35 -34756608.23 0.1624 0.0736

Mercury -99870-07-12 01:25 J -34755902.54 -34755902.44 -34755902.33 0.1632 0.1107

Venus -99870-09-12 11:45 J -34755840.12 -34755840.01 -34755839.90 0.1679 0.1317

Mercury -99869-05-23 19:25 J -34755585.82 -34755585.69 -34755585.56 0.1897 0.0413

Venus -99865-04-28 15:06 J -34754150.01 -34754149.87 -34754149.72 0.1841 0.1056

Mercury -99863-12-26 10:33 J -34753178.15 -34753178.06 -34753177.96 0.1623 0.1153

Mercury -99861-12-01 07:40 J -34752472.31 -34752472.18 -34752472.04 0.1630 0.0644

Earth -99860-01-11 08:37 J -34752431.33 -34752431.14 -34752430.96 0.1656 0.0449

Moon -99860-01-11 11:16 J -34752431.20 -34752431.03 -34752430.87 0.1656 0.0631 *

Mercury -99860-10-13 23:30 J -34752155.62 -34752155.52 -34752155.41 0.1899 0.1109

Mercury -99858-09-20 05:01 J -34751449.36 -34751449.29 -34751449.22 0.1888 0.1597

Mercury -99853-05-17 17:59 J -34749747.79 -34749747.75 -34749747.72 0.1621 0.1558

Mercury -99851-04-23 14:09 J -34749042.05 -34749041.91 -34749041.77 0.1628 0.0186

Mercury -99850-03-06 03:35 J -34748725.39 -34748725.35 -34748725.32 0.1901 0.1821

Mercury -99848-02-09 10:18 J -34748019.18 -34748019.07 -34748018.96 0.1892 0.0974

Mercury -99842-09-13 20:52 J -34745611.77 -34745611.63 -34745611.49 0.1626 0.0253

Mercury -99839-07-02 15:21 J -34744588.99 -34744588.86 -34744588.74 0.1894 0.0334

Venus -99838-09-11 11:59 J -34744153.17 -34744153.00 -34744152.82 0.1687 0.0153

Venus -99833-04-28 04:04 J -34742462.47 -34742462.33 -34742462.19 0.1831 0.1037

Mercury -99832-02-03 03:49 J -34742181.47 -34742181.34 -34742181.21 0.1624 0.0683

Mercury -99830-01-10 01:54 J -34741475.52 -34741475.42 -34741475.32 0.1632 0.1164

Mercury -99830-11-22 19:40 J -34741158.81 -34741158.68 -34741158.55 0.1897 0.0349

Mercury -99823-06-26 11:01 J -34738751.15 -34738751.04 -34738750.94 0.1623 0.1103

Mercury -99821-06-01 08:09 J -34738045.29 -34738045.16 -34738045.03 0.1630 0.0696

Mercury -99820-04-13 23:59 J -34737728.61 -34737728.50 -34737728.39 0.1899 0.1045

Mercury -99818-03-21 05:16 J -34737022.34 -34737022.28 -34737022.22 0.1888 0.1657

Mercury -99814-11-16 18:13 J -34735320.78 -34735320.74 -34735320.69 0.1621 0.1508

Mercury -99812-10-22 14:37 J -34734615.03 -34734614.89 -34734614.75 0.1628 0.0246

Mercury -99811-09-04 03:35 J -34734298.39 -34734298.35 -34734298.30 0.1901 0.1761

Mercury -99809-08-10 10:33 J -34733592.17 -34733592.06 -34733591.95 0.1891 0.1036

Venus -99804-07-09 22:04 J -34731797.65 -34731797.58 -34731797.51 0.1676 0.1523

Mercury -99802-03-14 21:06 J -34731184.76 -34731184.62 -34731184.48 0.1626 0.0203

Mercury -99800-12-31 15:21 J -34730161.99 -34730161.86 -34730161.73 0.1894 0.0383

Venus -99799-02-23 20:52 J -34730107.73 -34730107.63 -34730107.52 0.1845 0.1436

Mercury -99793-08-04 04:04 J -34727754.46 -34727754.33 -34727754.20 0.1624 0.0638

Mercury -99791-07-11 02:09 J -34727048.50 -34727048.41 -34727048.31 0.1632 0.1215

Mercury -99790-05-23 19:54 J -34726731.80 -34726731.67 -34726731.54 0.1897 0.0290

Mercury -99784-12-25 11:16 J -34724324.14 -34724324.03 -34724323.92 0.1623 0.1050

Mercury -99782-12-01 08:23 J -34723618.28 -34723618.15 -34723618.02 0.1630 0.0752

Moon -99781-01-14 09:49 J -34723574.26 -34723574.09 -34723573.92 0.1658 0.0645

Earth -99781-01-14 14:52 J -34723574.06 -34723573.88 -34723573.69 0.1658 0.0489 *

Mercury -99781-10-13 00:13 J -34723301.60 -34723301.49 -34723301.37 0.1899 0.0975

Mercury -99779-09-19 05:30 J -34722595.32 -34722595.27 -34722595.22 0.1888 0.1722

Mercury -99774-05-17 18:28 J -34720893.78 -34720893.73 -34720893.67 0.1621 0.1460

Mercury -99772-04-22 14:52 J -34720188.02 -34720187.88 -34720187.74 0.1628 0.0297

Venus -99772-07-08 22:33 J -34720110.74 -34720110.56 -34720110.39 0.1684 0.0053

Mercury -99771-03-05 03:49 J -34719871.39 -34719871.34 -34719871.28 0.1901 0.1700

Mercury -99769-02-09 10:47 J -34719165.16 -34719165.05 -34719164.95 0.1891 0.1095

Venus -99767-02-23 11:01 J -34718420.20 -34718420.04 -34718419.88 0.1834 0.0709

Mercury -99763-09-12 21:35 J -34716757.75 -34716757.60 -34716757.46 0.1626 0.0156

Mercury -99760-07-01 15:35 J -34715734.98 -34715734.85 -34715734.73 0.1895 0.0445

Mercury -99753-02-03 04:18 J -34713327.45 -34713327.32 -34713327.18 0.1624 0.0581

Mercury -99751-01-09 02:37 J -34712621.48 -34712621.39 -34712621.30 0.1632 0.1276

Mercury -99751-11-21 20:08 J -34712304.79 -34712304.66 -34712304.53 0.1897 0.0227

Mercury -99744-06-25 11:30 J -34709897.13 -34709897.02 -34709896.91 0.1622 0.1005

Mercury -99742-06-01 08:37 J -34709191.26 -34709191.14 -34709191.01 0.1630 0.0807

Mercury -99741-04-13 00:13 J -34708874.60 -34708874.49 -34708874.37 0.1900 0.0925

Venus -99740-07-07 23:44 J -34708423.59 -34708423.51 -34708423.42 0.1693 0.1477

Mercury -99739-03-20 05:30 J -34708168.31 -34708168.27 -34708168.23 0.1888 0.1772

Mercury -99735-11-15 18:42 J -34706466.78 -34706466.72 -34706466.65 0.1621 0.1412

Venus -99734-12-22 03:20 J -34706065.40 -34706065.36 -34706065.33 0.1848 0.1810

Mercury -99733-10-21 15:06 J -34705761.01 -34705760.87 -34705760.73 0.1627 0.0347

Mercury -99732-09-03 04:18 J -34705444.38 -34705444.32 -34705444.25 0.1901 0.1629

Mercury -99730-08-10 10:47 J -34704738.15 -34704738.05 -34704737.95 0.1892 0.1152

Earth -99728-07-20 01:40 J -34704028.45 -34704028.43 -34704028.41 0.1873 0.1859

Mercury -99723-03-13 21:49 J -34702330.73 -34702330.59 -34702330.45 0.1626 0.0098

Mercury -99721-12-30 16:04 J -34701307.96 -34701307.83 -34701307.71 0.1894 0.0517

Mercury -99714-08-04 04:32 J -34698900.44 -34698900.31 -34698900.17 0.1624 0.0532

Mercury -99712-07-10 02:52 J -34698194.46 -34698194.38 -34698194.29 0.1632 0.1333

Mercury -99711-05-22 20:23 J -34697877.78 -34697877.65 -34697877.52 0.1897 0.0169

Venus -99706-05-06 08:08 J -34696068.33 -34696068.16 -34696067.98 0.1682 0.0266

Mercury -99705-12-24 11:44 J -34695470.12 -34695470.01 -34695469.90 0.1622 0.0950

Mercury -99703-11-30 09:06 J -34694764.24 -34694764.12 -34694764.00 0.1630 0.0863

Moon -99702-01-16 15:06 J -34694717.00 -34694716.87 -34694716.73 0.1661 0.1214

Earth -99702-01-16 21:06 J -34694716.71 -34694716.62 -34694716.53 0.1661 0.1440

Mercury -99702-10-13 00:42 J -34694447.59 -34694447.47 -34694447.35 0.1899 0.0853

Venus -99702-12-21 17:16 J -34694377.95 -34694377.78 -34694377.61 0.1837 0.0354

Mercury -99700-09-18 05:44 J -34693741.28 -34693741.26 -34693741.23 0.1888 0.1835

Mercury -99695-05-16 18:56 J -34692039.78 -34692039.71 -34692039.63 0.1621 0.1364

Mercury -99693-04-21 15:20 J -34691334.00 -34691333.86 -34691333.72 0.1627 0.0406

Mercury -99692-03-04 04:18 J -34691017.39 -34691017.32 -34691017.24 0.1901 0.1577

Mercury -99690-02-08 11:01 J -34690311.13 -34690311.04 -34690310.94 0.1892 0.1215

Mercury -99684-09-11 22:04 J -34687903.72 -34687903.58 -34687903.44 0.1625 0.0043

Mercury -99681-06-30 15:49 J -34686880.96 -34686880.84 -34686880.71 0.1895 0.0566

Mercury -99674-02-02 04:47 J -34684473.43 -34684473.30 -34684473.16 0.1624 0.0482

Venus -99674-05-05 09:06 J -34684381.23 -34684381.12 -34684381.00 0.1690 0.1250

Mercury -99672-01-08 03:20 J -34683767.44 -34683767.36 -34683767.29 0.1632 0.1386

Mercury -99672-11-20 20:37 J -34683450.77 -34683450.64 -34683450.51 0.1898 0.0109

Mercury -99665-06-24 11:59 J -34681043.12 -34681043.00 -34681042.88 0.1622 0.0902

Mercury -99663-05-31 09:20 J -34680337.23 -34680337.11 -34680336.99 0.1630 0.0915

Mercury -99662-04-13 00:56 J -34680020.58 -34680020.46 -34680020.34 0.1899 0.0794

Mercury -99656-11-14 19:25 J -34677612.77 -34677612.69 -34677612.61 0.1621 0.1312

Moon -99655-01-10 01:25 J -34677556.62 -34677556.44 -34677556.26 0.1649 0.0755

Earth -99655-01-10 04:18 J -34677556.48 -34677556.32 -34677556.17 0.1649 0.0938 *

Mercury -99654-10-21 15:49 J -34676906.98 -34676906.84 -34676906.70 0.1627 0.0461

Mercury -99653-09-02 04:47 J -34676590.38 -34676590.30 -34676590.22 0.1902 0.1505

Mercury -99651-08-09 11:16 J -34675884.12 -34675884.03 -34675883.93 0.1892 0.1275

Moon -99649-07-23 01:40 J -34675170.63 -34675170.43 -34675170.23 0.1870 0.0119

Earth -99649-07-23 11:01 J -34675170.24 -34675170.04 -34675169.85 0.1869 0.0083 *

Mercury -99644-03-12 22:32 J -34673476.71 -34673476.56 -34673476.42 0.1625 0.0054

Mercury -99642-12-30 16:18 J -34672453.94 -34672453.82 -34672453.70 0.1895 0.0632

Venus -99640-03-02 18:42 J -34672025.89 -34672025.72 -34672025.55 0.1679 0.0463

Venus -99636-10-17 23:30 J -34670335.69 -34670335.52 -34670335.34 0.1841 0.0030
 Mercury -99635-08-03 05:16 J -34670046.42 -34670046.28 -34670046.15 0.1624 0.0428
 Mercury -99633-07-09 03:35 J -34669340.41 -34669340.35 -34669340.28 0.1632 0.1444
 Mercury -99632-05-21 20:52 J -34669023.76 -34669023.63 -34669023.50 0.1897 0.0058
 Mercury -99626-12-24 12:13 J -34666616.11 -34666615.99 -34666615.87 0.1622 0.0852
 Mercury -99624-11-29 09:49 J -34665910.21 -34665910.09 -34665909.98 0.1629 0.0974
 Mercury -99623-10-12 01:11 J -34665593.57 -34665593.45 -34665593.33 0.1900 0.0733
 Mercury -99616-05-15 19:40 J -34663185.77 -34663185.68 -34663185.60 0.1621 0.1264
 Mercury -99614-04-21 16:04 J -34662479.97 -34662479.83 -34662479.69 0.1627 0.0510
 Mercury -99613-03-03 05:16 J -34662163.37 -34662163.28 -34662163.20 0.1902 0.1441
 Mercury -99611-02-07 11:30 J -34661457.11 -34661457.02 -34661456.93 0.1892 0.1333
 Venus -99608-03-01 19:11 J -34660338.84 -34660338.70 -34660338.56 0.1687 0.1036
 Mercury -99605-09-10 22:47 J -34659049.70 -34659049.55 -34659049.41 0.1626 0.0075
 Mercury -99602-06-30 16:32 J -34658026.93 -34658026.81 -34658026.69 0.1895 0.0692
 Mercury -99595-02-01 05:30 J -34655619.41 -34655619.27 -34655619.13 0.1624 0.0373
 Mercury -99593-01-08 04:04 J -34654913.38 -34654913.33 -34654913.28 0.1632 0.1504
 Mercury -99593-11-19 21:06 J -34654596.75 -34654596.62 -34654596.49 0.1897 0.0032
 Mercury -99586-06-24 12:42 J -34652189.10 -34652188.97 -34652188.85 0.1622 0.0799
 Mercury -99584-05-30 10:04 J -34651483.19 -34651483.08 -34651482.97 0.1629 0.1030
 Mercury -99583-04-12 01:25 J -34651166.56 -34651166.44 -34651166.32 0.1900 0.0667
 Mercury -99577-11-13 19:54 J -34648758.76 -34648758.67 -34648758.58 0.1621 0.1213
 Earth -99576-01-12 09:06 J -34648699.31 -34648699.12 -34648698.93 0.1651 0.0047
 Moon -99576-01-12 14:37 J -34648699.08 -34648698.89 -34648698.69 0.1652 0.0219 *
 Mercury -99575-10-20 16:32 J -34648052.95 -34648052.81 -34648052.68 0.1627 0.0571
 Venus -99575-12-29 04:47 J -34647983.46 -34647983.30 -34647983.14 0.1677 0.0668
 Mercury -99574-09-02 05:16 J -34647736.37 -34647736.28 -34647736.19 0.1902 0.1382
 Mercury -99572-08-08 11:44 J -34647030.09 -34647030.01 -34647029.92 0.1892 0.1395
 Moon -99570-07-27 14:37 J -34646311.98 -34646311.89 -34646311.80 0.1865 0.1687
 Earth -99570-07-27 15:20 J -34646311.88 -34646311.86 -34646311.83 0.1865 0.1843 *
 Venus -99570-08-15 05:16 J -34646293.45 -34646293.28 -34646293.11 0.1844 0.0385

Mercury -99565-03-11 23:01 J -34644622.68 -34644622.54 -34644622.40 0.1625 0.0118

Mercury -99563-12-29 16:32 J -34643599.92 -34643599.81 -34643599.69 0.1895 0.0750

Mercury -99556-08-02 05:44 J -34641192.40 -34641192.26 -34641192.12 0.1624 0.0324

Mercury -99554-07-09 04:18 J -34640486.36 -34640486.32 -34640486.28 0.1632 0.1557

Mercury -99553-05-20 21:20 J -34640169.74 -34640169.61 -34640169.48 0.1898 0.0087

Mercury -99547-12-23 12:56 J -34637762.09 -34637761.96 -34637761.84 0.1622 0.0746

Mercury -99545-11-28 10:32 J -34637056.17 -34637056.06 -34637055.96 0.1629 0.1087

Mercury -99544-10-11 01:54 J -34636739.55 -34636739.42 -34636739.30 0.1900 0.0602

Venus -99543-12-28 04:47 J -34636296.45 -34636296.30 -34636296.15 0.1685 0.0814

Venus -99538-08-14 18:13 J -34634605.79 -34634605.74 -34634605.68 0.1834 0.1729

Mercury -99537-05-14 20:08 J -34634331.76 -34634331.66 -34634331.56 0.1621 0.1164

Mercury -99535-04-20 16:47 J -34633625.93 -34633625.80 -34633625.67 0.1627 0.0623

Mercury -99534-03-03 05:30 J -34633309.36 -34633309.27 -34633309.17 0.1902 0.1319

Mercury -99532-02-06 11:59 J -34632603.08 -34632603.00 -34632602.92 0.1892 0.1454

Mercury -99528-10-05 03:35 J -34630901.38 -34630901.35 -34630901.32 0.1620 0.1568

Mercury -99526-09-10 23:16 J -34630195.67 -34630195.53 -34630195.38 0.1625 0.0177

Mercury -99523-06-29 17:01 J -34629172.91 -34629172.79 -34629172.68 0.1895 0.0815

Mercury -99516-01-31 06:13 J -34626765.38 -34626765.24 -34626765.10 0.1623 0.0267

Mercury -99514-01-07 04:47 J -34626059.31 -34626059.30 -34626059.29 0.1632 0.1620

Mercury -99514-11-19 21:35 J -34625742.73 -34625742.60 -34625742.47 0.1898 0.0153

Venus -99509-10-25 15:06 J -34623941.02 -34623940.87 -34623940.72 0.1674 0.0876

Mercury -99507-06-23 13:11 J -34623335.08 -34623334.95 -34623334.83 0.1622 0.0701

Mercury -99505-05-29 10:47 J -34622629.15 -34622629.05 -34622628.95 0.1629 0.1141

Mercury -99504-04-11 01:54 J -34622312.55 -34622312.42 -34622312.30 0.1900 0.0549

Venus -99504-06-11 11:01 J -34622251.19 -34622251.04 -34622250.88 0.1848 0.0765

Mercury -99498-11-13 20:23 J -34619904.75 -34619904.65 -34619904.55 0.1621 0.1113

Earth -99497-01-15 14:52 J -34619842.04 -34619841.88 -34619841.72 0.1654 0.0873

Moon -99497-01-15 21:06 J -34619841.76 -34619841.62 -34619841.49 0.1654 0.1124 *

Mercury -99496-10-19 17:01 J -34619198.92 -34619198.79 -34619198.66 0.1627 0.0676

Mercury -99495-09-01 05:59 J -34618882.35 -34618882.25 -34618882.15 0.1902 0.1247

Mercury -99493-08-07 12:13 J -34618176.07 -34618175.99 -34618175.92 0.1892 0.1516

Mercury -99488-04-05 03:49 J -34616474.38 -34616474.34 -34616474.29 0.1620 0.1520

Mercury -99486-03-11 23:44 J -34615768.65 -34615768.51 -34615768.37 0.1625 0.0229

Mercury -99484-12-28 17:16 J -34614745.89 -34614745.78 -34614745.66 0.1895 0.0881

Mercury -99477-08-01 06:28 J -34612338.37 -34612338.23 -34612338.09 0.1623 0.0216

Venus -99477-10-24 14:52 J -34612254.04 -34612253.88 -34612253.72 0.1682 0.0603

Mercury -99474-05-20 21:49 J -34611315.72 -34611315.59 -34611315.46 0.1898 0.0208

Venus -99472-06-11 01:11 J -34610563.56 -34610563.45 -34610563.34 0.1837 0.1396

Mercury -99468-12-22 13:25 J -34608908.07 -34608907.94 -34608907.81 0.1622 0.0644

Mercury -99466-11-28 11:16 J -34608202.13 -34608202.03 -34608201.94 0.1629 0.1201

Mercury -99465-10-10 02:23 J -34607885.53 -34607885.40 -34607885.28 0.1900 0.0479

Mercury -99458-05-14 20:37 J -34605477.74 -34605477.64 -34605477.53 0.1621 0.1064

Mercury -99456-04-19 17:30 J -34604771.90 -34604771.77 -34604771.64 0.1627 0.0735

Mercury -99455-03-02 06:13 J -34604455.35 -34604455.24 -34604455.14 0.1902 0.1194

Mercury -99453-02-06 12:28 J -34603749.05 -34603748.98 -34603748.92 0.1892 0.1577

Earth -99450-01-09 02:23 J -34602681.50 -34602681.40 -34602681.30 0.1643 0.1368

Moon -99450-01-09 04:32 J -34602681.36 -34602681.31 -34602681.26 0.1643 0.1564 *

Mercury -99449-10-04 04:04 J -34602047.38 -34602047.33 -34602047.27 0.1619 0.1472

Mercury -99447-09-09 23:59 J -34601341.64 -34601341.50 -34601341.36 0.1625 0.0280

Mercury -99444-06-28 17:16 J -34600318.89 -34600318.78 -34600318.67 0.1895 0.0931

Venus -99443-08-23 01:25 J -34599898.58 -34599898.44 -34599898.31 0.1672 0.1074

Venus -99438-04-08 17:01 J -34598208.93 -34598208.79 -34598208.66 0.1851 0.1146

Mercury -99437-01-31 06:42 J -34597911.36 -34597911.22 -34597911.08 0.1623 0.0164

Mercury -99435-11-18 22:04 J -34596888.70 -34596888.58 -34596888.45 0.1898 0.0282

Mercury -99428-06-22 13:40 J -34594481.06 -34594480.93 -34594480.80 0.1622 0.0594

Mercury -99426-05-29 11:30 J -34593775.11 -34593775.02 -34593774.93 0.1629 0.1255

Mercury -99425-04-10 02:23 J -34593458.52 -34593458.40 -34593458.27 0.1900 0.0418

Mercury -99419-11-12 21:06 J -34591050.73 -34591050.62 -34591050.51 0.1621 0.1010

Mercury -99417-10-18 17:44 J -34590344.88 -34590344.76 -34590344.63 0.1627 0.0793

Mercury -99416-08-31 06:28 J -34590028.33 -34590028.23 -34590028.12 0.1902 0.1121

Mercury -99414-08-07 12:28 J -34589322.04 -34589321.98 -34589321.91 0.1892 0.1637

Venus -99411-08-22 00:42 J -34588211.64 -34588211.47 -34588211.30 0.1679 0.0389

Mercury -99409-04-04 04:18 J -34587620.38 -34587620.32 -34587620.25 0.1619 0.1422

Mercury -99407-03-11 00:13 J -34586914.63 -34586914.49 -34586914.35 0.1625 0.0338

Mercury -99406-01-21 10:04 J -34586598.10 -34586598.08 -34586598.05 0.1904 0.1857

Venus -99406-04-08 07:25 J -34586521.34 -34586521.19 -34586521.05 0.1840 0.1042

Mercury -99405-12-27 17:44 J -34585891.87 -34585891.76 -34585891.65 0.1895 0.1002

Mercury -99398-08-01 06:56 J -34583484.35 -34583484.21 -34583484.06 0.1623 0.0113

Mercury -99395-05-19 22:18 J -34582461.70 -34582461.57 -34582461.44 0.1898 0.0331

Mercury -99389-12-21 14:08 J -34580054.05 -34580053.91 -34580053.78 0.1622 0.0544

Mercury -99387-11-27 11:59 J -34579348.09 -34579348.00 -34579347.92 0.1629 0.1316

Mercury -99386-10-10 02:37 J -34579031.52 -34579031.39 -34579031.26 0.1900 0.0354

Mercury -99379-05-13 21:20 J -34576623.73 -34576623.61 -34576623.50 0.1621 0.0963

Mercury -99377-04-18 17:59 J -34575917.87 -34575917.75 -34575917.63 0.1627 0.0843

Venus -99377-06-19 11:59 J -34575856.12 -34575856.00 -34575855.89 0.1669 0.1276

Mercury -99376-03-01 06:56 J -34575601.32 -34575601.21 -34575601.10 0.1902 0.1057

Mercury -99374-02-05 12:42 J -34574895.02 -34574894.97 -34574894.91 0.1893 0.1697

Venus -99372-02-02 22:32 J -34574166.66 -34574166.56 -34574166.47 0.1854 0.1546

Moon -99371-01-11 01:25 J -34573824.62 -34573824.44 -34573824.26 0.1645 0.0320

Earth -99371-01-11 06:13 J -34573824.42 -34573824.24 -34573824.06 0.1645 0.0507 *

Mercury -99370-10-04 04:47 J -34573193.38 -34573193.30 -34573193.23 0.1619 0.1372

Mercury -99368-09-09 00:42 J -34572487.61 -34572487.47 -34572487.33 0.1625 0.0392

Mercury -99367-07-22 10:18 J -34572171.11 -34572171.07 -34572171.03 0.1904 0.1792

Mercury -99365-06-27 17:59 J -34571464.86 -34571464.75 -34571464.65 0.1895 0.1063

Earth -99365-07-23 02:52 J -34571439.58 -34571439.38 -34571439.18 0.1876 0.0063

Moon -99365-07-23 07:11 J -34571439.38 -34571439.20 -34571439.02 0.1875 0.0206 *

Mercury -99358-01-30 07:25 J -34569057.33 -34569057.19 -34569057.05 0.1623 0.0054

Mercury -99356-11-17 22:32 J -34568034.68 -34568034.56 -34568034.43 0.1898 0.0402

Mercury -99349-06-21 14:23 J -34565627.04 -34565626.90 -34565626.77 0.1622 0.0487

Mercury -99347-05-28 12:13 J -34564921.07 -34564920.99 -34564920.91 0.1629 0.1371

Mercury -99346-04-10 03:06 J -34564604.50 -34564604.37 -34564604.24 0.1900 0.0294

Venus -99345-06-18 11:30 J -34564169.20 -34564169.02 -34564168.85 0.1677 0.0192

Venus -99340-02-02 14:08 J -34562479.07 -34562478.91 -34562478.75 0.1844 0.0697

Mercury -99340-11-11 21:35 J -34562196.72 -34562196.60 -34562196.49 0.1620 0.0911

Mercury -99338-10-18 18:28 J -34561490.85 -34561490.73 -34561490.61 0.1627 0.0903

Mercury -99337-08-30 06:56 J -34561174.32 -34561174.21 -34561174.10 0.1902 0.0998

Mercury -99335-08-06 12:56 J -34560468.00 -34560467.96 -34560467.92 0.1892 0.1756

Mercury -99330-04-04 04:47 J -34558766.38 -34558766.30 -34558766.22 0.1619 0.1325

Mercury -99328-03-10 00:56 J -34558060.60 -34558060.46 -34558060.32 0.1625 0.0444

Mercury -99327-01-20 10:47 J -34557744.11 -34557744.05 -34557744.00 0.1904 0.1727

Mercury -99326-12-27 17:59 J -34557037.85 -34557037.75 -34557037.65 0.1896 0.1120

Mercury -99319-07-31 07:40 J -34554630.32 -34554630.18 -34554630.04 0.1623 0.0016

Mercury -99316-05-18 22:47 J -34553607.67 -34553607.55 -34553607.42 0.1898 0.0464

Venus -99311-04-16 22:32 J -34551813.64 -34551813.56 -34551813.47 0.1667 0.1464

Mercury -99310-12-21 14:37 J -34551200.02 -34551199.89 -34551199.75 0.1622 0.0434

Mercury -99308-11-26 12:28 J -34550494.04 -34550493.98 -34550493.91 0.1629 0.1430

Mercury -99307-10-09 03:20 J -34550177.49 -34550177.36 -34550177.23 0.1900 0.0222

Mercury -99300-05-12 21:49 J -34547769.71 -34547769.59 -34547769.47 0.1620 0.0859

Mercury -99298-04-18 18:42 J -34547063.83 -34547063.72 -34547063.60 0.1627 0.0960

Mercury -99297-02-29 07:11 J -34546747.31 -34546747.20 -34546747.08 0.1903 0.0934

Mercury -99295-02-04 13:11 J -34546040.98 -34546040.95 -34546040.92 0.1892 0.1817

Moon -99292-01-13 04:04 J -34544967.52 -34544967.33 -34544967.13 0.1647 0.0144

Earth -99292-01-13 10:47 J -34544967.23 -34544967.05 -34544966.86 0.1647 0.0376 *

Mercury -99291-10-03 05:16 J -34544339.37 -34544339.28 -34544339.20 0.1619 0.1270

Mercury -99289-09-08 01:11 J -34543633.58 -34543633.45 -34543633.31 0.1625 0.0505

Mercury -99288-07-21 11:01 J -34543317.10 -34543317.04 -34543316.98 0.1904 0.1660

Mercury -99286-06-27 18:13 J -34542610.84 -34542610.74 -34542610.64 0.1896 0.1185

Moon -99286-07-27 03:20 J -34542581.47 -34542581.36 -34542581.25 0.1872 0.1485

Earth -99286-07-27 10:32 J -34542581.12 -34542581.06 -34542581.00 0.1872 0.1785

Mercury -99279-01-29 07:54 J -34540203.31 -34540203.17 -34540203.02 0.1623 0.0067

Venus -99279-04-15 21:35 J -34540126.78 -34540126.60 -34540126.43 0.1674 0.0019
 Mercury -99277-11-16 23:01 J -34539180.66 -34539180.54 -34539180.41 0.1898 0.0524
 Venus -99275-11-30 19:54 J -34538436.84 -34538436.67 -34538436.50 0.1847 0.0321
 Mercury -99270-06-21 14:52 J -34536773.02 -34536772.88 -34536772.74 0.1621 0.0387
 Mercury -99268-05-27 12:56 J -34536067.02 -34536066.96 -34536066.91 0.1629 0.1485
 Mercury -99267-04-09 03:20 J -34535750.49 -34535750.36 -34535750.23 0.1901 0.0166
 Mercury -99261-11-10 22:04 J -34533342.70 -34533342.58 -34533342.46 0.1620 0.0807
 Mercury -99259-10-17 19:11 J -34532636.82 -34532636.70 -34532636.59 0.1627 0.1015
 Mercury -99258-08-30 07:40 J -34532320.29 -34532320.18 -34532320.06 0.1903 0.0861
 Mercury -99256-08-05 13:25 J -34531613.95 -34531613.94 -34531613.93 0.1893 0.1880
 Mercury -99251-04-03 05:30 J -34529912.36 -34529912.27 -34529912.18 0.1619 0.1221
 Mercury -99249-03-09 01:40 J -34529206.57 -34529206.43 -34529206.30 0.1625 0.0558
 Mercury -99248-01-19 11:16 J -34528890.10 -34528890.03 -34528889.96 0.1904 0.1596
 Venus -99247-04-14 21:35 J -34528439.68 -34528439.60 -34528439.52 0.1682 0.1489
 Mercury -99247-12-26 18:42 J -34528183.82 -34528183.72 -34528183.63 0.1895 0.1251
 Moon -99245-01-07 22:04 J -34527806.63 -34527806.58 -34527806.53 0.1638 0.1581
 Venus -99245-02-12 09:20 J -34527771.12 -34527771.11 -34527771.10 0.1664 0.1659
 Mercury -99240-07-30 08:23 J -34525776.30 -34525776.15 -34525776.01 0.1623 0.0118
 Mercury -99237-05-17 23:16 J -34524753.66 -34524753.53 -34524753.41 0.1898 0.0584
 Mercury -99231-12-20 15:20 J -34522346.00 -34522345.86 -34522345.72 0.1621 0.0329
 Mercury -99229-11-25 13:11 J -34521639.99 -34521639.95 -34521639.90 0.1629 0.1547
 Mercury -99228-10-08 03:49 J -34521323.47 -34521323.34 -34521323.21 0.1901 0.0093
 Mercury -99221-05-11 22:18 J -34518915.69 -34518915.57 -34518915.44 0.1620 0.0757
 Mercury -99219-04-17 19:25 J -34518209.79 -34518209.69 -34518209.58 0.1627 0.1074
 Mercury -99218-02-28 07:40 J -34517893.30 -34517893.18 -34517893.06 0.1903 0.0809
 Earth -99213-01-16 16:18 J -34516109.94 -34516109.82 -34516109.70 0.1650 0.1266
 Moon -99213-01-16 16:18 J -34516109.92 -34516109.82 -34516109.71 0.1650 0.1405 *
 Venus -99213-02-11 08:23 J -34516084.33 -34516084.15 -34516083.98 0.1672 0.0215
 Mercury -99212-10-02 05:44 J -34515485.36 -34515485.26 -34515485.17 0.1619 0.1173
 Mercury -99210-09-08 01:54 J -34514779.56 -34514779.42 -34514779.29 0.1625 0.0609

Mercury -99209-07-20 11:30 J -34514463.09 -34514463.02 -34514462.94 0.1905 0.1531

Venus -99209-09-27 01:40 J -34514394.60 -34514394.43 -34514394.26 0.1851 0.0062

Mercury -99207-06-26 18:28 J -34513756.82 -34513756.73 -34513756.63 0.1896 0.1303

Mercury -99202-02-22 13:25 J -34512054.97 -34512054.94 -34512054.92 0.1618 0.1576

Mercury -99200-01-28 08:37 J -34511349.28 -34511349.14 -34511349.00 0.1623 0.0163

Mercury -99198-11-16 23:44 J -34510326.64 -34510326.51 -34510326.39 0.1899 0.0657

Mercury -99191-06-20 15:35 J -34507918.99 -34507918.85 -34507918.71 0.1621 0.0276

Mercury -99189-05-26 13:40 J -34507212.95 -34507212.93 -34507212.91 0.1629 0.1603

Mercury -99188-04-08 04:04 J -34506896.46 -34506896.33 -34506896.20 0.1901 0.0055

Mercury -99182-11-10 22:47 J -34504488.68 -34504488.55 -34504488.43 0.1620 0.0703

Venus -99181-02-10 07:54 J -34504397.28 -34504397.17 -34504397.06 0.1680 0.1279

Mercury -99180-10-16 19:54 J -34503782.78 -34503782.67 -34503782.57 0.1627 0.1131

Mercury -99179-08-29 08:08 J -34503466.28 -34503466.16 -34503466.04 0.1903 0.0735

Mercury -99172-04-02 05:59 J -34501058.35 -34501058.25 -34501058.15 0.1619 0.1121

Mercury -99170-03-09 02:08 J -34500352.54 -34500352.41 -34500352.27 0.1625 0.0669

Mercury -99169-01-19 11:44 J -34500036.09 -34500036.01 -34500035.92 0.1904 0.1468

Mercury -99168-12-25 18:56 J -34499329.79 -34499329.71 -34499329.62 0.1896 0.1372

Earth -99166-01-10 05:01 J -34498949.44 -34498949.29 -34498949.13 0.1640 0.0923

Moon -99166-01-10 09:35 J -34498949.25 -34498949.10 -34498948.96 0.1640 0.1106 *

Mercury -99163-08-23 13:25 J -34497627.98 -34497627.94 -34497627.89 0.1618 0.1529

Mercury -99161-07-29 08:52 J -34496922.27 -34496922.13 -34496921.99 0.1623 0.0217

Mercury -99158-05-17 23:44 J -34495899.63 -34495899.51 -34495899.39 0.1898 0.0709

Mercury -99152-12-19 15:49 J -34493491.98 -34493491.84 -34493491.70 0.1621 0.0225

Mercury -99149-10-07 04:18 J -34492469.45 -34492469.32 -34492469.19 0.1901 0.0047

Venus -99148-12-08 18:42 J -34492041.89 -34492041.72 -34492041.55 0.1669 0.0415

Venus -99143-07-25 06:56 J -34490352.38 -34490352.21 -34490352.04 0.1854 0.0459

Mercury -99142-05-11 23:01 J -34490061.67 -34490061.54 -34490061.42 0.1620 0.0654

Mercury -99140-04-16 20:08 J -34489355.76 -34489355.66 -34489355.57 0.1627 0.1183

Mercury -99139-02-27 08:23 J -34489039.27 -34489039.15 -34489039.02 0.1903 0.0672

Mercury -99133-10-01 06:13 J -34486631.34 -34486631.24 -34486631.13 0.1619 0.1070

Mercury -99131-09-07 02:37 J -34485925.52 -34485925.39 -34485925.26 0.1625 0.0724

Mercury -99130-07-20 12:13 J -34485609.08 -34485608.99 -34485608.91 0.1905 0.1403

Mercury -99128-06-25 19:11 J -34484902.78 -34484902.70 -34484902.62 0.1896 0.1432

Mercury -99123-02-21 13:54 J -34483200.98 -34483200.92 -34483200.87 0.1618 0.1476

Mercury -99121-01-28 09:20 J -34482495.25 -34482495.11 -34482494.97 0.1623 0.0275

Mercury -99119-11-15 23:59 J -34481472.62 -34481472.50 -34481472.38 0.1899 0.0778

Venus -99116-12-07 17:44 J -34480354.89 -34480354.76 -34480354.62 0.1677 0.1058

Mercury -99112-06-19 16:04 J -34479064.97 -34479064.83 -34479064.69 0.1621 0.0171

Venus -99111-07-24 21:20 J -34478664.66 -34478664.61 -34478664.56 0.1844 0.1748

Mercury -99109-04-07 04:32 J -34478042.44 -34478042.31 -34478042.18 0.1901 0.0101

Mercury -99103-11-09 23:16 J -34475634.66 -34475634.53 -34475634.40 0.1620 0.0601

Mercury -99101-10-15 20:23 J -34474928.74 -34474928.65 -34474928.55 0.1626 0.1246

Mercury -99100-08-28 08:37 J -34474612.27 -34474612.14 -34474612.02 0.1903 0.0612

Mercury -99093-04-01 06:28 J -34472204.34 -34472204.23 -34472204.12 0.1619 0.1021

Mercury -99091-03-08 02:52 J -34471498.51 -34471498.38 -34471498.25 0.1624 0.0778

Mercury -99090-01-18 12:28 J -34471182.07 -34471181.98 -34471181.89 0.1905 0.1334

Mercury -99089-12-24 19:25 J -34470475.77 -34470475.69 -34470475.62 0.1896 0.1492

Earth -99087-01-12 09:06 J -34470092.31 -34470092.12 -34470091.93 0.1642 0.0082

Moon -99087-01-12 15:06 J -34470092.06 -34470091.87 -34470091.69 0.1642 0.0164 *

Mercury -99084-08-22 14:08 J -34468773.97 -34468773.91 -34468773.85 0.1618 0.1427

Mercury -99082-07-29 09:35 J -34468068.24 -34468068.10 -34468067.96 0.1623 0.0328

Venus -99082-10-06 05:01 J -34467999.45 -34467999.29 -34467999.13 0.1667 0.0620

Earth -99081-07-22 16:32 J -34467709.00 -34467708.81 -34467708.61 0.1882 0.0242

Moon -99081-07-22 20:08 J -34467708.88 -34467708.66 -34467708.44 0.1882 0.0106 *

Mercury -99079-05-17 00:13 J -34467045.60 -34467045.49 -34467045.37 0.1899 0.0840

Venus -99077-05-21 12:28 J -34466310.13 -34466309.98 -34466309.83 0.1857 0.0861

Mercury -99073-12-18 16:32 J -34464637.96 -34464637.81 -34464637.67 0.1621 0.0123

Mercury -99070-10-07 04:47 J -34463615.43 -34463615.30 -34463615.17 0.1901 0.0160

Mercury -99063-05-10 23:30 J -34461207.65 -34461207.52 -34461207.39 0.1620 0.0547

Mercury -99061-04-15 20:52 J -34460501.72 -34460501.63 -34460501.54 0.1626 0.1302

Mercury -99060-02-26 08:52 J -34460185.25 -34460185.13 -34460185.00 0.1903 0.0544

Mercury -99054-10-01 06:56 J -34457777.33 -34457777.21 -34457777.10 0.1619 0.0967

Mercury -99052-09-06 03:06 J -34457071.49 -34457071.37 -34457071.24 0.1624 0.0837

Mercury -99051-07-19 12:42 J -34456755.07 -34456754.97 -34456754.87 0.1905 0.1272

Venus -99050-10-05 04:04 J -34456312.48 -34456312.33 -34456312.18 0.1674 0.0851

Mercury -99049-06-24 19:40 J -34456048.76 -34456048.68 -34456048.61 0.1896 0.1555

Venus -99045-05-21 03:49 J -34454622.45 -34454622.34 -34454622.23 0.1847 0.1395

Mercury -99044-02-20 14:08 J -34454346.97 -34454346.91 -34454346.83 0.1617 0.1382

Mercury -99042-01-27 09:49 J -34453641.23 -34453641.09 -34453640.95 0.1623 0.0381

Mercury -99040-11-15 00:28 J -34452618.60 -34452618.48 -34452618.37 0.1899 0.0899

Mercury -99033-06-18 16:32 J -34450210.95 -34450210.81 -34450210.66 0.1621 0.0076

Mercury -99030-04-07 05:01 J -34449188.42 -34449188.29 -34449188.16 0.1902 0.0229

Mercury -99024-11-08 23:44 J -34446780.64 -34446780.51 -34446780.37 0.1620 0.0495

Mercury -99022-10-15 21:06 J -34446074.70 -34446074.62 -34446074.54 0.1626 0.1356

Mercury -99021-08-27 09:20 J -34445758.24 -34445758.11 -34445757.98 0.1903 0.0472

Venus -99016-08-02 15:49 J -34443956.99 -34443956.84 -34443956.69 0.1665 0.0814

Mercury -99014-04-01 07:11 J -34443350.32 -34443350.20 -34443350.09 0.1619 0.0918

Mercury -99012-03-07 03:35 J -34442644.47 -34442644.35 -34442644.23 0.1624 0.0892

Mercury -99011-01-17 12:56 J -34442328.06 -34442327.96 -34442327.86 0.1905 0.1207

Venus -99011-03-18 17:44 J -34442267.89 -34442267.76 -34442267.64 0.1860 0.1272

Mercury -99010-12-24 19:54 J -34441621.74 -34441621.67 -34441621.61 0.1896 0.1618

Moon -99008-01-14 11:59 J -34441235.17 -34441235.00 -34441234.84 0.1644 0.0604

Earth -99008-01-14 12:28 J -34441235.15 -34441234.98 -34441234.81 0.1644 0.0778 *

Mercury -99005-08-21 14:37 J -34439919.97 -34439919.89 -34439919.81 0.1617 0.1328

Mercury -99003-07-28 10:04 J -34439214.22 -34439214.08 -34439213.94 0.1623 0.0436

Earth -99002-07-27 01:40 J -34438850.52 -34438850.43 -34438850.34 0.1878 0.1664

Moon -99002-07-27 10:47 J -34438850.17 -34438850.05 -34438849.92 0.1878 0.1462

99TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 99th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -99000-05-16 00:42 J | -34438191.58 | -34438191.47 | -34438191.36 | 0.1899 | 0.0963 | | |
| Mercury | -98994-12-18 17:01 J | -34435783.93 | -34435783.79 | -34435783.65 | 0.1621 | 0.0023 | | |
| Mercury | -98991-10-06 05:16 J | -34434761.41 | -34434761.28 | -34434761.15 | 0.1901 | 0.0291 | | |
| Mercury | -98984-05-09 23:59 J | -34432353.63 | -34432353.50 | -34432353.36 | 0.1620 | 0.0444 | | |
| Venus | -98984-08-01 14:08 J | -34432270.07 | -34432269.91 | -34432269.74 | 0.1672 | 0.0643 | | |
| Mercury | -98982-04-15 21:35 J | -34431647.67 | -34431647.60 | -34431647.53 | 0.1626 | 0.1416 | | |
| Mercury | -98981-02-26 09:20 J | -34431331.24 | -34431331.11 | -34431330.98 | 0.1903 | 0.0421 | | |
| Venus | -98979-03-18 09:20 J | -34430580.25 | -34430580.11 | -34430579.96 | 0.1850 | 0.1013 | | |
| Mercury | -98975-09-30 07:25 J | -34428923.31 | -34428923.19 | -34428923.08 | 0.1618 | 0.0869 | | |
| Mercury | -98973-09-05 03:49 J | -34428217.46 | -34428217.34 | -34428217.23 | 0.1624 | 0.0945 | | |
| Mercury | -98972-07-18 13:11 J | -34427901.05 | -34427900.95 | -34427900.84 | 0.1905 | 0.1140 | | |
| Mercury | -98970-06-24 19:54 J | -34427194.73 | -34427194.67 | -34427194.61 | 0.1896 | 0.1672 | | |
| Mercury | -98965-02-20 14:52 J | -34425492.96 | -34425492.88 | -34425492.80 | 0.1617 | 0.1277 | | |
| Mercury | -98963-01-26 10:32 J | -34424787.20 | -34424787.06 | -34424786.93 | 0.1623 | 0.0493 | | |
| Mercury | -98963-12-08 16:47 J | -34424470.82 | -34424470.80 | -34424470.78 | 0.1906 | 0.1882 | | |
| Moon | -98961-01-09 01:11 J | -34424074.57 | -34424074.45 | -34424074.32 | 0.1634 | 0.1150 | | |
| Earth | -98961-01-09 05:01 J | -34424074.40 | -34424074.29 | -34424074.18 | 0.1634 | 0.1316 | * | |
| Mercury | -98961-11-14 00:56 J | -34423764.56 | -34423764.46 | -34423764.35 | 0.1899 | 0.1034 | | |
| Mercury | -98954-06-18 17:16 J | -34421356.92 | -34421356.78 | -34421356.64 | 0.1621 | 0.0051 | | |
| Mercury | -98951-04-06 05:30 J | -34420334.40 | -34420334.27 | -34420334.14 | 0.1901 | 0.0351 | | |
| Venus | -98950-05-31 02:23 J | -34419914.54 | -34419914.40 | -34419914.26 | 0.1662 | 0.1014 | | |
| Venus | -98945-01-13 22:47 J | -34418225.62 | -34418225.55 | -34418225.49 | 0.1863 | 0.1697 | | |

Mercury -98945-11-08 00:28 J -34417926.62 -34417926.48 -34417926.35 0.1620 0.0391

Mercury -98943-10-14 21:49 J -34417220.65 -34417220.59 -34417220.53 0.1626 0.1474

Mercury -98942-08-27 09:49 J -34416904.22 -34416904.09 -34416903.96 0.1904 0.0352

Mercury -98935-03-31 07:40 J -34414496.30 -34414496.18 -34414496.06 0.1618 0.0814

Mercury -98933-03-06 04:18 J -34413790.44 -34413790.32 -34413790.21 0.1624 0.1007

Mercury -98932-01-16 13:25 J -34413474.05 -34413473.94 -34413473.83 0.1905 0.1077

Mercury -98931-12-23 20:08 J -34412767.70 -34412767.66 -34412767.61 0.1896 0.1744

Mercury -98926-08-21 15:06 J -34411065.96 -34411065.87 -34411065.78 0.1617 0.1230

Mercury -98924-07-27 10:47 J -34410360.19 -34410360.05 -34410359.92 0.1622 0.0546

Mercury -98923-06-08 16:47 J -34410043.83 -34410043.80 -34410043.76 0.1907 0.1828

Mercury -98921-05-15 00:56 J -34409337.56 -34409337.46 -34409337.35 0.1899 0.1084

Venus -98918-05-30 00:56 J -34408227.63 -34408227.46 -34408227.29 0.1670 0.0446

Mercury -98915-12-17 17:30 J -34406929.91 -34406929.77 -34406929.63 0.1621 0.0098

Venus -98913-01-13 15:49 J -34406538.01 -34406537.84 -34406537.68 0.1853 0.0646

Mercury -98912-10-05 05:44 J -34405907.39 -34405907.26 -34405907.14 0.1902 0.0415

Mercury -98905-05-09 00:42 J -34403499.61 -34403499.47 -34403499.34 0.1620 0.0340

Mercury -98903-04-14 22:04 J -34402793.62 -34402793.58 -34402793.53 0.1626 0.1528

Mercury -98902-02-25 10:04 J -34402477.21 -34402477.08 -34402476.95 0.1904 0.0282

Mercury -98896-09-29 07:54 J -34400069.29 -34400069.17 -34400069.05 0.1618 0.0761

Mercury -98894-09-05 04:32 J -34399363.42 -34399363.31 -34399363.20 0.1624 0.1062

Mercury -98893-07-17 13:40 J -34399047.04 -34399046.93 -34399046.81 0.1905 0.1012

Mercury -98891-06-23 20:23 J -34398340.69 -34398340.65 -34398340.61 0.1896 0.1800

Mercury -98886-02-19 15:20 J -34396638.95 -34396638.86 -34396638.76 0.1617 0.1176

Mercury -98884-01-25 11:01 J -34395933.17 -34395933.04 -34395932.90 0.1622 0.0604

Venus -98884-03-27 13:25 J -34395872.06 -34395871.94 -34395871.82 0.1660 0.1198

Mercury -98884-12-07 17:16 J -34395616.83 -34395616.78 -34395616.73 0.1907 0.1753

Moon -98882-01-11 02:23 J -34395217.57 -34395217.40 -34395217.22 0.1636 0.0731

Earth -98882-01-11 08:23 J -34395217.33 -34395217.15 -34395216.97 0.1636 0.0485 *

Mercury -98882-11-14 01:25 J -34394910.55 -34394910.44 -34394910.34 0.1899 0.1154

Mercury -98877-07-11 23:01 J -34393208.57 -34393208.54 -34393208.52 0.1616 0.1584

Mercury -98875-06-17 17:59 J -34392502.90 -34392502.75 -34392502.61 0.1621 0.0162

Mercury -98872-04-05 05:59 J -34391480.38 -34391480.25 -34391480.13 0.1902 0.0478

Mercury -98866-11-08 00:56 J -34389072.60 -34389072.46 -34389072.32 0.1619 0.0284

Mercury -98864-10-13 22:32 J -34388366.59 -34388366.56 -34388366.53 0.1626 0.1591

Mercury -98863-08-26 10:04 J -34388050.21 -34388050.08 -34388049.95 0.1904 0.0227

Mercury -98856-03-30 08:08 J -34385642.29 -34385642.16 -34385642.04 0.1618 0.0713

Mercury -98854-03-06 04:47 J -34384936.40 -34384936.30 -34384936.20 0.1624 0.1116

Mercury -98853-01-16 14:08 J -34384620.03 -34384619.91 -34384619.80 0.1906 0.0943

Venus -98852-03-26 11:30 J -34384185.20 -34384185.02 -34384184.85 0.1667 0.0245

Mercury -98852-12-22 20:37 J -34383913.67 -34383913.64 -34383913.62 0.1897 0.1861

Venus -98848-11-09 20:52 J -34382495.80 -34382495.63 -34382495.46 0.1856 0.0240

Mercury -98847-08-20 15:35 J -34382211.95 -34382211.85 -34382211.75 0.1617 0.1127

Mercury -98845-07-26 11:16 J -34381506.16 -34381506.03 -34381505.90 0.1622 0.0657

Mercury -98844-06-07 17:30 J -34381189.83 -34381189.77 -34381189.71 0.1907 0.1692

Mercury -98842-05-15 01:40 J -34380483.53 -34380483.43 -34380483.34 0.1899 0.1217

Mercury -98837-01-10 23:16 J -34378781.57 -34378781.53 -34378781.49 0.1616 0.1532

Mercury -98836-12-16 18:13 J -34378075.88 -34378075.74 -34378075.60 0.1621 0.0210

Mercury -98833-10-04 06:13 J -34377053.37 -34377053.24 -34377053.12 0.1902 0.0542

Mercury -98826-05-09 01:11 J -34374645.59 -34374645.45 -34374645.31 0.1619 0.0230

Mercury -98823-02-24 10:32 J -34373623.20 -34373623.06 -34373622.93 0.1904 0.0166

Venus -98818-01-22 23:59 J -34371829.59 -34371829.50 -34371829.40 0.1658 0.1394

Mercury -98817-09-28 08:23 J -34371215.28 -34371215.15 -34371215.02 0.1618 0.0658

Mercury -98815-09-04 05:01 J -34370509.38 -34370509.29 -34370509.19 0.1624 0.1175

Mercury -98814-07-17 14:08 J -34370193.02 -34370192.91 -34370192.79 0.1905 0.0886

Mercury -98807-02-18 15:49 J -34367784.94 -34367784.84 -34367784.74 0.1617 0.1079

Mercury -98805-01-25 11:44 J -34367079.14 -34367079.01 -34367078.88 0.1622 0.0714

Mercury -98805-12-06 17:44 J -34366762.83 -34366762.76 -34366762.69 0.1907 0.1628

Earth -98803-01-13 11:30 J -34366360.20 -34366360.02 -34366359.83 0.1638 0.0339

Moon -98803-01-13 12:13 J -34366360.18 -34366359.99 -34366359.80 0.1638 0.0542 *

Mercury -98803-11-13 01:40 J -34366056.52 -34366056.43 -34366056.33 0.1899 0.1274

Mercury -98798-07-11 23:30 J -34364354.57 -34364354.52 -34364354.47 0.1616 0.1484

Moon -98797-07-21 19:11 J -34363978.88 -34363978.70 -34363978.50 0.1888 0.0271

Earth -98797-07-22 03:06 J -34363978.57 -34363978.37 -34363978.18 0.1888 0.0469 *

Mercury -98796-06-16 18:28 J -34363648.87 -34363648.73 -34363648.59 0.1621 0.0261

Mercury -98793-04-04 06:13 J -34362626.36 -34362626.24 -34362626.11 0.1902 0.0605

Mercury -98787-11-07 01:25 J -34360218.58 -34360218.44 -34360218.30 0.1619 0.0178

Venus -98786-01-21 22:18 J -34360142.75 -34360142.57 -34360142.40 0.1665 0.0060

Mercury -98784-08-25 10:47 J -34359196.18 -34359196.05 -34359195.92 0.1904 0.0089

Venus -98782-09-07 01:54 J -34358453.59 -34358453.42 -34358453.24 0.1860 0.0176

Mercury -98777-03-29 08:37 J -34356788.27 -34356788.14 -34356788.01 0.1618 0.0608

Mercury -98775-03-05 05:30 J -34356082.36 -34356082.27 -34356082.18 0.1624 0.1233

Mercury -98774-01-15 14:23 J -34355766.01 -34355765.90 -34355765.78 0.1906 0.0820

Mercury -98768-08-19 16:04 J -34353357.94 -34353357.83 -34353357.72 0.1617 0.1025

Mercury -98766-07-26 11:59 J -34352652.13 -34352652.00 -34352651.87 0.1622 0.0770

Mercury -98765-06-06 17:59 J -34352335.82 -34352335.75 -34352335.67 0.1907 0.1561

Mercury -98763-05-14 01:54 J -34351629.51 -34351629.42 -34351629.33 0.1900 0.1338

Mercury -98758-01-09 23:44 J -34349927.57 -34349927.51 -34349927.45 0.1616 0.1434

Mercury -98757-12-15 18:42 J -34349221.86 -34349221.72 -34349221.58 0.1620 0.0322

Venus -98754-01-20 20:52 J -34348455.70 -34348455.63 -34348455.56 0.1672 0.1529

Mercury -98754-10-04 06:42 J -34348199.34 -34348199.22 -34348199.10 0.1902 0.0670

Venus -98753-11-19 11:16 J -34347787.08 -34347787.03 -34347786.98 0.1656 0.1577

Mercury -98747-05-08 01:40 J -34345791.57 -34345791.43 -34345791.29 0.1619 0.0127

Mercury -98744-02-23 10:47 J -34344769.18 -34344769.05 -34344768.92 0.1904 0.0041

Mercury -98738-09-28 08:52 J -34342361.26 -34342361.13 -34342361.00 0.1618 0.0556

Mercury -98736-09-03 05:44 J -34341655.35 -34341655.26 -34341655.18 0.1624 0.1286

Mercury -98735-07-16 14:52 J -34341339.00 -34341338.88 -34341338.76 0.1906 0.0748

Mercury -98728-02-17 16:18 J -34338930.93 -34338930.82 -34338930.71 0.1617 0.0974

Mercury -98726-01-24 12:13 J -34338225.11 -34338224.99 -34338224.86 0.1622 0.0828

Mercury -98726-12-06 18:28 J -34337908.81 -34337908.73 -34337908.65 0.1907 0.1491

Earth -98724-01-15 14:23 J -34337503.03 -34337502.90 -34337502.76 0.1640 0.1172

Moon -98724-01-15 21:06 J -34337502.77 -34337502.62 -34337502.47 0.1640 0.1029 *
 Mercury -98724-11-12 02:23 J -34337202.49 -34337202.40 -34337202.32 0.1900 0.1409
 Venus -98721-11-18 08:52 J -34336100.31 -34336100.13 -34336099.96 0.1662 0.0163
 Mercury -98719-07-10 23:59 J -34335500.57 -34335500.50 -34335500.43 0.1616 0.1385
 Moon -98718-07-26 09:06 J -34335120.29 -34335120.12 -34335119.94 0.1884 0.1123
 Earth -98718-07-26 13:54 J -34335120.04 -34335119.92 -34335119.80 0.1884 0.1478 *
 Mercury -98717-06-15 18:56 J -34334794.85 -34334794.71 -34334794.57 0.1620 0.0374
 Venus -98716-07-04 06:56 J -34334411.38 -34334411.21 -34334411.05 0.1863 0.0593
 Mercury -98714-04-04 06:42 J -34333772.34 -34333772.22 -34333772.10 0.1902 0.0727
 Mercury -98708-11-06 02:08 J -34331364.56 -34331364.41 -34331364.27 0.1619 0.0085
 Mercury -98705-08-24 11:16 J -34330342.16 -34330342.03 -34330341.90 0.1904 0.0053
 Mercury -98698-03-29 09:06 J -34327934.25 -34327934.12 -34327933.98 0.1618 0.0504
 Mercury -98696-03-04 06:13 J -34327228.32 -34327228.24 -34327228.16 0.1624 0.1348
 Mercury -98695-01-14 15:06 J -34326912.00 -34326911.87 -34326911.75 0.1906 0.0688
 Mercury -98689-08-18 16:32 J -34324503.93 -34324503.81 -34324503.70 0.1617 0.0927
 Venus -98689-11-17 06:56 J -34324413.32 -34324413.21 -34324413.11 0.1670 0.1308
 Mercury -98687-07-25 12:28 J -34323798.10 -34323797.98 -34323797.86 0.1622 0.0881
 Mercury -98686-06-06 18:28 J -34323481.82 -34323481.73 -34323481.64 0.1908 0.1435
 Mercury -98684-05-13 02:08 J -34322775.49 -34322775.41 -34322775.33 0.1900 0.1457
 Venus -98684-07-03 22:32 J -34322723.62 -34322723.56 -34322723.49 0.1853 0.1715
 Mercury -98679-01-09 00:13 J -34321073.57 -34321073.49 -34321073.41 0.1616 0.1335
 Mercury -98678-12-15 19:11 J -34320367.83 -34320367.70 -34320367.56 0.1620 0.0427
 Earth -98677-01-10 08:23 J -34320342.31 -34320342.15 -34320341.99 0.1631 0.0875
 Moon -98677-01-10 14:08 J -34320342.07 -34320341.91 -34320341.74 0.1632 0.0631 *
 Mercury -98675-10-03 06:56 J -34319345.32 -34319345.21 -34319345.09 0.1902 0.0797
 Mercury -98668-05-07 02:23 J -34316937.55 -34316937.40 -34316937.26 0.1619 0.0042
 Mercury -98665-02-23 11:30 J -34315915.15 -34315915.02 -34315914.89 0.1904 0.0107
 Mercury -98659-09-27 09:35 J -34313507.24 -34313507.10 -34313506.97 0.1618 0.0450
 Mercury -98657-09-02 06:28 J -34312801.30 -34312801.23 -34312801.16 0.1624 0.1404
 Mercury -98656-07-15 15:20 J -34312484.99 -34312484.86 -34312484.74 0.1906 0.0624

Venus -98655-09-15 19:11 J -34312057.87 -34312057.70 -34312057.53 0.1660 0.0359
 Venus -98650-05-01 11:44 J -34310369.16 -34310369.01 -34310368.87 0.1866 0.1020
 Mercury -98649-02-17 16:47 J -34310076.91 -34310076.80 -34310076.68 0.1617 0.0872
 Mercury -98647-01-23 12:56 J -34309371.08 -34309370.96 -34309370.84 0.1622 0.0938
 Mercury -98647-12-05 18:56 J -34309054.80 -34309054.71 -34309054.62 0.1907 0.1361
 Mercury -98645-11-11 02:37 J -34308348.47 -34308348.39 -34308348.32 0.1900 0.1528
 Mercury -98640-07-10 00:28 J -34306646.57 -34306646.48 -34306646.40 0.1616 0.1286
 Mercury -98638-06-15 19:40 J -34305940.82 -34305940.68 -34305940.55 0.1620 0.0483
 Mercury -98635-04-03 07:11 J -34304918.31 -34304918.20 -34304918.08 0.1902 0.0856
 Mercury -98629-11-05 02:37 J -34302510.53 -34302510.39 -34302510.25 0.1619 0.0048
 Mercury -98626-08-24 11:30 J -34301488.15 -34301488.02 -34301487.89 0.1905 0.0161
 Venus -98623-09-14 17:16 J -34300370.91 -34300370.78 -34300370.65 0.1667 0.1105
 Mercury -98619-03-28 09:35 J -34299080.23 -34299080.10 -34299079.96 0.1618 0.0401
 Venus -98618-05-01 04:32 J -34298681.43 -34298681.31 -34298681.19 0.1856 0.1335
 Mercury -98617-03-03 06:42 J -34298374.28 -34298374.22 -34298374.16 0.1624 0.1458
 Mercury -98616-01-13 15:35 J -34298057.98 -34298057.85 -34298057.72 0.1906 0.0553
 Mercury -98610-08-18 17:01 J -34295649.91 -34295649.79 -34295649.67 0.1617 0.0822
 Mercury -98608-07-24 13:11 J -34294944.06 -34294943.95 -34294943.84 0.1622 0.0994
 Mercury -98607-06-05 19:11 J -34294627.80 -34294627.70 -34294627.61 0.1907 0.1300
 Mercury -98605-05-12 02:52 J -34293921.45 -34293921.38 -34293921.31 0.1900 0.1591
 Mercury -98600-01-08 00:42 J -34292219.56 -34292219.47 -34292219.38 0.1616 0.1232
 Mercury -98599-12-14 19:54 J -34291513.80 -34291513.67 -34291513.53 0.1620 0.0541
 Earth -98598-01-12 11:44 J -34291485.20 -34291485.01 -34291484.83 0.1633 0.0069
 Moon -98598-01-12 11:44 J -34291485.18 -34291485.01 -34291484.83 0.1633 0.0270 *
 Mercury -98596-10-02 07:25 J -34290491.30 -34290491.19 -34290491.08 0.1902 0.0922
 Mercury -98589-05-06 02:52 J -34288083.52 -34288083.38 -34288083.24 0.1619 0.0093
 Venus -98589-07-13 06:13 J -34288015.40 -34288015.24 -34288015.07 0.1658 0.0552
 Mercury -98586-02-22 11:44 J -34287061.14 -34287061.01 -34287060.88 0.1905 0.0233
 Venus -98584-02-25 16:18 J -34286326.92 -34286326.82 -34286326.71 0.1869 0.1458
 Mercury -98580-09-26 10:04 J -34284653.22 -34284653.08 -34284652.95 0.1618 0.0346

Mercury -98578-09-02 06:56 J -34283947.26 -34283947.21 -34283947.16 0.1624 0.1518

Mercury -98577-07-14 15:35 J -34283630.97 -34283630.85 -34283630.72 0.1906 0.0500

Mercury -98570-02-16 17:16 J -34281222.90 -34281222.78 -34281222.66 0.1616 0.0771

Mercury -98568-01-22 13:25 J -34280517.04 -34280516.94 -34280516.83 0.1622 0.1053

Mercury -98568-12-04 19:25 J -34280200.79 -34280200.69 -34280200.59 0.1908 0.1233

Mercury -98566-11-11 02:52 J -34279494.44 -34279494.38 -34279494.32 0.1900 0.1648

Mercury -98561-07-09 00:56 J -34277792.56 -34277792.46 -34277792.37 0.1616 0.1184

Mercury -98559-06-14 20:08 J -34277086.79 -34277086.66 -34277086.53 0.1620 0.0590

Venus -98557-07-12 03:49 J -34276328.49 -34276328.34 -34276328.19 0.1665 0.0898

Mercury -98556-04-02 07:40 J -34276064.29 -34276064.18 -34276064.07 0.1903 0.0983

Venus -98552-02-25 09:35 J -34274639.25 -34274639.10 -34274638.95 0.1860 0.0928

Mercury -98552-11-29 08:37 J -34274362.16 -34274362.14 -34274362.12 0.1615 0.1588

Mercury -98550-11-05 03:06 J -34273656.51 -34273656.37 -34273656.23 0.1619 0.0148

Mercury -98547-08-23 12:13 J -34272634.12 -34272633.99 -34272633.86 0.1904 0.0301

Mercury -98540-03-27 10:18 J -34270226.21 -34270226.07 -34270225.93 0.1618 0.0291

Mercury -98538-03-03 07:25 J -34269520.22 -34269520.19 -34269520.16 0.1624 0.1579

Mercury -98537-01-13 16:04 J -34269203.96 -34269203.83 -34269203.70 0.1906 0.0426

Mercury -98531-08-17 17:30 J -34266795.89 -34266795.77 -34266795.64 0.1616 0.0718

Mercury -98529-07-23 13:54 J -34266090.03 -34266089.92 -34266089.82 0.1622 0.1108

Mercury -98528-06-04 19:40 J -34265773.79 -34265773.68 -34265773.58 0.1908 0.1167

Mercury -98526-05-12 03:06 J -34265067.42 -34265067.37 -34265067.32 0.1900 0.1712

Venus -98523-05-10 16:47 J -34263972.95 -34263972.80 -34263972.64 0.1656 0.0751

Mercury -98521-01-08 01:11 J -34263365.55 -34263365.45 -34263365.36 0.1615 0.1135

Mercury -98520-12-13 20:23 J -34262659.78 -34262659.65 -34262659.51 0.1620 0.0652

Moon -98519-01-14 08:23 J -34262628.30 -34262628.15 -34262627.99 0.1635 0.0884

Earth -98519-01-14 14:08 J -34262628.08 -34262627.91 -34262627.74 0.1635 0.0741 *

Mercury -98517-10-01 07:54 J -34261637.28 -34261637.17 -34261637.06 0.1902 0.1048

Earth -98513-07-21 09:49 J -34260248.28 -34260248.09 -34260247.91 0.1894 0.0762

Moon -98513-07-21 17:59 J -34260247.94 -34260247.75 -34260247.56 0.1893 0.0383 *

Mercury -98512-05-30 08:52 J -34259935.17 -34259935.13 -34259935.09 0.1615 0.1542

Mercury -98510-05-06 03:20 J -34259229.50 -34259229.36 -34259229.22 0.1619 0.0198

Mercury -98507-02-21 12:13 J -34258207.12 -34258206.99 -34258206.86 0.1905 0.0354

Mercury -98501-09-25 10:32 J -34255799.20 -34255799.06 -34255798.92 0.1617 0.0238

Mercury -98498-07-14 16:18 J -34254776.95 -34254776.82 -34254776.69 0.1907 0.0358

Mercury -98491-02-15 17:44 J -34252368.88 -34252368.76 -34252368.63 0.1616 0.0667

Venus -98491-05-09 14:37 J -34252286.05 -34252285.89 -34252285.73 0.1662 0.0701

Mercury -98489-01-22 14:08 J -34251663.01 -34251662.91 -34251662.81 0.1622 0.1165

Mercury -98489-12-03 19:54 J -34251346.78 -34251346.67 -34251346.56 0.1908 0.1100

Mercury -98487-11-10 03:20 J -34250640.40 -34250640.36 -34250640.31 0.1900 0.1781

Venus -98487-12-23 15:20 J -34250597.02 -34250596.86 -34250596.69 0.1863 0.0534

Mercury -98482-07-09 01:25 J -34248938.54 -34248938.44 -34248938.34 0.1615 0.1083

Mercury -98480-06-13 20:52 J -34248232.76 -34248232.63 -34248232.51 0.1620 0.0705

Mercury -98479-04-25 23:01 J -34247916.56 -34247916.54 -34247916.51 0.1909 0.1865

Mercury -98477-04-01 07:54 J -34247210.27 -34247210.17 -34247210.06 0.1903 0.1109

Mercury -98473-11-28 09:06 J -34245508.17 -34245508.12 -34245508.07 0.1615 0.1488

Moon -98472-01-08 04:32 J -34245467.39 -34245467.31 -34245467.22 0.1627 0.1457

Earth -98472-01-08 11:01 J -34245467.16 -34245467.04 -34245466.91 0.1627 0.1209

Mercury -98471-11-04 03:49 J -34244802.48 -34244802.34 -34244802.20 0.1619 0.0261

Mercury -98468-08-22 12:28 J -34243780.10 -34243779.98 -34243779.85 0.1905 0.0426

Mercury -98461-03-26 10:47 J -34241372.19 -34241372.05 -34241371.91 0.1617 0.0185

Mercury -98458-01-12 16:32 J -34240349.94 -34240349.81 -34240349.68 0.1907 0.0302

Venus -98457-03-07 04:04 J -34239930.47 -34239930.33 -34239930.18 0.1653 0.0934

Mercury -98452-08-16 17:59 J -34237941.88 -34237941.75 -34237941.62 0.1616 0.0617

Mercury -98450-07-23 14:23 J -34237235.99 -34237235.90 -34237235.81 0.1621 0.1219

Mercury -98449-06-03 20:08 J -34236919.78 -34236919.66 -34236919.55 0.1908 0.1043

Mercury -98447-05-11 03:20 J -34236213.39 -34236213.36 -34236213.33 0.1900 0.1830

Mercury -98442-01-07 01:40 J -34234511.54 -34234511.43 -34234511.32 0.1615 0.1031

Mercury -98441-12-12 21:06 J -34233805.75 -34233805.62 -34233805.50 0.1620 0.0760

Moon -98440-01-16 12:13 J -34233771.09 -34233770.99 -34233770.88 0.1636 0.1397

Earth -98440-01-16 17:01 J -34233770.85 -34233770.79 -34233770.74 0.1637 0.1560

Mercury -98440-10-24 23:44 J -34233489.56 -34233489.51 -34233489.47 0.1909 0.1788

Mercury -98438-10-01 08:23 J -34232783.25 -34232783.15 -34232783.05 0.1903 0.1178

Moon -98434-07-25 19:40 J -34231389.83 -34231389.68 -34231389.52 0.1890 0.0959

Earth -98434-07-25 22:32 J -34231389.71 -34231389.56 -34231389.40 0.1890 0.1241 *

Mercury -98433-05-29 09:20 J -34231081.17 -34231081.11 -34231081.05 0.1615 0.1440

Mercury -98431-05-05 04:04 J -34230375.47 -34230375.33 -34230375.19 0.1619 0.0314

Mercury -98428-02-20 12:42 J -34229353.09 -34229352.97 -34229352.84 0.1905 0.0489

Venus -98425-03-06 01:11 J -34228243.61 -34228243.45 -34228243.28 0.1660 0.0503

Mercury -98422-09-25 11:01 J -34226945.18 -34226945.04 -34226944.90 0.1617 0.0131

Venus -98421-10-19 19:40 J -34226554.85 -34226554.68 -34226554.50 0.1866 0.0110

Mercury -98419-07-13 16:47 J -34225922.94 -34225922.80 -34225922.67 0.1907 0.0242

Mercury -98412-02-14 18:13 J -34223514.87 -34223514.74 -34223514.60 0.1616 0.0563

Mercury -98410-01-21 14:52 J -34222808.97 -34222808.88 -34222808.80 0.1621 0.1281

Mercury -98410-12-03 20:23 J -34222492.76 -34222492.65 -34222492.53 0.1908 0.0969

Mercury -98403-07-08 01:54 J -34220084.53 -34220084.42 -34220084.31 0.1615 0.0982

Mercury -98401-06-12 21:20 J -34219378.73 -34219378.61 -34219378.49 0.1620 0.0817

Mercury -98400-04-24 23:30 J -34219062.57 -34219062.52 -34219062.46 0.1909 0.1737

Mercury -98398-04-01 08:23 J -34218356.24 -34218356.15 -34218356.05 0.1903 0.1236

Mercury -98394-11-28 09:35 J -34216654.17 -34216654.10 -34216654.03 0.1615 0.1391

Moon -98393-01-11 11:59 J -34216610.20 -34216610.00 -34216609.80 0.1628 0.0242

Earth -98393-01-11 12:28 J -34216610.16 -34216609.98 -34216609.79 0.1628 0.0441 *

Mercury -98392-11-03 04:04 J -34215948.46 -34215948.33 -34215948.19 0.1618 0.0367

Venus -98391-01-02 15:06 J -34215888.00 -34215887.87 -34215887.75 0.1651 0.1125

Mercury -98389-08-21 12:56 J -34214926.09 -34214925.96 -34214925.84 0.1905 0.0550

Mercury -98382-03-26 11:16 J -34212518.17 -34212518.03 -34212517.89 0.1617 0.0078

Mercury -98379-01-11 17:01 J -34211495.92 -34211495.79 -34211495.66 0.1907 0.0163

Mercury -98373-08-15 18:42 J -34209087.86 -34209087.72 -34209087.59 0.1616 0.0510

Mercury -98371-07-22 15:06 J -34208381.95 -34208381.87 -34208381.79 0.1621 0.1337

Mercury -98370-06-03 20:37 J -34208065.76 -34208065.64 -34208065.52 0.1908 0.0905

Mercury -98363-01-06 02:08 J -34205657.52 -34205657.41 -34205657.30 0.1615 0.0927

Mercury -98362-12-12 21:35 J -34204951.72 -34204951.60 -34204951.48 0.1620 0.0876

Mercury -98361-10-23 23:59 J -34204635.56 -34204635.50 -34204635.43 0.1909 0.1660

Venus -98359-01-01 12:28 J -34204201.16 -34204200.98 -34204200.81 0.1658 0.0314

Mercury -98359-09-30 08:37 J -34203929.23 -34203929.14 -34203929.04 0.1903 0.1302

Venus -98355-08-17 00:28 J -34202512.65 -34202512.48 -34202512.30 0.1869 0.0340

Mercury -98354-05-29 09:49 J -34202227.17 -34202227.09 -34202227.02 0.1614 0.1341

Mercury -98352-05-04 04:32 J -34201521.45 -34201521.31 -34201521.17 0.1618 0.0420

Mercury -98349-02-20 13:11 J -34200499.08 -34200498.95 -34200498.83 0.1905 0.0615

Mercury -98343-09-24 11:30 J -34198091.16 -34198091.02 -34198090.88 0.1617 0.0038

Mercury -98340-07-12 17:01 J -34197068.92 -34197068.79 -34197068.65 0.1907 0.0123

Mercury -98333-02-14 18:42 J -34194660.85 -34194660.72 -34194660.58 0.1616 0.0460

Mercury -98331-01-20 15:20 J -34193954.93 -34193954.86 -34193954.79 0.1621 0.1395

Mercury -98331-12-02 20:52 J -34193638.75 -34193638.63 -34193638.51 0.1909 0.0838

Venus -98326-10-31 02:23 J -34191845.51 -34191845.40 -34191845.30 0.1649 0.1308

Mercury -98324-07-07 02:23 J -34191230.52 -34191230.40 -34191230.29 0.1615 0.0878

Mercury -98322-06-12 21:49 J -34190524.71 -34190524.59 -34190524.47 0.1620 0.0927

Mercury -98321-04-24 00:28 J -34190208.56 -34190208.48 -34190208.41 0.1909 0.1595

Mercury -98319-03-31 08:52 J -34189502.22 -34189502.13 -34189502.04 0.1903 0.1364

Mercury -98315-11-27 10:04 J -34187800.16 -34187800.08 -34187800.00 0.1615 0.1289

Earth -98314-01-13 14:37 J -34187753.08 -34187752.89 -34187752.71 0.1630 0.0356

Moon -98314-01-13 20:37 J -34187752.84 -34187752.64 -34187752.45 0.1630 0.0194 *

Mercury -98313-11-02 04:47 J -34187094.43 -34187094.30 -34187094.16 0.1618 0.0478

Mercury -98310-08-21 13:25 J -34186072.06 -34186071.94 -34186071.82 0.1905 0.0682

Mercury -98303-03-25 11:59 J -34183664.15 -34183664.00 -34183663.86 0.1617 0.0058

Mercury -98300-01-10 17:30 J -34182641.90 -34182641.77 -34182641.64 0.1907 0.0040

Mercury -98294-08-15 19:11 J -34180233.84 -34180233.70 -34180233.57 0.1616 0.0405

Venus -98294-10-29 23:01 J -34180158.72 -34180158.54 -34180158.37 0.1656 0.0114

Mercury -98292-07-21 15:35 J -34179527.91 -34179527.85 -34179527.79 0.1621 0.1452

Mercury -98291-06-02 21:06 J -34179211.74 -34179211.62 -34179211.50 0.1908 0.0774

Venus -98289-06-13 05:01 J -34178470.45 -34178470.29 -34178470.13 0.1872 0.0783

Mercury -98284-01-05 02:37 J -34176803.51 -34176803.39 -34176803.27 0.1615 0.0827
 Mercury -98283-12-11 22:18 J -34176097.68 -34176097.57 -34176097.46 0.1620 0.0988
 Mercury -98282-10-24 00:28 J -34175781.56 -34175781.48 -34175781.40 0.1910 0.1532
 Mercury -98280-09-29 09:06 J -34175075.20 -34175075.12 -34175075.04 0.1903 0.1429
 Mercury -98275-05-28 10:18 J -34173373.16 -34173373.07 -34173372.99 0.1614 0.1241
 Mercury -98273-05-03 05:01 J -34172667.42 -34172667.29 -34172667.16 0.1618 0.0529
 Mercury -98270-02-19 13:25 J -34171645.06 -34171644.94 -34171644.82 0.1906 0.0740
 Earth -98267-01-07 14:23 J -34170591.96 -34170591.90 -34170591.84 0.1623 0.1526
 Moon -98267-01-07 20:23 J -34170591.76 -34170591.65 -34170591.54 0.1623 0.1312
 Mercury -98264-09-23 12:13 J -34169237.14 -34169236.99 -34169236.85 0.1617 0.0102
 Venus -98262-10-28 20:08 J -34168471.71 -34168471.66 -34168471.60 0.1662 0.1565
 Mercury -98261-07-11 17:44 J -34168214.89 -34168214.76 -34168214.63 0.1907 0.0036
 Venus -98260-08-27 13:11 J -34167803.02 -34167802.95 -34167802.88 0.1647 0.1497
 Venus -98257-06-12 22:18 J -34166782.66 -34166782.57 -34166782.49 0.1863 0.1627
 Mercury -98254-02-13 19:25 J -34165806.83 -34165806.69 -34165806.55 0.1616 0.0350
 Mercury -98252-01-19 16:04 J -34165100.88 -34165100.83 -34165100.78 0.1621 0.1512
 Mercury -98252-12-01 21:20 J -34164784.73 -34164784.61 -34164784.48 0.1909 0.0706
 Mercury -98245-07-06 02:52 J -34162376.50 -34162376.38 -34162376.26 0.1615 0.0773
 Mercury -98243-06-11 22:32 J -34161670.67 -34161670.56 -34161670.45 0.1620 0.1044
 Mercury -98242-04-24 00:56 J -34161354.55 -34161354.46 -34161354.38 0.1910 0.1463
 Mercury -98240-03-30 09:06 J -34160648.19 -34160648.12 -34160648.04 0.1903 0.1492
 Mercury -98236-11-26 10:32 J -34158946.15 -34158946.06 -34158945.97 0.1614 0.1186
 Earth -98235-01-15 17:16 J -34158895.91 -34158895.78 -34158895.64 0.1631 0.1142
 Moon -98235-01-15 21:06 J -34158895.72 -34158895.62 -34158895.52 0.1631 0.1357 *
 Mercury -98234-11-02 05:30 J -34158240.41 -34158240.27 -34158240.14 0.1618 0.0591
 Mercury -98231-08-20 13:54 J -34157218.04 -34157217.92 -34157217.80 0.1906 0.0812
 Moon -98229-07-20 10:18 J -34156518.26 -34156518.07 -34156517.89 0.1899 0.1065
 Earth -98229-07-20 14:52 J -34156518.05 -34156517.88 -34156517.71 0.1899 0.1080 *
 Venus -98228-08-26 09:49 J -34156116.26 -34156116.09 -34156115.91 0.1654 0.0087
 Mercury -98226-04-18 18:13 J -34155515.76 -34155515.74 -34155515.72 0.1614 0.1596

Mercury -98224-03-24 12:28 J -34154810.13 -34154809.98 -34154809.84 0.1617 0.0149

Venus -98223-04-10 09:20 J -34154428.24 -34154428.11 -34154427.98 0.1875 0.1239

Mercury -98221-01-10 17:44 J -34153787.89 -34153787.76 -34153787.62 0.1907 0.0110

Mercury -98215-08-14 19:25 J -34151379.82 -34151379.69 -34151379.55 0.1616 0.0303

Mercury -98213-07-20 16:18 J -34150673.86 -34150673.82 -34150673.79 0.1621 0.1567

Mercury -98212-06-01 21:35 J -34150357.72 -34150357.60 -34150357.47 0.1909 0.0642

Mercury -98205-01-05 03:06 J -34147949.49 -34147949.37 -34147949.24 0.1615 0.0719

Mercury -98204-12-10 22:47 J -34147243.65 -34147243.55 -34147243.44 0.1620 0.1101

Mercury -98203-10-23 01:11 J -34146927.54 -34146927.45 -34146927.35 0.1910 0.1388

Mercury -98201-09-28 09:35 J -34146221.17 -34146221.10 -34146221.03 0.1904 0.1561

Mercury -98196-05-27 10:47 J -34144519.15 -34144519.05 -34144518.96 0.1614 0.1138

Venus -98196-08-25 07:11 J -34144429.30 -34144429.20 -34144429.10 0.1660 0.1371

Mercury -98194-05-03 05:44 J -34143813.40 -34143813.26 -34143813.13 0.1618 0.0645

Mercury -98191-02-18 13:54 J -34142791.03 -34142790.92 -34142790.80 0.1905 0.0877

Venus -98191-04-10 03:35 J -34142740.48 -34142740.35 -34142740.22 0.1866 0.1222

Earth -98188-01-09 15:20 J -34141735.02 -34141734.86 -34141734.69 0.1624 0.0767

Moon -98188-01-09 15:20 J -34141735.00 -34141734.86 -34141734.72 0.1624 0.0950 *

Mercury -98187-10-17 18:28 J -34141088.76 -34141088.73 -34141088.69 0.1614 0.1543

Mercury -98185-09-22 12:42 J -34140383.11 -34140382.97 -34140382.83 0.1617 0.0197

Mercury -98182-07-11 18:13 J -34139360.88 -34139360.74 -34139360.61 0.1908 0.0172

Mercury -98175-02-12 19:54 J -34136952.81 -34136952.67 -34136952.53 0.1616 0.0240

Mercury -98173-11-30 22:04 J -34135930.71 -34135930.58 -34135930.46 0.1909 0.0569

Mercury -98166-07-06 03:20 J -34133522.49 -34133522.36 -34133522.24 0.1615 0.0671

Mercury -98164-06-10 23:01 J -34132816.63 -34132816.54 -34132816.44 0.1619 0.1159

Mercury -98163-04-23 01:11 J -34132500.54 -34132500.45 -34132500.35 0.1910 0.1335

Venus -98162-06-23 21:06 J -34132073.79 -34132073.62 -34132073.45 0.1651 0.0276

Mercury -98161-03-29 09:35 J -34131794.16 -34131794.10 -34131794.03 0.1903 0.1617

Venus -98157-02-05 13:40 J -34130386.00 -34130385.93 -34130385.86 0.1878 0.1700

Mercury -98157-11-25 11:01 J -34130092.15 -34130092.04 -34130091.94 0.1614 0.1087

Mercury -98155-11-01 05:59 J -34129386.38 -34129386.25 -34129386.13 0.1618 0.0699

Mercury -98152-08-19 14:08 J -34128364.02 -34128363.91 -34128363.80 0.1906 0.0935

Earth -98150-07-25 04:32 J -34127659.49 -34127659.31 -34127659.14 0.1896 0.0951

Moon -98150-07-25 12:42 J -34127659.15 -34127658.97 -34127658.78 0.1896 0.0960 *

Mercury -98147-04-17 18:42 J -34126661.77 -34126661.72 -34126661.67 0.1614 0.1493

Mercury -98145-03-23 12:56 J -34125956.10 -34125955.96 -34125955.82 0.1617 0.0252

Mercury -98142-01-09 18:28 J -34124933.86 -34124933.73 -34124933.60 0.1908 0.0240

Mercury -98136-08-13 20:08 J -34122525.80 -34122525.66 -34122525.52 0.1616 0.0187

Mercury -98133-05-31 22:04 J -34121503.70 -34121503.58 -34121503.45 0.1909 0.0509

Venus -98130-06-22 17:44 J -34120386.88 -34120386.76 -34120386.63 0.1658 0.1168

Mercury -98126-01-04 03:35 J -34119095.48 -34119095.35 -34119095.22 0.1615 0.0615

Venus -98125-02-05 08:23 J -34118698.31 -34118698.15 -34118698.00 0.1869 0.0792

Mercury -98125-12-09 23:30 J -34118389.61 -34118389.52 -34118389.43 0.1619 0.1218

Mercury -98124-10-22 01:40 J -34118073.53 -34118073.43 -34118073.33 0.1910 0.1257

Mercury -98122-09-28 09:49 J -34117367.15 -34117367.09 -34117367.03 0.1904 0.1685

Mercury -98117-05-26 11:16 J -34115665.14 -34115665.03 -34115664.93 0.1614 0.1035

Mercury -98115-05-02 06:13 J -34114959.37 -34114959.24 -34114959.11 0.1618 0.0757

Mercury -98112-02-17 14:23 J -34113937.01 -34113936.90 -34113936.79 0.1906 0.1006

Moon -98109-01-12 11:16 J -34112878.21 -34112878.03 -34112877.84 0.1626 0.0170

Earth -98109-01-12 17:30 J -34112877.96 -34112877.77 -34112877.58 0.1626 0.0008 *

Mercury -98108-10-16 18:56 J -34112234.77 -34112234.71 -34112234.65 0.1613 0.1444

Mercury -98106-09-22 13:11 J -34111529.09 -34111528.95 -34111528.81 0.1616 0.0308

Mercury -98103-07-10 18:28 J -34110506.86 -34110506.73 -34110506.60 0.1908 0.0294

Mercury -98096-02-11 20:23 J -34108098.79 -34108098.65 -34108098.51 0.1615 0.0136

Venus -98096-04-20 07:54 J -34108031.33 -34108031.17 -34108031.00 0.1649 0.0472

Mercury -98094-11-30 22:32 J -34107076.69 -34107076.56 -34107076.43 0.1909 0.0437

Mercury -98087-07-05 03:49 J -34104668.47 -34104668.34 -34104668.21 0.1615 0.0563

Mercury -98085-06-09 23:44 J -34103962.60 -34103962.51 -34103962.42 0.1619 0.1272

Mercury -98084-04-22 01:54 J -34103646.52 -34103646.42 -34103646.31 0.1910 0.1191

Mercury -98082-03-29 10:04 J -34102940.12 -34102940.08 -34102940.03 0.1904 0.1751

Mercury -98078-11-25 11:30 J -34101238.13 -34101238.02 -34101237.91 0.1614 0.0980

Mercury -98076-10-31 06:42 J -34100532.35 -34100532.22 -34100532.10 0.1618 0.0818

Mercury -98073-08-18 14:37 J -34099509.99 -34099509.89 -34099509.78 0.1906 0.1073

Mercury -98068-04-16 19:11 J -34097807.76 -34097807.70 -34097807.63 0.1613 0.1392

Mercury -98066-03-23 13:25 J -34097102.07 -34097101.94 -34097101.80 0.1616 0.0366

Venus -98064-04-19 05:01 J -34096344.43 -34096344.29 -34096344.15 0.1656 0.0977

Mercury -98063-01-08 18:56 J -34096079.84 -34096079.71 -34096079.58 0.1908 0.0364

Venus -98060-12-02 13:40 J -34094656.10 -34094655.93 -34094655.76 0.1872 0.0375

Mercury -98057-08-12 20:37 J -34093671.78 -34093671.64 -34093671.50 0.1615 0.0082

Mercury -98054-05-31 22:32 J -34092649.69 -34092649.56 -34092649.42 0.1909 0.0380

Mercury -98047-01-03 04:04 J -34090241.46 -34090241.33 -34090241.20 0.1614 0.0509

Mercury -98046-12-10 00:13 J -34089535.57 -34089535.49 -34089535.41 0.1619 0.1336

Mercury -98045-10-21 02:08 J -34089219.52 -34089219.41 -34089219.30 0.1910 0.1125

Mercury -98043-09-27 10:18 J -34088513.10 -34088513.07 -34088513.03 0.1904 0.1814

Mercury -98038-05-26 11:44 J -34086811.13 -34086811.01 -34086810.90 0.1614 0.0931

Mercury -98036-05-01 06:42 J -34086105.34 -34086105.22 -34086105.10 0.1618 0.0869

Mercury -98035-03-13 05:30 J -34085789.29 -34085789.27 -34085789.26 0.1911 0.1897

Mercury -98033-02-17 14:51 J -34085082.99 -34085082.88 -34085082.78 0.1906 0.1132

Moon -98030-01-14 14:23 J -34084021.08 -34084020.90 -34084020.71 0.1627 0.0541

Earth -98030-01-14 18:56 J -34084020.87 -34084020.71 -34084020.54 0.1627 0.0773 *

Venus -98030-02-15 19:25 J -34083988.84 -34083988.69 -34083988.52 0.1647 0.0652

Mercury -98029-10-15 19:25 J -34083380.76 -34083380.69 -34083380.61 0.1613 0.1340

Mercury -98027-09-21 13:39 J -34082675.06 -34082674.93 -34082674.79 0.1616 0.0422

Mercury -98024-07-09 19:11 J -34081652.83 -34081652.70 -34081652.57 0.1908 0.0431

Mercury -98017-02-11 20:51 J -34079244.77 -34079244.63 -34079244.48 0.1615 0.0059

Mercury -98015-11-29 23:01 J -34078222.67 -34078222.54 -34078222.41 0.1909 0.0300

Mercury -98008-07-04 04:18 J -34075814.45 -34075814.32 -34075814.18 0.1614 0.0456

Mercury -98006-06-10 00:27 J -34075108.55 -34075108.48 -34075108.41 0.1619 0.1393

Mercury -98005-04-21 02:37 J -34074792.51 -34074792.39 -34074792.28 0.1911 0.1056

Mercury -98003-03-28 10:32 J -34074086.08 -34074086.06 -34074086.05 0.1904 0.1877

98TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 98th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -97999-11-24 11:59 J | -34072384.12 | -34072384.00 | -34072383.89 | 0.1614 | 0.0877 | | |
| Venus | -97998-02-14 16:03 J | -34072301.99 | -34072301.83 | -34072301.68 | 0.1653 | 0.0782 | | |
| Mercury | -97997-10-30 07:11 J | -34071678.32 | -34071678.20 | -34071678.08 | 0.1618 | 0.0930 | | |
| Mercury | -97996-09-11 05:44 J | -34071362.30 | -34071362.26 | -34071362.23 | 0.1911 | 0.1832 | | |
| Mercury | -97994-08-18 15:06 J | -34070655.97 | -34070655.87 | -34070655.77 | 0.1906 | 0.1202 | | |
| Venus | -97994-09-29 17:44 J | -34070613.93 | -34070613.76 | -34070613.59 | 0.1875 | 0.0083 | | |
| Mercury | -97989-04-15 19:39 J | -34068953.76 | -34068953.68 | -34068953.60 | 0.1613 | 0.1293 | | |
| Mercury | -97987-03-22 14:08 J | -34068248.05 | -34068247.91 | -34068247.78 | 0.1616 | 0.0476 | | |
| Mercury | -97984-01-07 19:25 J | -34067225.82 | -34067225.69 | -34067225.57 | 0.1908 | 0.0496 | | |
| Earth | -97983-01-08 19:54 J | -34066859.81 | -34066859.67 | -34066859.53 | 0.1621 | 0.1069 | | |
| Moon | -97983-01-08 20:51 J | -34066859.80 | -34066859.63 | -34066859.46 | 0.1621 | 0.0901 | * | |
| Mercury | -97978-08-12 21:06 J | -34064817.76 | -34064817.62 | -34064817.48 | 0.1615 | 0.0045 | | |
| Mercury | -97975-05-30 23:15 J | -34063795.66 | -34063795.53 | -34063795.40 | 0.1910 | 0.0238 | | |
| Mercury | -97968-01-02 04:32 J | -34061387.44 | -34061387.31 | -34061387.17 | 0.1614 | 0.0403 | | |
| Mercury | -97967-12-09 00:42 J | -34060681.53 | -34060681.47 | -34060681.41 | 0.1619 | 0.1451 | | |
| Mercury | -97966-10-21 02:51 J | -34060365.49 | -34060365.38 | -34060365.26 | 0.1910 | 0.0981 | | |
| Venus | -97965-12-13 06:42 J | -34059946.37 | -34059946.22 | -34059946.07 | 0.1645 | 0.0839 | | |
| Mercury | -97959-05-25 12:13 J | -34057957.11 | -34057956.99 | -34057956.87 | 0.1614 | 0.0825 | | |
| Mercury | -97957-04-30 07:25 J | -34057251.30 | -34057251.19 | -34057251.08 | 0.1618 | 0.0986 | | |
| Mercury | -97956-03-12 05:59 J | -34056935.30 | -34056935.25 | -34056935.20 | 0.1911 | 0.1764 | | |

Mercury -97954-02-16 15:20 J -34056228.96 -34056228.86 -34056228.76 0.1906 0.1266

Earth -97951-01-16 20:51 J -34055163.68 -34055163.63 -34055163.57 0.1628 0.1543

Mercury -97950-10-15 19:54 J -34054526.75 -34054526.67 -34054526.58 0.1613 0.1237

Mercury -97948-09-20 14:23 J -34053821.03 -34053820.90 -34053820.77 0.1616 0.0533

Mercury -97945-07-08 19:39 J -34052798.81 -34052798.68 -34052798.56 0.1908 0.0564

Moon -97945-07-19 15:35 J -34052787.95 -34052787.85 -34052787.75 0.1904 0.1575

Earth -97945-07-19 17:59 J -34052787.88 -34052787.75 -34052787.61 0.1904 0.1418 *

Mercury -97938-02-10 21:35 J -34050390.74 -34050390.60 -34050390.46 0.1615 0.0090

Mercury -97936-11-28 23:30 J -34049368.65 -34049368.52 -34049368.39 0.1910 0.0168

Venus -97933-12-12 03:20 J -34048259.52 -34048259.36 -34048259.20 0.1651 0.0594

Mercury -97929-07-03 04:47 J -34046960.44 -34046960.30 -34046960.16 0.1614 0.0350

Venus -97928-07-26 22:18 J -34046571.74 -34046571.57 -34046571.41 0.1878 0.0538

Mercury -97927-06-09 00:56 J -34046254.51 -34046254.46 -34046254.41 0.1619 0.1509

Mercury -97926-04-21 02:51 J -34045938.49 -34045938.38 -34045938.26 0.1911 0.0926

Mercury -97920-11-23 12:27 J -34043530.10 -34043529.98 -34043529.86 0.1614 0.0771

Mercury -97918-10-30 07:39 J -34042824.29 -34042824.18 -34042824.07 0.1617 0.1043

Mercury -97917-09-10 06:27 J -34042508.29 -34042508.23 -34042508.17 0.1912 0.1685

Mercury -97915-08-17 15:35 J -34041801.94 -34041801.85 -34041801.76 0.1907 0.1331

Mercury -97910-04-15 20:08 J -34040099.75 -34040099.66 -34040099.56 0.1613 0.1186

Mercury -97908-03-21 14:37 J -34039394.02 -34039393.89 -34039393.75 0.1616 0.0591

Mercury -97905-01-07 19:54 J -34038371.79 -34038371.67 -34038371.54 0.1908 0.0639

Earth -97904-01-10 21:06 J -34038002.81 -34038002.62 -34038002.44 0.1622 0.0321

Moon -97904-01-11 03:35 J -34038002.53 -34038002.35 -34038002.17 0.1622 0.0488 *

Mercury -97901-09-05 04:03 J -34036669.35 -34036669.33 -34036669.31 0.1613 0.1591

Mercury -97899-08-11 21:49 J -34035963.73 -34035963.59 -34035963.45 0.1615 0.0144

Venus -97899-10-10 18:13 J -34035903.88 -34035903.74 -34035903.61 0.1643 0.1020

Mercury -97896-05-29 23:44 J -34034941.64 -34034941.51 -34034941.38 0.1910 0.0107

Mercury -97889-01-02 05:15 J -34032533.42 -34032533.28 -34032533.14 0.1614 0.0293

Mercury -97888-12-08 01:25 J -34031827.47 -34031827.44 -34031827.41 0.1619 0.1571

Mercury -97887-10-20 03:20 J -34031511.48 -34031511.36 -34031511.24 0.1911 0.0847

Mercury -97880-05-24 12:42 J -34029103.10 -34029102.97 -34029102.85 0.1613 0.0718
 Mercury -97878-04-30 08:08 J -34028397.27 -34028397.16 -34028397.06 0.1617 0.1105
 Mercury -97877-03-11 06:27 J -34028081.30 -34028081.23 -34028081.16 0.1911 0.1627
 Mercury -97875-02-15 15:49 J -34027374.93 -34027374.84 -34027374.75 0.1906 0.1400
 Mercury -97871-10-14 20:23 J -34025672.75 -34025672.65 -34025672.55 0.1613 0.1136
 Mercury -97869-09-19 14:51 J -34024967.01 -34024966.88 -34024966.75 0.1616 0.0646
 Venus -97867-10-09 14:08 J -34024217.08 -34024216.91 -34024216.74 0.1649 0.0395
 Mercury -97866-07-08 19:54 J -34023944.79 -34023944.67 -34023944.54 0.1908 0.0693
 Moon -97866-07-24 00:27 J -34023929.67 -34023929.48 -34023929.28 0.1901 0.0612
 Earth -97866-07-24 09:49 J -34023929.28 -34023929.09 -34023928.90 0.1901 0.0654 *
 Venus -97862-05-24 02:23 J -34022529.54 -34022529.40 -34022529.25 0.1881 0.1005
 Mercury -97861-03-06 04:18 J -34022242.36 -34022242.32 -34022242.28 0.1613 0.1541
 Mercury -97859-02-09 22:03 J -34021536.72 -34021536.58 -34021536.44 0.1615 0.0197
 Mercury -97857-11-27 23:59 J -34020514.63 -34020514.50 -34020514.36 0.1910 0.0061
 Mercury -97850-07-03 05:30 J -34018106.41 -34018106.27 -34018106.13 0.1614 0.0238
 Mercury -97847-04-20 03:35 J -34017084.47 -34017084.35 -34017084.22 0.1911 0.0781
 Mercury -97841-11-22 12:56 J -34014676.08 -34014675.96 -34014675.83 0.1613 0.0663
 Mercury -97839-10-29 08:23 J -34013970.25 -34013970.15 -34013970.05 0.1617 0.1164
 Mercury -97838-09-10 06:56 J -34013654.29 -34013654.21 -34013654.13 0.1912 0.1550
 Mercury -97836-08-16 16:03 J -34012947.91 -34012947.83 -34012947.75 0.1906 0.1466
 Venus -97833-08-07 05:44 J -34011861.38 -34011861.26 -34011861.15 0.1641 0.1200
 Mercury -97831-04-14 20:37 J -34011245.74 -34011245.64 -34011245.54 0.1613 0.1082
 Venus -97830-05-23 21:06 J -34010841.72 -34010841.62 -34010841.52 0.1872 0.1516
 Mercury -97829-03-20 15:20 J -34010539.99 -34010539.86 -34010539.74 0.1616 0.0705
 Mercury -97826-01-06 20:23 J -34009517.77 -34009517.65 -34009517.53 0.1909 0.0766
 Earth -97825-01-13 22:47 J -34009145.74 -34009145.55 -34009145.37 0.1623 0.0433
 Moon -97825-01-14 03:06 J -34009145.53 -34009145.37 -34009145.20 0.1623 0.0668 *
 Mercury -97822-09-05 04:32 J -34007815.36 -34007815.31 -34007815.26 0.1612 0.1491
 Mercury -97820-08-10 22:18 J -34007109.71 -34007109.57 -34007109.43 0.1615 0.0257
 Mercury -97817-05-29 00:13 J -34006087.62 -34006087.49 -34006087.36 0.1910 0.0042

Mercury -97810-01-01 05:44 J -34003679.40 -34003679.26 -34003679.12 0.1614 0.0184

Mercury -97808-10-19 03:49 J -34002657.46 -34002657.34 -34002657.21 0.1911 0.0713

Mercury -97801-05-23 13:11 J -34000249.08 -34000248.95 -34000248.82 0.1613 0.0612

Venus -97801-08-06 01:39 J -34000174.61 -34000174.43 -34000174.26 0.1647 0.0212

Mercury -97799-04-29 08:37 J -33999543.23 -33999543.14 -33999543.05 0.1617 0.1217

Mercury -97798-03-11 07:11 J -33999227.28 -33999227.20 -33999227.11 0.1912 0.1481

Mercury -97796-02-14 16:18 J -33998520.90 -33998520.82 -33998520.75 0.1907 0.1530

Venus -97796-03-20 06:13 J -33998487.34 -33998487.24 -33998487.13 0.1884 0.1484

Mercury -97792-10-13 20:51 J -33996818.73 -33996818.63 -33996818.52 0.1613 0.1030

Mercury -97790-09-19 15:35 J -33996112.98 -33996112.85 -33996112.73 0.1616 0.0762

Mercury -97787-07-07 20:37 J -33995090.75 -33995090.64 -33995090.52 0.1909 0.0836

Mercury -97782-03-06 04:47 J -33993388.36 -33993388.30 -33993388.24 0.1612 0.1438

Mercury -97780-02-08 22:47 J -33992682.69 -33992682.55 -33992682.41 0.1615 0.0315

Moon -97778-01-08 01:25 J -33991984.51 -33991984.44 -33991984.38 0.1618 0.1493

Earth -97778-01-08 02:08 J -33991984.51 -33991984.41 -33991984.30 0.1618 0.1336 *

Mercury -97778-11-28 00:42 J -33991660.61 -33991660.47 -33991660.34 0.1910 0.0123

Mercury -97771-07-02 05:59 J -33989252.39 -33989252.25 -33989252.11 0.1614 0.0126

Mercury -97768-04-19 04:18 J -33988230.45 -33988230.32 -33988230.20 0.1911 0.0643

Venus -97767-06-04 17:30 J -33987818.86 -33987818.77 -33987818.67 0.1640 0.1371

Venus -97764-03-20 02:08 J -33986799.55 -33986799.41 -33986799.27 0.1875 0.1087

Mercury -97762-11-22 13:25 J -33985822.07 -33985821.94 -33985821.81 0.1613 0.0557

Mercury -97760-10-28 09:06 J -33985116.21 -33985116.12 -33985116.04 0.1617 0.1281

Mercury -97759-09-09 07:25 J -33984800.28 -33984800.19 -33984800.10 0.1912 0.1415

Mercury -97757-08-15 16:32 J -33984093.88 -33984093.81 -33984093.74 0.1907 0.1599

Mercury -97752-04-13 21:06 J -33982391.73 -33982391.62 -33982391.51 0.1613 0.0979

Mercury -97750-03-20 15:49 J -33981685.96 -33981685.84 -33981685.72 0.1616 0.0819

Mercury -97747-01-05 20:51 J -33980663.75 -33980663.63 -33980663.52 0.1909 0.0898

Moon -97746-01-15 22:18 J -33980288.71 -33980288.57 -33980288.43 0.1624 0.1018

Earth -97746-01-16 00:42 J -33980288.59 -33980288.47 -33980288.34 0.1624 0.1197 *

Mercury -97743-09-04 05:01 J -33978961.35 -33978961.29 -33978961.22 0.1612 0.1386

Mercury -97741-08-09 22:47 J -33978255.68 -33978255.55 -33978255.41 0.1615 0.0371

Mercury -97738-05-29 00:56 J -33977233.60 -33977233.46 -33977233.33 0.1911 0.0188

Venus -97735-06-03 12:56 J -33976132.13 -33976131.96 -33976131.78 0.1645 0.0036

Mercury -97732-12-31 06:13 J -33974825.38 -33974825.24 -33974825.10 0.1614 0.0076

Mercury -97729-10-18 04:32 J -33973803.44 -33973803.31 -33973803.18 0.1911 0.0569

Mercury -97722-05-23 13:39 J -33971395.06 -33971394.93 -33971394.79 0.1613 0.0504

Mercury -97720-04-28 09:20 J -33970689.19 -33970689.11 -33970689.03 0.1617 0.1340

Mercury -97719-03-10 07:39 J -33970373.27 -33970373.18 -33970373.08 0.1912 0.1345

Mercury -97717-02-14 16:47 J -33969666.86 -33969666.80 -33969666.74 0.1907 0.1665

Mercury -97713-10-12 21:35 J -33967964.72 -33967964.60 -33967964.49 0.1612 0.0921

Mercury -97711-09-18 16:18 J -33967258.94 -33967258.82 -33967258.70 0.1616 0.0880

Mercury -97708-07-06 21:06 J -33966236.73 -33966236.62 -33966236.51 0.1909 0.0968

Mercury -97703-03-05 05:15 J -33964534.35 -33964534.28 -33964534.20 0.1612 0.1336

Venus -97703-06-02 09:06 J -33964445.20 -33964445.12 -33964445.04 0.1651 0.1465

Mercury -97701-02-08 23:15 J -33963828.67 -33963828.53 -33963828.39 0.1615 0.0427

Venus -97701-04-01 05:15 J -33963776.34 -33963776.28 -33963776.23 0.1638 0.1548

Moon -97699-01-09 20:51 J -33963127.80 -33963127.63 -33963127.45 0.1618 0.0443

Earth -97699-01-10 02:51 J -33963127.55 -33963127.38 -33963127.21 0.1618 0.0610 *

Mercury -97699-11-27 01:11 J -33962806.58 -33962806.45 -33962806.32 0.1910 0.0247

Venus -97698-01-15 06:42 J -33962757.38 -33962757.22 -33962757.06 0.1878 0.0636

Mercury -97692-07-01 06:27 J -33960398.37 -33960398.23 -33960398.09 0.1614 0.0019

Mercury -97689-04-18 04:47 J -33959376.43 -33959376.30 -33959376.18 0.1912 0.0512

Mercury -97683-11-21 14:08 J -33956968.05 -33956967.91 -33956967.78 0.1613 0.0448

Mercury -97681-10-27 09:35 J -33956262.17 -33956262.10 -33956262.03 0.1617 0.1398

Mercury -97680-09-08 08:23 J -33955946.25 -33955946.15 -33955946.05 0.1912 0.1265

Mercury -97678-08-15 17:01 J -33955239.84 -33955239.79 -33955239.74 0.1907 0.1732

Mercury -97673-04-12 21:35 J -33953537.71 -33953537.60 -33953537.48 0.1613 0.0872

Mercury -97671-03-19 16:32 J -33952831.93 -33952831.81 -33952831.70 0.1616 0.0937

Venus -97669-03-31 00:13 J -33952089.66 -33952089.49 -33952089.31 0.1643 0.0165

Mercury -97668-01-04 21:35 J -33951809.71 -33951809.60 -33951809.49 0.1909 0.1043

Mercury -97664-09-03 05:30 J -33950107.35 -33950107.27 -33950107.19 0.1612 0.1283

Mercury -97662-08-09 23:30 J -33949401.65 -33949401.52 -33949401.38 0.1614 0.0483

Earth -97661-07-18 19:54 J -33949057.74 -33949057.67 -33949057.60 0.1908 0.1772

Moon -97661-07-19 05:44 J -33949057.31 -33949057.26 -33949057.20 0.1907 0.1841

Mercury -97659-05-28 01:11 J -33948379.58 -33948379.45 -33948379.32 0.1911 0.0316

Mercury -97653-12-30 06:56 J -33945971.35 -33945971.21 -33945971.07 0.1614 0.0052

Mercury -97650-10-18 05:15 J -33944949.41 -33944949.28 -33944949.15 0.1912 0.0429

Mercury -97643-05-22 14:23 J -33942541.04 -33942540.90 -33942540.77 0.1613 0.0396

Mercury -97641-04-27 10:03 J -33941835.14 -33941835.08 -33941835.02 0.1617 0.1460

Mercury -97640-03-09 08:23 J -33941519.26 -33941519.15 -33941519.05 0.1912 0.1208

Mercury -97638-02-13 17:15 J -33940812.82 -33940812.78 -33940812.74 0.1907 0.1799

Venus -97637-03-29 20:37 J -33940402.75 -33940402.64 -33940402.53 0.1649 0.1282

Mercury -97634-10-12 21:49 J -33939110.71 -33939110.59 -33939110.47 0.1612 0.0819

Venus -97633-11-11 11:30 J -33938715.19 -33938715.02 -33938714.84 0.1880 0.0204

Mercury -97632-09-17 16:47 J -33938404.91 -33938404.80 -33938404.69 0.1615 0.0993

Mercury -97629-07-05 21:20 J -33937382.71 -33937382.61 -33937382.50 0.1909 0.1098

Mercury -97624-03-04 05:44 J -33935680.34 -33935680.26 -33935680.17 0.1612 0.1231

Mercury -97622-02-07 23:44 J -33934974.64 -33934974.51 -33934974.37 0.1614 0.0541

Moon -97620-01-11 23:01 J -33934270.73 -33934270.54 -33934270.34 0.1619 0.0092

Earth -97620-01-12 03:35 J -33934270.54 -33934270.35 -33934270.16 0.1619 0.0131 *

Mercury -97620-11-26 01:39 J -33933952.56 -33933952.43 -33933952.30 0.1911 0.0391

Mercury -97613-06-30 07:11 J -33931544.34 -33931544.20 -33931544.06 0.1614 0.0101

Mercury -97610-04-18 05:30 J -33930522.41 -33930522.27 -33930522.14 0.1912 0.0368

Mercury -97604-11-20 14:37 J -33928114.03 -33928113.89 -33928113.75 0.1613 0.0337

Venus -97603-01-26 11:59 J -33928047.17 -33928047.00 -33928046.82 0.1641 0.0339

Mercury -97602-10-27 10:18 J -33927408.11 -33927408.07 -33927408.02 0.1617 0.1520

Mercury -97601-09-07 08:51 J -33927092.24 -33927092.13 -33927092.03 0.1913 0.1130

Mercury -97599-08-14 17:15 J -33926385.80 -33926385.78 -33926385.75 0.1907 0.1866

Mercury -97594-04-12 22:18 J -33924683.70 -33924683.57 -33924683.45 0.1612 0.0763

Mercury -97592-03-18 17:01 J -33923977.89 -33923977.79 -33923977.68 0.1615 0.1056

Mercury -97589-01-04 21:49 J -33922955.69 -33922955.59 -33922955.48 0.1909 0.1177
 Mercury -97585-09-02 05:59 J -33921253.34 -33921253.25 -33921253.16 0.1612 0.1179
 Mercury -97583-08-09 00:13 J -33920547.62 -33920547.49 -33920547.36 0.1614 0.0600
 Earth -97582-07-23 13:25 J -33920199.14 -33920198.94 -33920198.73 0.1906 0.0349
 Moon -97582-07-23 18:13 J -33920198.92 -33920198.74 -33920198.56 0.1906 0.0672 *
 Mercury -97580-05-27 01:54 J -33919525.55 -33919525.42 -33919525.29 0.1911 0.0449
 Mercury -97575-01-23 14:08 J -33917822.94 -33917822.91 -33917822.89 0.1612 0.1585
 Mercury -97574-12-30 07:25 J -33917117.33 -33917117.19 -33917117.05 0.1613 0.0156
 Moon -97573-01-07 09:06 J -33917109.20 -33917109.12 -33917109.03 0.1615 0.1465
 Earth -97573-01-07 08:37 J -33917109.17 -33917109.14 -33917109.11 0.1615 0.1591 *
 Venus -97571-01-25 07:39 J -33916360.30 -33916360.18 -33916360.04 0.1647 0.1093
 Mercury -97571-10-17 05:30 J -33916095.40 -33916095.27 -33916095.13 0.1912 0.0302
 Venus -97567-09-08 15:20 J -33914673.04 -33914672.86 -33914672.69 0.1883 0.0291
 Mercury -97564-05-21 14:51 J -33913687.02 -33913686.88 -33913686.74 0.1613 0.0284
 Mercury -97562-04-27 10:32 J -33912981.09 -33912981.06 -33912981.03 0.1617 0.1575
 Mercury -97561-03-08 09:06 J -33912665.23 -33912665.12 -33912665.01 0.1913 0.1057
 Mercury -97555-10-11 22:32 J -33910256.69 -33910256.56 -33910256.44 0.1612 0.0706
 Mercury -97553-09-16 17:30 J -33909550.87 -33909550.77 -33909550.67 0.1616 0.1115
 Mercury -97552-07-29 11:59 J -33909235.03 -33909235.00 -33909234.97 0.1913 0.1851
 Mercury -97550-07-05 22:03 J -33908528.67 -33908528.58 -33908528.48 0.1909 0.1245
 Mercury -97545-03-03 06:13 J -33906826.33 -33906826.24 -33906826.14 0.1612 0.1125
 Mercury -97543-02-07 00:27 J -33906120.61 -33906120.48 -33906120.35 0.1614 0.0658
 Earth -97541-01-15 05:15 J -33905413.44 -33905413.28 -33905413.12 0.1621 0.0869
 Moon -97541-01-15 08:51 J -33905413.28 -33905413.13 -33905412.98 0.1621 0.1077 *
 Mercury -97541-11-25 02:08 J -33905098.53 -33905098.41 -33905098.28 0.1911 0.0524
 Venus -97538-11-23 23:30 J -33904004.68 -33904004.52 -33904004.35 0.1639 0.0524
 Mercury -97536-07-24 14:08 J -33903395.94 -33903395.91 -33903395.87 0.1612 0.1534
 Mercury -97534-06-30 07:39 J -33902690.32 -33902690.18 -33902690.04 0.1613 0.0210
 Mercury -97531-04-17 05:59 J -33901668.38 -33901668.25 -33901668.12 0.1912 0.0226
 Mercury -97525-11-19 15:06 J -33899260.01 -33899259.87 -33899259.73 0.1613 0.0226

Mercury -97522-09-07 09:20 J -33898238.23 -33898238.11 -33898238.00 0.1913 0.0992

Mercury -97515-04-11 22:47 J -33895829.68 -33895829.55 -33895829.43 0.1612 0.0657

Mercury -97513-03-17 17:44 J -33895123.86 -33895123.76 -33895123.66 0.1615 0.1172

Mercury -97512-01-27 12:13 J -33894808.03 -33894807.99 -33894807.94 0.1913 0.1780

Mercury -97510-01-03 22:18 J -33894101.66 -33894101.57 -33894101.48 0.1910 0.1306

Mercury -97506-09-02 06:27 J -33892399.33 -33892399.23 -33892399.12 0.1612 0.1072

Venus -97506-11-22 19:25 J -33892317.84 -33892317.69 -33892317.55 0.1645 0.0907

Mercury -97504-08-08 00:42 J -33891693.60 -33891693.47 -33891693.34 0.1614 0.0712

Mercury -97501-05-26 02:23 J -33890671.52 -33890671.40 -33890671.27 0.1911 0.0591

Venus -97501-07-05 19:25 J -33890630.85 -33890630.69 -33890630.53 0.1886 0.0760

Mercury -97496-01-22 14:37 J -33888968.94 -33888968.89 -33888968.84 0.1612 0.1481

Mercury -97495-12-29 07:54 J -33888263.31 -33888263.17 -33888263.03 0.1613 0.0272

Earth -97494-01-09 09:20 J -33888252.26 -33888252.11 -33888251.95 0.1616 0.0866

Moon -97494-01-09 15:20 J -33888252.01 -33888251.86 -33888251.71 0.1616 0.0983 *

Mercury -97492-10-16 06:13 J -33887241.37 -33887241.24 -33887241.10 0.1912 0.0157

Mercury -97485-05-20 15:20 J -33884833.00 -33884832.86 -33884832.72 0.1613 0.0173

Mercury -97482-03-08 09:35 J -33883811.22 -33883811.10 -33883810.98 0.1913 0.0918

Mercury -97476-10-10 23:01 J -33881402.67 -33881402.54 -33881402.41 0.1612 0.0598

Mercury -97474-09-16 17:59 J -33880696.84 -33880696.75 -33880696.66 0.1615 0.1233

Mercury -97473-07-28 12:42 J -33880381.03 -33880380.97 -33880380.91 0.1913 0.1709

Venus -97472-09-20 11:15 J -33879962.19 -33879962.03 -33879961.88 0.1638 0.0701

Mercury -97471-07-04 22:32 J -33879674.65 -33879674.56 -33879674.47 0.1910 0.1377

Venus -97469-07-05 15:06 J -33878942.90 -33878942.87 -33878942.83 0.1878 0.1832

Mercury -97466-03-03 06:42 J -33877972.32 -33877972.22 -33877972.11 0.1612 0.1021

Mercury -97464-02-06 00:56 J -33877266.58 -33877266.46 -33877266.33 0.1614 0.0776

Earth -97462-01-17 06:27 J -33876556.24 -33876556.23 -33876556.21 0.1622 0.1616

Moon -97462-01-17 12:56 J -33876556.04 -33876555.96 -33876555.88 0.1622 0.1456

Mercury -97462-11-25 02:37 J -33876244.51 -33876244.39 -33876244.26 0.1911 0.0661

Mercury -97457-07-23 14:37 J -33874541.95 -33874541.89 -33874541.82 0.1611 0.1431

Mercury -97455-06-29 08:08 J -33873836.30 -33873836.16 -33873836.02 0.1613 0.0323

Mercury -97452-04-16 06:27 J -33872814.37 -33872814.23 -33872814.10 0.1913 0.0091

Mercury -97446-11-19 15:35 J -33870405.99 -33870405.85 -33870405.70 0.1613 0.0126

Mercury -97443-09-06 10:03 J -33869384.20 -33869384.08 -33869383.96 0.1913 0.0840

Venus -97440-09-19 06:27 J -33868275.39 -33868275.23 -33868275.07 0.1643 0.0715

Mercury -97436-04-10 23:15 J -33866975.66 -33866975.53 -33866975.40 0.1612 0.0545

Venus -97435-05-02 23:15 J -33866588.65 -33866588.53 -33866588.39 0.1889 0.1249

Mercury -97434-03-17 18:27 J -33866269.82 -33866269.73 -33866269.65 0.1615 0.1293

Mercury -97433-01-27 12:56 J -33865954.03 -33865953.96 -33865953.89 0.1913 0.1639

Mercury -97431-01-02 23:01 J -33865247.63 -33865247.54 -33865247.46 0.1909 0.1450

Mercury -97427-09-01 06:56 J -33863545.32 -33863545.21 -33863545.10 0.1611 0.0966

Mercury -97425-08-07 01:25 J -33862839.56 -33862839.44 -33862839.32 0.1614 0.0833

Mercury -97422-05-26 02:51 J -33861817.50 -33861817.38 -33861817.26 0.1911 0.0728

Mercury -97417-01-22 15:06 J -33860114.94 -33860114.87 -33860114.80 0.1611 0.1375

Mercury -97416-12-28 08:37 J -33859409.28 -33859409.14 -33859409.00 0.1613 0.0385

Earth -97415-01-11 10:32 J -33859395.25 -33859395.06 -33859394.88 0.1616 0.0150

Moon -97415-01-11 13:39 J -33859395.11 -33859394.93 -33859394.75 0.1616 0.0044 *

Mercury -97413-10-15 06:56 J -33858387.35 -33858387.21 -33858387.08 0.1912 0.0035

Mercury -97406-05-20 15:49 J -33855978.98 -33855978.84 -33855978.70 0.1612 0.0067

Venus -97406-07-18 23:01 J -33855919.69 -33855919.54 -33855919.39 0.1636 0.0877

Mercury -97403-03-07 10:03 J -33854957.20 -33854957.08 -33854956.96 0.1913 0.0783

Venus -97403-05-02 19:39 J -33854900.80 -33854900.68 -33854900.57 0.1881 0.1379

Mercury -97397-10-09 23:30 J -33852548.65 -33852548.52 -33852548.39 0.1612 0.0491

Mercury -97395-09-15 18:42 J -33851842.80 -33851842.72 -33851842.65 0.1615 0.1350

Mercury -97394-07-28 13:11 J -33851527.02 -33851526.95 -33851526.87 0.1914 0.1565

Mercury -97392-07-03 23:01 J -33850820.62 -33850820.54 -33850820.46 0.1910 0.1508

Mercury -97387-03-02 07:25 J -33849118.31 -33849118.19 -33849118.08 0.1612 0.0911

Mercury -97385-02-06 01:39 J -33848412.55 -33848412.43 -33848412.31 0.1614 0.0891

Mercury -97383-11-24 03:20 J -33847390.48 -33847390.36 -33847390.24 0.1912 0.0806

Mercury -97378-07-23 15:20 J -33845687.94 -33845687.86 -33845687.79 0.1611 0.1325

Mercury -97376-06-28 08:51 J -33844982.27 -33844982.13 -33844982.00 0.1613 0.0440

Venus -97374-07-17 18:13 J -33844232.90 -33844232.74 -33844232.57 0.1641 0.0535

Mercury -97373-04-15 06:56 J -33843960.34 -33843960.21 -33843960.07 0.1912 0.0085

Venus -97369-02-28 02:51 J -33842546.44 -33842546.38 -33842546.32 0.1892 0.1753

Mercury -97367-11-18 16:18 J -33841551.96 -33841551.82 -33841551.68 0.1612 0.0023

Mercury -97364-09-05 10:32 J -33840530.18 -33840530.06 -33840529.93 0.1913 0.0702

Mercury -97357-04-09 23:44 J -33838121.64 -33838121.51 -33838121.37 0.1612 0.0435

Mercury -97355-03-16 18:56 J -33837415.77 -33837415.71 -33837415.64 0.1615 0.1415

Mercury -97354-01-26 13:39 J -33837100.02 -33837099.93 -33837099.85 0.1914 0.1494

Mercury -97352-01-01 23:15 J -33836393.60 -33836393.53 -33836393.45 0.1910 0.1588

Mercury -97348-08-31 07:25 J -33834691.30 -33834691.19 -33834691.07 0.1611 0.0860

Mercury -97346-08-07 01:54 J -33833985.53 -33833985.42 -33833985.30 0.1614 0.0950

Mercury -97343-05-25 03:20 J -33832963.47 -33832963.36 -33832963.24 0.1911 0.0864

Venus -97340-05-15 11:01 J -33831877.18 -33831877.04 -33831876.91 0.1634 0.1049

Mercury -97338-01-21 15:20 J -33831260.94 -33831260.86 -33831260.77 0.1611 0.1273

Venus -97337-02-27 23:59 J -33830858.65 -33830858.50 -33830858.35 0.1883 0.0925

Mercury -97337-12-27 09:06 J -33830555.26 -33830555.12 -33830554.99 0.1613 0.0495

Moon -97336-01-13 06:56 J -33830538.38 -33830538.21 -33830538.04 0.1617 0.0355

Earth -97336-01-13 10:32 J -33830538.23 -33830538.06 -33830537.88 0.1617 0.0575 *

Mercury -97334-10-15 07:11 J -33829533.33 -33829533.20 -33829533.06 0.1913 0.0143

Mercury -97327-05-19 16:32 J -33827124.95 -33827124.81 -33827124.67 0.1612 0.0061

Mercury -97324-03-06 11:01 J -33826103.17 -33826103.04 -33826102.92 0.1913 0.0631

Mercury -97318-10-10 00:13 J -33823694.63 -33823694.49 -33823694.36 0.1612 0.0380

Mercury -97316-09-14 19:25 J -33822988.75 -33822988.69 -33822988.64 0.1615 0.1474

Mercury -97315-07-27 13:54 J -33822673.01 -33822672.92 -33822672.83 0.1914 0.1422

Mercury -97313-07-02 23:30 J -33821966.58 -33821966.52 -33821966.45 0.1910 0.1653

Mercury -97308-03-01 07:54 J -33820264.29 -33820264.17 -33820264.05 0.1611 0.0804

Venus -97308-05-14 05:44 J -33820190.43 -33820190.26 -33820190.09 0.1639 0.0351

Mercury -97306-02-05 02:23 J -33819558.51 -33819558.40 -33819558.29 0.1614 0.1011

Mercury -97304-11-23 03:49 J -33818536.46 -33818536.34 -33818536.23 0.1912 0.0940

Mercury -97299-07-22 15:35 J -33816833.93 -33816833.85 -33816833.76 0.1611 0.1221

Earth -97298-07-22 15:20 J -33816469.07 -33816468.86 -33816468.65 0.1910 0.0012
 Moon -97298-07-22 17:44 J -33816468.99 -33816468.76 -33816468.54 0.1910 0.0353 *
 Mercury -97297-06-27 09:20 J -33816128.24 -33816128.11 -33816127.97 0.1613 0.0556
 Mercury -97294-04-15 07:39 J -33815106.31 -33815106.18 -33815106.05 0.1913 0.0201
 Moon -97289-01-08 11:01 J -33813377.18 -33813377.04 -33813376.90 0.1613 0.1043
 Earth -97289-01-08 17:01 J -33813376.92 -33813376.79 -33813376.66 0.1613 0.1111 *
 Mercury -97288-11-17 16:47 J -33812697.94 -33812697.80 -33812697.66 0.1612 0.0112
 Mercury -97285-09-04 11:01 J -33811676.17 -33811676.04 -33811675.91 0.1914 0.0566
 Mercury -97278-04-10 00:13 J -33809267.63 -33809267.49 -33809267.35 0.1612 0.0326
 Mercury -97276-03-15 19:39 J -33808561.73 -33808561.68 -33808561.64 0.1615 0.1531
 Mercury -97275-01-25 14:08 J -33808246.00 -33808245.91 -33808245.81 0.1914 0.1350
 Venus -97274-03-12 22:47 J -33807834.66 -33807834.55 -33807834.43 0.1633 0.1222
 Mercury -97273-01-01 23:44 J -33807539.57 -33807539.51 -33807539.46 0.1910 0.1715
 Venus -97272-12-25 04:03 J -33806816.49 -33806816.33 -33806816.16 0.1886 0.0451
 Mercury -97269-08-30 08:08 J -33805837.29 -33805837.16 -33805837.04 0.1611 0.0751
 Mercury -97267-08-06 02:37 J -33805131.50 -33805131.39 -33805131.29 0.1614 0.1067
 Mercury -97264-05-24 04:03 J -33804109.44 -33804109.33 -33804109.22 0.1912 0.1009
 Mercury -97259-01-20 16:03 J -33802406.93 -33802406.83 -33802406.74 0.1611 0.1165
 Mercury -97258-12-27 09:49 J -33801701.22 -33801701.09 -33801700.96 0.1613 0.0617
 Moon -97257-01-16 05:30 J -33801681.35 -33801681.27 -33801681.20 0.1618 0.1466
 Earth -97257-01-16 11:59 J -33801681.10 -33801681.00 -33801680.89 0.1618 0.1304
 Mercury -97255-10-14 07:54 J -33800679.30 -33800679.17 -33800679.04 0.1913 0.0274
 Mercury -97250-06-12 23:59 J -33798976.52 -33798976.50 -33798976.47 0.1611 0.1572
 Mercury -97248-05-18 17:01 J -33798270.93 -33798270.79 -33798270.65 0.1612 0.0169
 Mercury -97245-03-05 11:30 J -33797249.15 -33797249.02 -33797248.90 0.1914 0.0495
 Venus -97242-03-11 17:30 J -33796147.95 -33796147.77 -33796147.60 0.1638 0.0171
 Mercury -97239-10-09 00:42 J -33794840.61 -33794840.47 -33794840.34 0.1611 0.0272
 Mercury -97237-09-13 19:54 J -33794134.69 -33794134.67 -33794134.65 0.1615 0.1593
 Mercury -97236-07-26 14:23 J -33793819.00 -33793818.90 -33793818.80 0.1914 0.1281
 Mercury -97234-07-02 23:59 J -33793112.54 -33793112.50 -33793112.46 0.1910 0.1786

Mercury -97229-02-29 08:08 J -33791410.28 -33791410.16 -33791410.03 0.1611 0.0698

Mercury -97227-02-04 02:51 J -33790704.48 -33790704.38 -33790704.28 0.1614 0.1129

Mercury -97225-11-22 04:18 J -33789682.43 -33789682.32 -33789682.21 0.1912 0.1076

Mercury -97220-07-21 16:18 J -33787979.92 -33787979.82 -33787979.73 0.1611 0.1114

Mercury -97218-06-27 09:49 J -33787274.21 -33787274.09 -33787273.96 0.1613 0.0671

Mercury -97215-04-14 08:08 J -33786252.29 -33786252.16 -33786252.03 0.1913 0.0340

Mercury -97211-12-12 00:13 J -33784549.53 -33784549.49 -33784549.44 0.1611 0.1521

Moon -97210-01-10 14:08 J -33784520.10 -33784519.91 -33784519.73 0.1614 0.0577

Earth -97210-01-10 17:15 J -33784519.96 -33784519.78 -33784519.60 0.1614 0.0402 *

Venus -97210-03-10 12:56 J -33784460.99 -33784460.96 -33784460.93 0.1643 0.1605

Mercury -97209-11-16 17:15 J -33783843.92 -33783843.78 -33783843.64 0.1612 0.0229

Venus -97208-01-07 11:01 J -33783792.13 -33783792.04 -33783791.95 0.1631 0.1390

Mercury -97206-09-04 11:44 J -33782822.14 -33782822.01 -33782821.88 0.1914 0.0417

Venus -97206-10-22 08:23 J -33782774.32 -33782774.15 -33782773.97 0.1889 0.0054

Mercury -97199-04-09 00:56 J -33780413.60 -33780413.46 -33780413.33 0.1611 0.0217

Mercury -97196-01-24 14:51 J -33779391.99 -33779391.88 -33779391.78 0.1914 0.1208

Mercury -97194-01-01 00:27 J -33778685.51 -33778685.48 -33778685.46 0.1910 0.1860

Mercury -97190-08-30 08:37 J -33776983.27 -33776983.14 -33776983.01 0.1611 0.0639

Mercury -97188-08-05 03:06 J -33776277.46 -33776277.37 -33776277.27 0.1613 0.1189

Mercury -97185-05-23 04:32 J -33775255.42 -33775255.31 -33775255.21 0.1912 0.1145

Mercury -97180-01-19 16:32 J -33773552.92 -33773552.81 -33773552.71 0.1611 0.1060

Mercury -97179-12-26 10:18 J -33772847.20 -33772847.07 -33772846.94 0.1613 0.0732

Venus -97176-01-06 05:15 J -33772105.45 -33772105.28 -33772105.10 0.1636 0.0023

Mercury -97176-10-13 08:23 J -33771825.27 -33771825.15 -33771825.02 0.1913 0.0418

Mercury -97171-06-12 00:27 J -33770122.53 -33770122.48 -33770122.43 0.1611 0.1472

Mercury -97169-05-17 17:30 J -33769416.91 -33769416.77 -33769416.63 0.1612 0.0281

Mercury -97166-03-05 11:44 J -33768395.14 -33768395.01 -33768394.87 0.1914 0.0360

Mercury -97160-10-08 01:11 J -33765986.59 -33765986.45 -33765986.31 0.1611 0.0163

Mercury -97157-07-25 15:06 J -33764964.98 -33764964.87 -33764964.76 0.1915 0.1133

Mercury -97150-02-28 08:51 J -33762556.26 -33762556.13 -33762556.00 0.1611 0.0585

Mercury -97148-02-03 03:20 J -33761850.44 -33761850.36 -33761850.27 0.1614 0.1249
 Mercury -97146-11-22 04:47 J -33760828.40 -33760828.30 -33760828.20 0.1912 0.1223
 Venus -97144-01-05 00:13 J -33760418.57 -33760418.49 -33760418.40 0.1641 0.1420
 Venus -97143-11-04 22:47 J -33759749.59 -33759749.55 -33759749.50 0.1629 0.1565
 Mercury -97141-07-20 16:32 J -33759125.91 -33759125.81 -33759125.70 0.1611 0.1008
 Venus -97140-08-18 11:44 J -33758732.18 -33758732.01 -33758731.85 0.1891 0.0540
 Mercury -97139-06-26 10:32 J -33758420.18 -33758420.06 -33758419.94 0.1612 0.0788
 Mercury -97136-04-13 08:37 J -33757398.27 -33757398.14 -33757398.01 0.1913 0.0478
 Mercury -97132-12-11 00:42 J -33755695.53 -33755695.47 -33755695.40 0.1611 0.1416
 Earth -97131-01-12 17:30 J -33755662.95 -33755662.77 -33755662.58 0.1614 0.0302
 Moon -97131-01-12 21:20 J -33755662.80 -33755662.61 -33755662.43 0.1615 0.0516 *
 Mercury -97130-11-16 17:59 J -33754989.89 -33754989.75 -33754989.61 0.1612 0.0343
 Mercury -97127-09-03 12:13 J -33753968.12 -33753967.99 -33753967.85 0.1914 0.0280
 Mercury -97120-04-08 01:25 J -33751559.58 -33751559.44 -33751559.30 0.1611 0.0101
 Mercury -97117-01-24 15:20 J -33750537.97 -33750537.86 -33750537.75 0.1914 0.1064
 Mercury -97111-08-29 08:51 J -33748129.26 -33748129.13 -33748128.99 0.1611 0.0535
 Venus -97111-11-03 16:47 J -33748062.98 -33748062.80 -33748062.63 0.1634 0.0197
 Mercury -97109-08-04 03:49 J -33747423.43 -33747423.34 -33747423.26 0.1613 0.1306
 Mercury -97108-06-15 17:59 J -33747107.77 -33747107.75 -33747107.73 0.1915 0.1878
 Mercury -97106-05-23 04:47 J -33746401.39 -33746401.30 -33746401.20 0.1912 0.1278
 Mercury -97101-01-19 17:01 J -33744698.91 -33744698.79 -33744698.68 0.1611 0.0954
 Mercury -97100-12-25 10:47 J -33743993.17 -33743993.05 -33743992.93 0.1612 0.0845
 Mercury -97097-10-12 08:51 J -33742971.25 -33742971.13 -33742971.00 0.1914 0.0554
 Mercury -97092-06-11 00:56 J -33741268.53 -33741268.46 -33741268.39 0.1611 0.1364
 Mercury -97090-05-17 18:13 J -33740562.88 -33740562.74 -33740562.61 0.1612 0.0399
 Mercury -97087-03-04 12:42 J -33739541.11 -33739540.97 -33739540.84 0.1914 0.0208
 Earth -97084-01-07 01:25 J -33738501.54 -33738501.44 -33738501.33 0.1612 0.1337
 Moon -97084-01-07 08:08 J -33738501.27 -33738501.16 -33738501.06 0.1612 0.1336
 Mercury -97081-10-07 01:39 J -33737132.57 -33737132.43 -33737132.29 0.1611 0.0044
 Venus -97079-11-02 11:44 J -33736376.12 -33736376.01 -33736375.89 0.1639 0.1234

Mercury -97078-07-25 15:35 J -33736110.96 -33736110.85 -33736110.73 0.1915 0.0994

Venus -97074-06-15 15:35 J -33734690.00 -33734689.85 -33734689.71 0.1894 0.1035

Mercury -97071-02-27 09:20 J -33733702.24 -33733702.11 -33733701.98 0.1611 0.0475

Mercury -97069-02-03 04:03 J -33732996.40 -33732996.33 -33732996.25 0.1613 0.1368

Mercury -97069-12-14 18:27 J -33732680.77 -33732680.73 -33732680.68 0.1915 0.1795

Mercury -97067-11-21 05:15 J -33731974.37 -33731974.28 -33731974.19 0.1912 0.1355

Mercury -97062-07-20 17:01 J -33730271.90 -33730271.79 -33730271.67 0.1610 0.0900

Mercury -97060-06-25 11:15 J -33729566.15 -33729566.03 -33729565.92 0.1612 0.0908

Mercury -97057-04-12 09:06 J -33728544.24 -33728544.12 -33728543.99 0.1913 0.0623

Mercury -97053-12-10 01:11 J -33726841.53 -33726841.45 -33726841.37 0.1610 0.1313

Earth -97052-01-14 17:44 J -33726805.90 -33726805.76 -33726805.61 0.1615 0.1014

Moon -97052-01-14 23:59 J -33726805.65 -33726805.50 -33726805.34 0.1615 0.0846 *

Mercury -97051-11-15 18:27 J -33726135.87 -33726135.73 -33726135.60 0.1611 0.0456

Mercury -97048-09-02 12:42 J -33725114.10 -33725113.97 -33725113.84 0.1914 0.0140

Venus -97045-08-31 04:32 J -33724020.48 -33724020.31 -33724020.14 0.1632 0.0370

Venus -97042-06-15 12:27 J -33723002.06 -33723001.98 -33723001.90 0.1886 0.1665

Mercury -97041-04-07 01:54 J -33722705.56 -33722705.42 -33722705.28 0.1611 0.0043

Mercury -97038-01-23 16:03 J -33721683.95 -33721683.83 -33721683.71 0.1915 0.0919

Mercury -97032-08-28 09:35 J -33719275.24 -33719275.10 -33719274.97 0.1611 0.0420

Mercury -97030-08-04 04:18 J -33718569.38 -33718569.32 -33718569.25 0.1613 0.1426

Mercury -97029-06-14 18:42 J -33718253.77 -33718253.72 -33718253.66 0.1915 0.1727

Mercury -97027-05-22 05:30 J -33717547.35 -33717547.27 -33717547.18 0.1913 0.1426

Mercury -97022-01-18 17:30 J -33715844.89 -33715844.77 -33715844.66 0.1610 0.0843

Mercury -97021-12-24 11:30 J -33715139.13 -33715139.02 -33715138.91 0.1612 0.0967

Mercury -97018-10-12 09:20 J -33714117.23 -33714117.11 -33714116.98 0.1914 0.0697

Moon -97014-07-21 05:30 J -33712739.46 -33712739.27 -33712739.07 0.1913 0.0168

Earth -97014-07-21 14:23 J -33712739.10 -33712738.90 -33712738.69 0.1913 0.0369 *

Mercury -97013-06-10 01:25 J -33712414.53 -33712414.44 -33712414.36 0.1610 0.1260

Venus -97013-08-29 23:15 J -33712333.66 -33712333.53 -33712333.40 0.1637 0.1044

Mercury -97011-05-16 18:42 J -33711708.86 -33711708.72 -33711708.59 0.1611 0.0512

Mercury -97008-03-03 12:56 J -33710687.09 -33710686.96 -33710686.82 0.1915 0.0084

Venus -97008-04-11 18:42 J -33710647.82 -33710647.72 -33710647.62 0.1896 0.1556

Earth -97005-01-10 00:42 J -33709644.64 -33709644.47 -33709644.30 0.1612 0.0649

Moon -97005-01-10 04:03 J -33709644.50 -33709644.33 -33709644.16 0.1612 0.0504 *

Mercury -97002-10-07 02:08 J -33708278.55 -33708278.41 -33708278.27 0.1611 0.0070

97TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 97th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -96999-07-24 16:18 J | -33707256.94 | -33707256.82 | -33707256.70 | 0.1915 | 0.0851 | | |
| Mercury | -96992-02-26 09:49 J | -33704848.23 | -33704848.09 | -33704847.96 | 0.1610 | 0.0368 | | |
| Mercury | -96990-02-02 04:47 J | -33704142.36 | -33704142.30 | -33704142.25 | 0.1613 | 0.1489 | | |
| Mercury | -96990-12-14 18:56 J | -33703826.77 | -33703826.71 | -33703826.64 | 0.1915 | 0.1657 | | |
| Mercury | -96988-11-20 05:44 J | -33703120.34 | -33703120.26 | -33703120.18 | 0.1912 | 0.1491 | | |
| Mercury | -96983-07-19 17:30 J | -33701417.89 | -33701417.77 | -33701417.65 | 0.1610 | 0.0792 | | |
| Mercury | -96981-06-24 11:30 J | -33700712.12 | -33700712.02 | -33700711.91 | 0.1612 | 0.1021 | | |
| Venus | -96979-06-28 16:32 J | -33699977.98 | -33699977.81 | -33699977.65 | 0.1631 | 0.0548 | | |
| Mercury | -96978-04-12 09:35 J | -33699690.22 | -33699690.10 | -33699689.98 | 0.1914 | 0.0758 | | |
| Venus | -96976-04-11 16:18 J | -33698959.96 | -33698959.82 | -33698959.69 | 0.1889 | 0.1177 | | |
| Mercury | -96974-12-10 01:39 J | -33697987.52 | -33697987.43 | -33697987.34 | 0.1610 | 0.1206 | | |
| Mercury | -96972-11-14 18:56 J | -33697281.84 | -33697281.71 | -33697281.58 | 0.1611 | 0.0572 | | |
| Mercury | -96969-09-01 13:25 J | -33696260.07 | -33696259.94 | -33696259.81 | 0.1915 | 0.0019 | | |
| Mercury | -96962-04-07 02:23 J | -33693851.54 | -33693851.40 | -33693851.26 | 0.1611 | 0.0127 | | |

Mercury -96959-01-22 16:32 J -33692829.93 -33692829.81 -33692829.69 0.1915 0.0776

Mercury -96953-08-27 10:03 J -33690421.22 -33690421.08 -33690420.94 0.1610 0.0309

Mercury -96951-08-03 05:01 J -33689715.33 -33689715.29 -33689715.26 0.1613 0.1547

Mercury -96950-06-14 19:25 J -33689399.77 -33689399.69 -33689399.62 0.1915 0.1582

Mercury -96948-05-21 05:44 J -33688693.33 -33688693.26 -33688693.18 0.1913 0.1560

Venus -96947-06-27 11:01 J -33688291.18 -33688291.04 -33688290.89 0.1636 0.0864

Mercury -96943-01-17 17:44 J -33686990.88 -33686990.76 -33686990.63 0.1610 0.0737

Mercury -96942-12-24 11:59 J -33686285.10 -33686285.00 -33686284.89 0.1612 0.1085

Mercury -96939-10-11 10:03 J -33685263.20 -33685263.08 -33685262.97 0.1914 0.0835

Moon -96935-07-25 03:49 J -33683880.50 -33683880.34 -33683880.18 0.1911 0.1361

Earth -96935-07-25 10:18 J -33683880.14 -33683880.07 -33683880.00 0.1911 0.1780

Mercury -96934-06-10 01:39 J -33683560.52 -33683560.43 -33683560.33 0.1610 0.1157

Mercury -96932-05-15 19:11 J -33682854.83 -33682854.70 -33682854.57 0.1611 0.0627

Mercury -96929-03-02 13:25 J -33681833.07 -33681832.94 -33681832.80 0.1915 0.0075

Moon -96926-01-11 21:35 J -33680787.78 -33680787.60 -33680787.42 0.1612 0.0137

Earth -96926-01-12 00:56 J -33680787.65 -33680787.46 -33680787.28 0.1612 0.0057 *

Mercury -96925-10-30 10:03 J -33680130.11 -33680130.08 -33680130.05 0.1610 0.1560

Mercury -96923-10-06 02:37 J -33679424.53 -33679424.39 -33679424.25 0.1611 0.0183

Mercury -96920-07-23 16:47 J -33678402.92 -33678402.80 -33678402.67 0.1916 0.0705

Mercury -96913-02-26 10:18 J -33675994.21 -33675994.07 -33675993.93 0.1610 0.0254

Venus -96913-04-25 04:32 J -33675935.47 -33675935.31 -33675935.16 0.1629 0.0719

Mercury -96911-02-01 05:15 J -33675288.29 -33675288.28 -33675288.27 0.1613 0.1608

Mercury -96911-12-13 19:39 J -33674972.76 -33674972.68 -33674972.59 0.1915 0.1508

Venus -96910-02-06 20:08 J -33674917.82 -33674917.66 -33674917.49 0.1891 0.0694

Mercury -96909-11-19 06:13 J -33674266.30 -33674266.24 -33674266.17 0.1913 0.1636

Mercury -96904-07-18 17:59 J -33672563.87 -33672563.75 -33672563.62 0.1610 0.0683

Mercury -96902-06-24 12:13 J -33671858.09 -33671857.99 -33671857.89 0.1612 0.1143

Mercury -96899-04-11 10:03 J -33670836.19 -33670836.08 -33670835.96 0.1914 0.0900

Mercury -96895-12-09 02:08 J -33669133.51 -33669133.41 -33669133.31 0.1610 0.1099

Mercury -96893-11-13 19:39 J -33668427.81 -33668427.68 -33668427.56 0.1611 0.0691

Mercury -96890-09-01 13:54 J -33667406.05 -33667405.92 -33667405.79 0.1915 0.0151
 Mercury -96885-04-30 10:03 J -33665703.12 -33665703.08 -33665703.03 0.1610 0.1513
 Mercury -96883-04-06 02:51 J -33664997.52 -33664997.38 -33664997.24 0.1611 0.0240
 Venus -96881-04-23 22:32 J -33664248.71 -33664248.56 -33664248.40 0.1634 0.0681
 Mercury -96880-01-21 17:01 J -33663975.91 -33663975.79 -33663975.66 0.1915 0.0637
 Moon -96879-01-06 03:20 J -33663626.40 -33663626.36 -33663626.31 0.1610 0.1556
 Earth -96879-01-06 09:49 J -33663626.13 -33663626.09 -33663626.04 0.1610 0.1552
 Mercury -96874-08-27 10:32 J -33661567.20 -33661567.06 -33661566.93 0.1610 0.0207
 Mercury -96871-06-13 19:54 J -33660545.76 -33660545.67 -33660545.58 0.1916 0.1445
 Mercury -96869-05-20 06:13 J -33659839.30 -33659839.24 -33659839.18 0.1913 0.1692
 Mercury -96864-01-16 18:13 J -33658136.86 -33658136.74 -33658136.61 0.1610 0.0628
 Mercury -96863-12-23 12:27 J -33657431.07 -33657430.98 -33657430.88 0.1612 0.1202
 Mercury -96860-10-10 10:18 J -33656409.18 -33656409.07 -33656408.95 0.1914 0.0976
 Mercury -96855-06-09 02:23 J -33654706.51 -33654706.40 -33654706.30 0.1610 0.1048
 Mercury -96853-05-14 19:39 J -33654000.80 -33654000.68 -33654000.55 0.1611 0.0747
 Mercury -96850-03-02 14:08 J -33652979.04 -33652978.91 -33652978.78 0.1915 0.0222
 Moon -96847-01-13 18:42 J -33651930.87 -33651930.72 -33651930.56 0.1613 0.0895
 Earth -96847-01-14 00:42 J -33651930.63 -33651930.47 -33651930.30 0.1613 0.0735 *
 Venus -96847-02-20 16:32 J -33651892.96 -33651892.81 -33651892.67 0.1628 0.0894
 Mercury -96846-10-30 10:18 J -33651276.12 -33651276.07 -33651276.01 0.1610 0.1458
 Venus -96845-12-03 23:44 J -33650875.69 -33650875.51 -33650875.34 0.1894 0.0190
 Mercury -96844-10-05 03:06 J -33650570.51 -33650570.37 -33650570.23 0.1611 0.0299
 Mercury -96841-07-22 17:15 J -33649548.91 -33649548.78 -33649548.65 0.1916 0.0565
 Mercury -96834-02-25 10:47 J -33647140.19 -33647140.05 -33647139.91 0.1610 0.0141
 Mercury -96832-12-12 20:23 J -33646118.74 -33646118.65 -33646118.56 0.1915 0.1361
 Mercury -96830-11-19 06:42 J -33645412.27 -33645412.22 -33645412.18 0.1913 0.1771
 Mercury -96825-07-17 18:27 J -33643709.86 -33643709.73 -33643709.60 0.1610 0.0573
 Mercury -96823-06-23 12:56 J -33643004.05 -33643003.96 -33643003.88 0.1612 0.1263
 Mercury -96820-04-10 10:32 J -33641982.17 -33641982.06 -33641981.95 0.1914 0.1040
 Mercury -96816-12-08 02:23 J -33640279.51 -33640279.40 -33640279.29 0.1610 0.0996

Venus -96815-02-19 10:18 J -33640206.23 -33640206.07 -33640205.90 0.1632 0.0495
 Mercury -96814-11-13 19:54 J -33639573.79 -33639573.67 -33639573.54 0.1611 0.0804
 Mercury -96811-08-31 14:08 J -33638552.04 -33638551.91 -33638551.77 0.1915 0.0290
 Mercury -96806-04-30 10:32 J -33636849.12 -33636849.06 -33636848.99 0.1610 0.1407
 Mercury -96804-04-05 03:20 J -33636143.50 -33636143.36 -33636143.22 0.1610 0.0353
 Mercury -96801-01-21 17:44 J -33635121.89 -33635121.76 -33635121.63 0.1916 0.0486
 Moon -96800-01-08 05:59 J -33634769.40 -33634769.25 -33634769.09 0.1610 0.0983
 Earth -96800-01-08 09:20 J -33634769.27 -33634769.11 -33634768.96 0.1610 0.0872 *
 Mercury -96795-08-26 11:01 J -33632713.18 -33632713.04 -33632712.90 0.1610 0.0085
 Mercury -96792-06-12 20:37 J -33631691.74 -33631691.64 -33631691.54 0.1916 0.1294
 Mercury -96790-05-20 06:56 J -33630985.25 -33630985.21 -33630985.18 0.1913 0.1840
 Mercury -96785-01-16 18:42 J -33629282.85 -33629282.72 -33629282.58 0.1610 0.0518
 Mercury -96784-12-22 13:11 J -33628577.03 -33628576.95 -33628576.87 0.1612 0.1323
 Venus -96782-12-19 04:47 J -33627850.43 -33627850.30 -33627850.17 0.1626 0.1063
 Mercury -96781-10-09 10:47 J -33627555.15 -33627555.05 -33627554.94 0.1914 0.1113
 Venus -96779-10-01 03:20 J -33626833.53 -33626833.36 -33626833.18 0.1896 0.0317
 Mercury -96776-06-08 02:37 J -33625852.50 -33625852.39 -33625852.28 0.1610 0.0941
 Mercury -96774-05-14 20:23 J -33625146.77 -33625146.65 -33625146.53 0.1611 0.0863
 Mercury -96771-03-01 14:37 J -33624125.02 -33624124.89 -33624124.76 0.1915 0.0361
 Moon -96768-01-16 00:27 J -33623073.61 -33623073.48 -33623073.35 0.1613 0.1234
 Earth -96768-01-16 00:42 J -33623073.55 -33623073.47 -33623073.39 0.1613 0.1437 *
 Mercury -96767-10-29 10:47 J -33622422.12 -33622422.05 -33622421.98 0.1610 0.1354
 Mercury -96765-10-04 03:35 J -33621716.48 -33621716.35 -33621716.21 0.1610 0.0416
 Mercury -96762-07-22 17:59 J -33620694.89 -33620694.75 -33620694.62 0.1916 0.0427
 Mercury -96755-02-24 11:15 J -33618286.17 -33618286.03 -33618285.89 0.1610 0.0046
 Mercury -96753-12-11 20:51 J -33617264.73 -33617264.63 -33617264.53 0.1916 0.1223
 Mercury -96751-11-18 06:56 J -33616558.22 -33616558.21 -33616558.20 0.1913 0.1902
 Venus -96750-12-17 22:32 J -33616163.73 -33616163.56 -33616163.39 0.1631 0.0323
 Mercury -96746-07-17 18:56 J -33614855.84 -33614855.71 -33614855.58 0.1610 0.0463
 Mercury -96744-06-22 13:25 J -33614150.02 -33614149.94 -33614149.87 0.1612 0.1379

Mercury -96741-04-09 11:01 J -33613128.14 -33613128.04 -33613127.94 0.1915 0.1179

Mercury -96737-12-07 02:51 J -33611425.49 -33611425.38 -33611425.26 0.1610 0.0886

Mercury -96735-11-12 20:37 J -33610719.76 -33610719.64 -33610719.53 0.1611 0.0924

Mercury -96732-08-30 14:51 J -33609698.00 -33609697.88 -33609697.75 0.1915 0.0441

Earth -96730-07-20 09:20 J -33609009.30 -33609009.11 -33609008.92 0.1916 0.0803

Moon -96730-07-20 20:08 J -33609008.86 -33609008.66 -33609008.46 0.1915 0.0485

Mercury -96727-04-29 11:01 J -33607995.12 -33607995.04 -33607994.96 0.1610 0.1300

Mercury -96725-04-04 03:49 J -33607289.47 -33607289.34 -33607289.20 0.1610 0.0473

Mercury -96722-01-20 18:13 J -33606267.87 -33606267.74 -33606267.61 0.1916 0.0347

Earth -96721-01-11 08:37 J -33605912.33 -33605912.14 -33605911.96 0.1611 0.0194

Moon -96721-01-11 12:56 J -33605912.15 -33605911.96 -33605911.76 0.1611 0.0070 *

Mercury -96716-08-25 11:30 J -33603859.16 -33603859.02 -33603858.88 0.1610 0.0032

Venus -96716-10-15 16:32 J -33603807.92 -33603807.81 -33603807.70 0.1625 0.1240

Mercury -96713-06-11 21:06 J -33602837.73 -33602837.62 -33602837.51 0.1916 0.1151

Venus -96713-07-28 05:59 J -33602791.41 -33602791.25 -33602791.10 0.1899 0.0864

Mercury -96706-01-15 19:11 J -33600428.83 -33600428.70 -33600428.56 0.1610 0.0407

Mercury -96705-12-21 13:39 J -33599722.99 -33599722.93 -33599722.87 0.1611 0.1444

Mercury -96702-10-09 11:15 J -33598701.12 -33598701.03 -33598700.93 0.1915 0.1255

Mercury -96697-06-07 03:06 J -33596998.49 -33596998.37 -33596998.25 0.1610 0.0834

Mercury -96695-05-13 20:51 J -33596292.74 -33596292.63 -33596292.52 0.1611 0.0979

Mercury -96692-02-28 14:51 J -33595271.00 -33595270.88 -33595270.75 0.1916 0.0500

Mercury -96688-10-28 11:15 J -33593568.12 -33593568.03 -33593567.95 0.1610 0.1247

Mercury -96686-10-04 04:03 J -33592862.46 -33592862.33 -33592862.19 0.1610 0.0528

Venus -96684-10-14 09:49 J -33592121.27 -33592121.09 -33592120.92 0.1629 0.0135

Mercury -96683-07-21 18:27 J -33591840.86 -33591840.73 -33591840.60 0.1916 0.0274

Mercury -96676-02-23 11:44 J -33589432.15 -33589432.01 -33589431.87 0.1610 0.0084

Mercury -96674-12-11 21:20 J -33588410.72 -33588410.61 -33588410.49 0.1916 0.1076

Mercury -96667-07-16 19:25 J -33586001.82 -33586001.69 -33586001.55 0.1609 0.0351

Mercury -96665-06-21 13:54 J -33585295.96 -33585295.92 -33585295.87 0.1611 0.1503

Mercury -96664-05-02 23:59 J -33584980.51 -33584980.50 -33584980.48 0.1916 0.1898

Mercury -96662-04-09 11:30 J -33584274.11 -33584274.02 -33584273.93 0.1915 0.1319

Mercury -96658-12-07 03:20 J -33582571.48 -33582571.36 -33582571.24 0.1609 0.0776

Mercury -96656-11-11 21:06 J -33581865.73 -33581865.62 -33581865.51 0.1611 0.1042

Mercury -96653-08-29 15:20 J -33580843.98 -33580843.86 -33580843.73 0.1916 0.0576

Venus -96652-10-13 04:18 J -33580434.37 -33580434.32 -33580434.27 0.1634 0.1556

Moon -96651-07-24 05:15 J -33580150.42 -33580150.28 -33580150.13 0.1915 0.1189

Earth -96651-07-24 06:13 J -33580150.39 -33580150.24 -33580150.09 0.1915 0.1356 *

Venus -96650-08-13 04:32 J -33579765.39 -33579765.31 -33579765.23 0.1623 0.1415

Mercury -96648-04-28 11:15 J -33579141.12 -33579141.03 -33579140.94 0.1610 0.1199

Venus -96647-05-25 09:20 J -33578749.23 -33578749.11 -33578748.99 0.1901 0.1388

Mercury -96646-04-04 04:18 J -33578435.45 -33578435.32 -33578435.18 0.1610 0.0586

Mercury -96643-01-19 18:42 J -33577413.86 -33577413.72 -33577413.59 0.1916 0.0211

Earth -96642-01-13 07:54 J -33577055.35 -33577055.17 -33577054.99 0.1611 0.0493

Moon -96642-01-13 13:25 J -33577055.11 -33577054.94 -33577054.76 0.1611 0.0362 *

Mercury -96639-09-18 19:39 J -33575710.69 -33575710.68 -33575710.67 0.1610 0.1604

Mercury -96637-08-24 11:59 J -33575005.14 -33575005.00 -33575004.86 0.1609 0.0144

Mercury -96634-06-11 21:35 J -33573983.71 -33573983.60 -33573983.48 0.1917 0.1009

Mercury -96627-01-14 19:39 J -33571574.81 -33571574.68 -33571574.54 0.1609 0.0295

Mercury -96626-12-21 14:08 J -33570868.94 -33570868.91 -33570868.87 0.1611 0.1562

Mercury -96625-11-01 00:27 J -33570553.52 -33570553.48 -33570553.44 0.1916 0.1817

Mercury -96623-10-08 11:44 J -33569847.10 -33569847.01 -33569846.92 0.1915 0.1395

Mercury -96618-06-07 03:35 J -33568144.47 -33568144.35 -33568144.23 0.1609 0.0724

Venus -96618-08-11 22:03 J -33568078.76 -33568078.58 -33568078.41 0.1627 0.0053

Mercury -96616-05-12 21:20 J -33567438.71 -33567438.61 -33567438.51 0.1611 0.1099

Venus -96615-05-25 07:54 J -33567061.29 -33567061.17 -33567061.06 0.1894 0.1422

Mercury -96613-02-28 15:35 J -33566416.97 -33566416.85 -33566416.72 0.1916 0.0645

Mercury -96609-10-27 11:44 J -33564714.11 -33564714.01 -33564713.92 0.1609 0.1140

Mercury -96607-10-03 04:47 J -33564008.43 -33564008.30 -33564008.17 0.1610 0.0646

Mercury -96604-07-20 18:56 J -33562986.84 -33562986.71 -33562986.58 0.1916 0.0132

Mercury -96599-03-19 19:54 J -33561283.70 -33561283.67 -33561283.64 0.1610 0.1552

Mercury -96597-02-23 12:13 J -33560578.13 -33560577.99 -33560577.85 0.1609 0.0200

Earth -96595-01-07 17:59 J -33559893.88 -33559893.75 -33559893.61 0.1609 0.1083

Moon -96595-01-07 19:54 J -33559893.80 -33559893.67 -33559893.54 0.1609 0.1063 *

Mercury -96595-12-10 22:03 J -33559556.70 -33559556.58 -33559556.46 0.1916 0.0928

Mercury -96588-07-15 19:54 J -33557147.81 -33557147.67 -33557147.53 0.1609 0.0242

Venus -96586-08-10 16:03 J -33556391.92 -33556391.83 -33556391.74 0.1632 0.1373

Mercury -96585-05-02 00:27 J -33556126.53 -33556126.48 -33556126.43 0.1916 0.1761

Venus -96584-06-09 16:47 J -33555722.83 -33555722.80 -33555722.76 0.1622 0.1582

Mercury -96583-04-08 11:59 J -33555420.09 -33555420.00 -33555419.92 0.1915 0.1458

Mercury -96579-12-06 03:49 J -33553717.47 -33553717.34 -33553717.22 0.1609 0.0670

Mercury -96577-11-10 21:35 J -33553011.70 -33553011.60 -33553011.50 0.1610 0.1157

Mercury -96574-08-29 15:49 J -33551989.97 -33551989.84 -33551989.72 0.1916 0.0713

Mercury -96569-04-27 11:44 J -33550287.11 -33550287.01 -33550286.91 0.1610 0.1089

Mercury -96567-04-03 05:01 J -33549581.42 -33549581.29 -33549581.17 0.1610 0.0703

Mercury -96564-01-18 19:25 J -33548559.83 -33548559.69 -33548559.56 0.1917 0.0072

Earth -96563-01-15 07:54 J -33548198.30 -33548198.17 -33548198.05 0.1611 0.1165

Moon -96563-01-15 08:08 J -33548198.25 -33548198.16 -33548198.07 0.1611 0.1375 *

Mercury -96560-09-17 20:08 J -33546856.71 -33546856.66 -33546856.61 0.1610 0.1498

Mercury -96558-08-24 12:27 J -33546151.12 -33546150.98 -33546150.84 0.1609 0.0255

Mercury -96555-06-10 22:18 J -33545129.69 -33545129.57 -33545129.45 0.1916 0.0863

Venus -96552-06-08 09:49 J -33544036.26 -33544036.09 -33544035.92 0.1626 0.0217

Venus -96549-03-21 10:47 J -33543019.20 -33543019.05 -33543018.89 0.1897 0.0903

Mercury -96548-01-13 20:08 J -33542720.80 -33542720.66 -33542720.52 0.1609 0.0183

Mercury -96546-11-01 00:56 J -33541699.52 -33541699.46 -33541699.39 0.1916 0.1675

Mercury -96544-10-07 12:13 J -33540993.07 -33540992.99 -33540992.91 0.1915 0.1532

Mercury -96539-06-06 04:03 J -33539290.46 -33539290.33 -33539290.20 0.1609 0.0613

Mercury -96537-05-11 21:49 J -33538584.68 -33538584.59 -33538584.49 0.1610 0.1221

Mercury -96534-02-27 16:03 J -33537562.95 -33537562.83 -33537562.71 0.1916 0.0788

Mercury -96530-10-27 11:59 J -33535860.10 -33535860.00 -33535859.89 0.1609 0.1035

Mercury -96528-10-02 05:15 J -33535154.41 -33535154.28 -33535154.16 0.1610 0.0762

Mercury -96525-07-19 19:25 J -33534132.83 -33534132.69 -33534132.56 0.1917 0.0019

Mercury -96520-03-18 20:08 J -33532429.71 -33532429.66 -33532429.60 0.1610 0.1449

Venus -96520-06-07 03:49 J -33532349.45 -33532349.34 -33532349.22 0.1631 0.1194

Mercury -96518-02-22 12:42 J -33531724.11 -33531723.97 -33531723.84 0.1609 0.0312

Moon -96516-01-09 11:59 J -33531037.17 -33531037.00 -33531036.83 0.1609 0.0515

Earth -96516-01-09 16:47 J -33531036.98 -33531036.80 -33531036.62 0.1609 0.0420 *

Mercury -96516-12-09 22:32 J -33530702.68 -33530702.56 -33530702.44 0.1917 0.0787

Mercury -96509-07-14 20:23 J -33528293.79 -33528293.65 -33528293.51 0.1609 0.0127

Mercury -96506-05-02 01:25 J -33527272.52 -33527272.44 -33527272.37 0.1916 0.1602

Mercury -96504-04-07 12:27 J -33526566.05 -33526565.98 -33526565.91 0.1916 0.1603

Mercury -96500-12-05 04:18 J -33524863.45 -33524863.32 -33524863.19 0.1609 0.0556

Mercury -96498-11-10 22:18 J -33524157.66 -33524157.57 -33524157.49 0.1610 0.1282

Mercury -96495-08-28 16:18 J -33523135.93 -33523135.82 -33523135.70 0.1916 0.0863

Mercury -96490-04-27 12:13 J -33521433.10 -33521432.99 -33521432.88 0.1609 0.0981

Mercury -96488-04-02 05:30 J -33520727.39 -33520727.27 -33520727.15 0.1610 0.0820

Venus -96486-04-05 22:03 J -33519993.75 -33519993.58 -33519993.41 0.1625 0.0387

Mercury -96485-01-18 19:39 J -33519705.81 -33519705.68 -33519705.54 0.1917 0.0099

Venus -96483-01-16 14:37 J -33518977.06 -33518976.89 -33518976.72 0.1899 0.0391

Mercury -96481-09-16 20:23 J -33518002.71 -33518002.65 -33518002.58 0.1610 0.1395

Mercury -96479-08-23 12:56 J -33517297.10 -33517296.96 -33517296.82 0.1609 0.0371

Mercury -96476-06-09 22:47 J -33516275.68 -33516275.55 -33516275.42 0.1917 0.0715

Mercury -96469-01-13 20:37 J -33513866.78 -33513866.64 -33513866.50 0.1609 0.0070

Mercury -96467-10-31 01:25 J -33512845.52 -33512845.44 -33512845.36 0.1917 0.1535

Mercury -96465-10-06 12:42 J -33512139.03 -33512138.97 -33512138.91 0.1915 0.1673

Mercury -96460-06-05 04:32 J -33510436.45 -33510436.31 -33510436.18 0.1609 0.0507

Mercury -96458-05-11 22:18 J -33509730.64 -33509730.57 -33509730.49 0.1610 0.1337

Mercury -96455-02-26 16:32 J -33508708.93 -33508708.81 -33508708.70 0.1917 0.0926

Venus -96454-04-04 15:35 J -33508306.98 -33508306.85 -33508306.71 0.1629 0.1014

Mercury -96451-10-26 12:27 J -33507006.09 -33507005.98 -33507005.87 0.1609 0.0926

Mercury -96449-10-01 05:44 J -33506300.38 -33506300.26 -33506300.14 0.1610 0.0879

Moon -96446-07-18 18:42 J -33505279.87 -33505279.72 -33505279.58 0.1917 0.1473
 Earth -96446-07-19 02:08 J -33505279.56 -33505279.41 -33505279.25 0.1917 0.1270
 Mercury -96446-07-19 20:08 J -33505278.80 -33505278.66 -33505278.53 0.1917 0.0168
 Mercury -96441-03-17 20:37 J -33503575.71 -33503575.64 -33503575.56 0.1610 0.1341
 Mercury -96439-02-21 13:11 J -33502870.08 -33502869.95 -33502869.81 0.1609 0.0431
 Moon -96437-01-12 10:18 J -33502180.25 -33502180.07 -33502179.89 0.1609 0.0379
 Earth -96437-01-12 16:18 J -33502180.00 -33502179.82 -33502179.63 0.1609 0.0255 *
 Mercury -96437-12-08 23:01 J -33501848.66 -33501848.54 -33501848.41 0.1917 0.0641
 Mercury -96430-07-14 20:51 J -33499439.77 -33499439.63 -33499439.49 0.1609 0.0019
 Mercury -96427-05-01 01:54 J -33498418.51 -33498418.42 -33498418.33 0.1917 0.1457
 Mercury -96425-04-06 12:56 J -33497712.02 -33497711.96 -33497711.91 0.1916 0.1741
 Mercury -96421-12-04 04:47 J -33496009.44 -33496009.30 -33496009.17 0.1609 0.0447
 Venus -96420-01-31 10:03 J -33495951.24 -33495951.08 -33495950.91 0.1623 0.0560
 Mercury -96419-11-09 22:47 J -33495303.62 -33495303.55 -33495303.48 0.1610 0.1401
 Venus -96418-11-13 17:15 J -33494934.95 -33494934.78 -33494934.60 0.1901 0.0154
 Mercury -96416-08-27 16:47 J -33494281.91 -33494281.80 -33494281.69 0.1917 0.1002
 Mercury -96411-04-26 12:42 J -33492579.09 -33492578.97 -33492578.86 0.1609 0.0875
 Mercury -96409-04-01 05:59 J -33491873.36 -33491873.25 -33491873.14 0.1609 0.0939
 Mercury -96406-01-17 20:08 J -33490851.79 -33490851.66 -33490851.52 0.1917 0.0230
 Mercury -96402-09-16 20:51 J -33489148.71 -33489148.63 -33489148.55 0.1609 0.1288
 Mercury -96400-08-22 13:25 J -33488443.07 -33488442.94 -33488442.81 0.1609 0.0485
 Mercury -96397-06-08 23:15 J -33487421.66 -33487421.53 -33487421.40 0.1917 0.0570
 Moon -96390-01-07 01:54 J -33485018.54 -33485018.42 -33485018.29 0.1609 0.1239
 Earth -96390-01-07 03:06 J -33485018.47 -33485018.37 -33485018.26 0.1609 0.1288 *
 Mercury -96390-01-12 21:06 J -33485012.76 -33485012.62 -33485012.48 0.1609 0.0045
 Venus -96388-01-30 03:35 J -33484264.50 -33484264.35 -33484264.20 0.1627 0.0832
 Mercury -96388-10-30 02:23 J -33483991.50 -33483991.40 -33483991.31 0.1917 0.1377
 Mercury -96386-10-06 13:11 J -33483284.99 -33483284.95 -33483284.91 0.1916 0.1817
 Mercury -96381-06-04 05:01 J -33481582.43 -33481582.29 -33481582.16 0.1609 0.0393
 Mercury -96379-05-10 23:01 J -33480876.60 -33480876.54 -33480876.48 0.1610 0.1461

Mercury -96376-02-25 17:01 J -33479854.90 -33479854.79 -33479854.68 0.1916 0.1073

Mercury -96372-10-25 12:56 J -33478152.08 -33478151.96 -33478151.84 0.1609 0.0815

Mercury -96370-10-01 06:13 J -33477446.35 -33477446.24 -33477446.13 0.1609 0.1001

Mercury -96367-07-18 20:23 J -33476424.78 -33476424.65 -33476424.51 0.1917 0.0310

Earth -96367-07-23 00:27 J -33476420.66 -33476420.48 -33476420.29 0.1917 0.0926

Moon -96367-07-23 09:35 J -33476420.29 -33476420.10 -33476419.91 0.1917 0.0996 *

Mercury -96362-03-17 21:06 J -33474721.71 -33474721.62 -33474721.54 0.1609 0.1235

Mercury -96360-02-20 13:39 J -33474016.06 -33474015.93 -33474015.79 0.1609 0.0548

Moon -96358-01-14 15:06 J -33473323.04 -33473322.87 -33473322.69 0.1609 0.0739

Earth -96358-01-14 15:35 J -33473323.00 -33473322.85 -33473322.70 0.1609 0.0929 *

Mercury -96358-12-08 23:44 J -33472994.64 -33472994.51 -33472994.38 0.1917 0.0492

Venus -96355-11-28 22:32 J -33471908.71 -33471908.56 -33471908.40 0.1622 0.0729

Venus -96352-09-09 20:37 J -33470892.80 -33470892.64 -33470892.47 0.1903 0.0681

Mercury -96351-07-13 21:20 J -33470585.75 -33470585.61 -33470585.47 0.1609 0.0102

Mercury -96348-04-30 02:23 J -33469564.50 -33469564.40 -33469564.31 0.1917 0.1320

Mercury -96346-04-06 13:11 J -33468857.97 -33468857.95 -33468857.92 0.1916 0.1881

Mercury -96342-12-04 05:15 J -33467155.42 -33467155.28 -33467155.15 0.1609 0.0338

Mercury -96340-11-08 23:15 J -33466449.57 -33466449.53 -33466449.49 0.1610 0.1521

Mercury -96337-08-26 17:15 J -33465427.89 -33465427.78 -33465427.68 0.1917 0.1142

Mercury -96332-04-25 13:11 J -33463725.07 -33463724.95 -33463724.83 0.1609 0.0761

Mercury -96330-04-01 06:27 J -33463019.33 -33463019.23 -33463019.12 0.1609 0.1060

Mercury -96327-01-16 20:51 J -33461997.76 -33461997.63 -33461997.50 0.1917 0.0382

Mercury -96323-09-15 21:20 J -33460294.70 -33460294.61 -33460294.52 0.1609 0.1180

Venus -96323-11-27 15:49 J -33460222.00 -33460221.84 -33460221.68 0.1626 0.0658

Mercury -96321-08-21 13:54 J -33459589.05 -33459588.92 -33459588.79 0.1609 0.0604

Mercury -96318-06-08 23:44 J -33458567.64 -33458567.51 -33458567.37 0.1917 0.0427

Mercury -96313-02-06 05:30 J -33456864.28 -33456864.27 -33456864.25 0.1610 0.1592

Earth -96311-01-09 02:08 J -33456161.58 -33456161.41 -33456161.24 0.1609 0.0621

Moon -96311-01-09 07:11 J -33456161.38 -33456161.20 -33456161.02 0.1609 0.0571 *

Mercury -96311-01-11 21:35 J -33456158.74 -33456158.60 -33456158.46 0.1609 0.0162

Mercury -96309-10-29 02:51 J -33455137.48 -33455137.38 -33455137.28 0.1917 0.1229

Mercury -96302-06-04 05:30 J -33452728.41 -33452728.27 -33452728.14 0.1608 0.0281

Mercury -96300-05-09 23:30 J -33452022.54 -33452022.52 -33452022.49 0.1610 0.1585

Mercury -96297-02-25 17:30 J -33451000.87 -33451000.77 -33451000.67 0.1917 0.1218

Mercury -96293-10-24 13:25 J -33449298.07 -33449297.94 -33449297.82 0.1609 0.0709

Mercury -96291-09-30 06:42 J -33448592.32 -33448592.22 -33448592.12 0.1609 0.1119

Venus -96289-09-25 10:32 J -33447866.21 -33447866.06 -33447865.92 0.1620 0.0907

Mercury -96288-07-17 20:51 J -33447570.76 -33447570.63 -33447570.50 0.1917 0.0442

Venus -96286-07-07 22:47 J -33446850.68 -33446850.55 -33446850.41 0.1906 0.1251

Mercury -96283-03-16 21:35 J -33445867.70 -33445867.60 -33445867.51 0.1609 0.1128

Mercury -96281-02-20 14:08 J -33445162.04 -33445161.91 -33445161.78 0.1609 0.0662

Earth -96279-01-16 14:51 J -33444465.91 -33444465.88 -33444465.86 0.1610 0.1589

Mercury -96279-12-08 00:13 J -33444140.62 -33444140.49 -33444140.36 0.1918 0.0343

Mercury -96274-08-07 05:44 J -33442437.29 -33442437.26 -33442437.22 0.1610 0.1538

Mercury -96272-07-12 21:49 J -33441731.73 -33441731.59 -33441731.45 0.1608 0.0219

Mercury -96269-04-29 03:06 J -33440710.48 -33440710.37 -33440710.26 0.1917 0.1157

Mercury -96263-12-03 05:44 J -33438301.40 -33438301.26 -33438301.12 0.1608 0.0221

Mercury -96258-08-26 17:44 J -33436573.85 -33436573.76 -33436573.66 0.1917 0.1290

Venus -96257-09-24 03:06 J -33436179.53 -33436179.37 -33436179.20 0.1624 0.0472

Venus -96254-07-07 22:32 J -33435162.64 -33435162.56 -33435162.47 0.1900 0.1647

Mercury -96253-04-24 13:39 J -33434871.06 -33434870.93 -33434870.81 0.1609 0.0652

Mercury -96251-03-31 07:11 J -33434165.30 -33434165.20 -33434165.11 0.1609 0.1180

Mercury -96248-01-15 21:20 J -33433143.74 -33433143.61 -33433143.48 0.1918 0.0523

Mercury -96244-09-14 21:35 J -33431440.70 -33431440.60 -33431440.49 0.1609 0.1074

Mercury -96242-08-21 14:23 J -33430735.02 -33430734.90 -33430734.77 0.1608 0.0726

Mercury -96239-06-08 00:27 J -33429713.61 -33429713.48 -33429713.35 0.1918 0.0273

Mercury -96234-02-05 05:59 J -33428010.30 -33428010.25 -33428010.20 0.1609 0.1486

Mercury -96232-01-10 22:03 J -33427304.72 -33427304.58 -33427304.44 0.1608 0.0276

Earth -96232-01-11 00:56 J -33427304.64 -33427304.46 -33427304.27 0.1608 0.0046 *

Moon -96232-01-11 06:42 J -33427304.40 -33427304.22 -33427304.04 0.1608 0.0047 *

Mercury -96230-10-29 03:20 J -33426283.47 -33426283.36 -33426283.25 0.1917 0.1089

Mercury -96223-06-03 05:44 J -33423874.39 -33423874.26 -33423874.12 0.1608 0.0170

Venus -96223-07-23 23:01 J -33423823.67 -33423823.54 -33423823.41 0.1619 0.1075

Venus -96220-05-04 02:08 J -33422808.47 -33422808.41 -33422808.35 0.1908 0.1791

Mercury -96218-02-24 17:59 J -33422146.85 -33422146.75 -33422146.66 0.1917 0.1357

Mercury -96214-10-24 13:54 J -33420444.05 -33420443.92 -33420443.79 0.1609 0.0594

Mercury -96212-09-29 07:25 J -33419738.28 -33419738.19 -33419738.10 0.1609 0.1241

Mercury -96209-07-16 21:35 J -33418716.72 -33418716.60 -33418716.47 0.1918 0.0601

Mercury -96204-03-15 22:03 J -33417013.69 -33417013.58 -33417013.48 0.1609 0.1017

Mercury -96202-02-19 14:51 J -33416308.00 -33416307.88 -33416307.76 0.1609 0.0785

Mercury -96200-12-07 00:42 J -33415286.60 -33415286.47 -33415286.33 0.1918 0.0206

Mercury -96195-08-06 06:13 J -33413583.30 -33413583.24 -33413583.18 0.1609 0.1431

Mercury -96193-07-11 22:18 J -33412877.71 -33412877.57 -33412877.43 0.1608 0.0335

Venus -96191-07-22 15:49 J -33412137.01 -33412136.84 -33412136.67 0.1623 0.0305

Mercury -96190-04-29 03:35 J -33411856.46 -33411856.35 -33411856.23 0.1918 0.1012

Venus -96188-05-04 01:54 J -33411120.55 -33411120.42 -33411120.27 0.1902 0.1131

Earth -96185-01-06 12:42 J -33410143.04 -33410142.97 -33410142.89 0.1609 0.1474

Moon -96185-01-06 13:54 J -33410142.95 -33410142.92 -33410142.88 0.1609 0.1568 *

Mercury -96184-12-02 06:13 J -33409447.38 -33409447.24 -33409447.10 0.1608 0.0112

Mercury -96181-09-18 06:13 J -33408426.28 -33408426.24 -33408426.21 0.1917 0.1849

Mercury -96179-08-25 18:13 J -33407719.82 -33407719.74 -33407719.65 0.1917 0.1436

Mercury -96174-04-24 13:54 J -33406017.05 -33406016.92 -33406016.79 0.1608 0.0543

Mercury -96172-03-30 07:39 J -33405311.26 -33405311.18 -33405311.10 0.1609 0.1302

Mercury -96169-01-15 21:49 J -33404289.72 -33404289.59 -33404289.47 0.1918 0.0666

Mercury -96165-09-13 22:03 J -33402586.68 -33402586.58 -33402586.47 0.1609 0.0963

Mercury -96163-08-20 14:51 J -33401881.00 -33401880.88 -33401880.76 0.1608 0.0841

Earth -96162-07-17 17:59 J -33401549.83 -33401549.75 -33401549.66 0.1918 0.1733

Mercury -96160-06-07 00:56 J -33400859.59 -33400859.46 -33400859.32 0.1918 0.0133

Venus -96157-05-20 11:15 J -33399781.14 -33399781.03 -33399780.92 0.1618 0.1240

Mercury -96155-02-04 06:27 J -33399156.30 -33399156.23 -33399156.16 0.1609 0.1378

Mercury -96153-01-10 22:32 J -33398450.69 -33398450.56 -33398450.42 0.1608 0.0396

Earth -96153-01-14 00:27 J -33398447.65 -33398447.48 -33398447.31 0.1608 0.0698

Moon -96153-01-13 23:59 J -33398447.64 -33398447.50 -33398447.35 0.1608 0.0837 *

Mercury -96151-10-28 04:03 J -33397429.45 -33397429.33 -33397429.21 0.1918 0.0929

Mercury -96144-06-02 06:27 J -33395020.37 -33395020.23 -33395020.09 0.1608 0.0061

Mercury -96141-03-19 06:27 J -33393999.28 -33393999.23 -33393999.18 0.1917 0.1772

Mercury -96139-02-23 18:27 J -33393292.81 -33393292.73 -33393292.65 0.1917 0.1507

Mercury -96135-10-23 14:23 J -33391590.03 -33391589.90 -33391589.77 0.1608 0.0480

Mercury -96133-09-28 07:54 J -33390884.24 -33390884.17 -33390884.09 0.1609 0.1364

Mercury -96130-07-16 22:03 J -33389862.70 -33389862.58 -33389862.46 0.1918 0.0743

Mercury -96125-03-14 22:18 J -33388159.68 -33388159.57 -33388159.46 0.1609 0.0909

Venus -96125-05-19 03:49 J -33388094.51 -33388094.34 -33388094.17 0.1621 0.0130

Mercury -96123-02-18 15:20 J -33387453.98 -33387453.86 -33387453.75 0.1608 0.0904

Venus -96122-03-01 04:32 J -33387078.47 -33387078.31 -33387078.14 0.1904 0.0584

Mercury -96121-12-06 01:25 J -33386432.58 -33386432.44 -33386432.31 0.1918 0.0052

Mercury -96116-08-05 06:42 J -33384729.30 -33384729.22 -33384729.15 0.1609 0.1327

Mercury -96114-07-11 22:47 J -33384023.68 -33384023.55 -33384023.41 0.1608 0.0451

Mercury -96111-04-28 04:03 J -33383002.45 -33383002.33 -33383002.21 0.1918 0.0868

Moon -96106-01-08 07:39 J -33381286.34 -33381286.18 -33381286.03 0.1608 0.0840

Earth -96106-01-08 12:13 J -33381286.15 -33381285.99 -33381285.83 0.1608 0.0814 *

Mercury -96105-12-01 06:42 J -33380593.36 -33380593.22 -33380593.08 0.1608 0.0031

Mercury -96102-09-18 06:56 J -33379572.27 -33379572.21 -33379572.15 0.1917 0.1686

Mercury -96100-08-24 18:42 J -33378865.79 -33378865.72 -33378865.65 0.1918 0.1577

Mercury -96095-04-23 14:37 J -33377163.03 -33377162.89 -33377162.76 0.1608 0.0429

Mercury -96093-03-29 08:08 J -33376457.22 -33376457.16 -33376457.09 0.1609 0.1425

Venus -96093-05-17 21:20 J -33376407.66 -33376407.61 -33376407.56 0.1626 0.1542

Venus -96091-03-17 23:30 J -33375738.60 -33375738.52 -33375738.43 0.1617 0.1412

Mercury -96090-01-14 22:32 J -33375435.68 -33375435.56 -33375435.44 0.1918 0.0823

Mercury -96086-09-13 22:32 J -33373732.67 -33373732.56 -33373732.44 0.1609 0.0852

Mercury -96084-08-19 15:35 J -33373026.96 -33373026.85 -33373026.74 0.1608 0.0963

Moon -96083-07-21 07:25 J -33372691.39 -33372691.19 -33372691.00 0.1918 0.0643
 Earth -96083-07-21 17:59 J -33372690.95 -33372690.75 -33372690.54 0.1918 0.0487
 Mercury -96081-06-06 01:39 J -33372005.57 -33372005.43 -33372005.30 0.1918 0.0053
 Mercury -96076-02-03 06:56 J -33370302.29 -33370302.21 -33370302.13 0.1609 0.1268
 Mercury -96074-01-09 23:15 J -33369596.67 -33369596.53 -33369596.40 0.1608 0.0516
 Moon -96074-01-15 18:13 J -33369590.87 -33369590.74 -33369590.62 0.1608 0.1161
 Earth -96074-01-15 23:59 J -33369590.59 -33369590.50 -33369590.40 0.1608 0.1369
 Mercury -96072-10-27 04:47 J -33368575.43 -33368575.30 -33368575.18 0.1918 0.0778
 Mercury -96065-06-01 06:56 J -33366166.35 -33366166.21 -33366166.07 0.1608 0.0080
 Mercury -96062-03-19 06:56 J -33365145.28 -33365145.21 -33365145.14 0.1917 0.1625
 Mercury -96060-02-22 18:56 J -33364438.77 -33364438.71 -33364438.64 0.1918 0.1653
 Venus -96059-03-16 16:18 J -33364051.99 -33364051.82 -33364051.64 0.1620 0.0042
 Venus -96057-12-26 08:08 J -33363036.34 -33363036.16 -33363035.99 0.1906 0.0053
 Mercury -96056-10-22 14:37 J -33362736.02 -33362735.89 -33362735.75 0.1608 0.0373
 Mercury -96054-09-28 08:23 J -33362030.20 -33362030.15 -33362030.09 0.1609 0.1486
 Mercury -96051-07-15 22:32 J -33361008.68 -33361008.56 -33361008.44 0.1918 0.0884
 Mercury -96046-03-14 22:47 J -33359305.67 -33359305.55 -33359305.43 0.1608 0.0796
 Mercury -96044-02-17 15:49 J -33358599.95 -33358599.84 -33358599.73 0.1608 0.1024
 Mercury -96042-12-06 02:08 J -33357578.55 -33357578.41 -33357578.28 0.1919 0.0127
 Mercury -96037-08-04 07:11 J -33355875.29 -33355875.20 -33355875.12 0.1609 0.1215
 Mercury -96035-07-10 23:30 J -33355169.65 -33355169.52 -33355169.39 0.1608 0.0574
 Mercury -96032-04-27 05:01 J -33354148.42 -33354148.29 -33354148.17 0.1918 0.0708
 Moon -96027-01-10 05:59 J -33352429.44 -33352429.25 -33352429.06 0.1608 0.0127
 Earth -96027-01-10 11:15 J -33352429.22 -33352429.03 -33352428.85 0.1608 0.0166 *
 Venus -96027-03-15 09:35 J -33352365.19 -33352365.10 -33352365.01 0.1624 0.1368
 Mercury -96026-12-01 07:11 J -33351739.34 -33351739.20 -33351739.06 0.1608 0.0129
 Venus -96025-01-13 12:27 J -33351696.02 -33351695.98 -33351695.94 0.1616 0.1566
 Mercury -96023-09-17 07:25 J -33350718.27 -33350718.19 -33350718.11 0.1918 0.1540
 Mercury -96021-08-23 19:11 J -33350011.75 -33350011.70 -33350011.64 0.1918 0.1725
 Mercury -96016-04-22 15:06 J -33348309.01 -33348308.87 -33348308.74 0.1608 0.0313

Mercury -96014-03-29 08:51 J -33347603.17 -33347603.13 -33347603.10 0.1609 0.1550

Mercury -96011-01-13 23:01 J -33346581.66 -33346581.54 -33346581.43 0.1919 0.0970

Mercury -96007-09-12 23:01 J -33344878.66 -33344878.54 -33344878.42 0.1608 0.0739

Mercury -96005-08-18 16:03 J -33344172.93 -33344172.83 -33344172.72 0.1608 0.1087

Mercury -96002-06-06 02:08 J -33343151.54 -33343151.41 -33343151.27 0.1918 0.0177

96TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 96th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -95997-02-03 07:11 J | -33341448.29 | -33341448.20 | -33341448.10 | 0.1609 | 0.1162 | | |
| Mercury | -95995-01-08 23:30 J | -33340742.64 | -33340742.52 | -33340742.39 | 0.1608 | 0.0632 | | |
| Venus | -95993-01-12 04:47 J | -33340009.47 | -33340009.30 | -33340009.13 | 0.1619 | 0.0201 | | |
| Mercury | -95993-10-26 05:15 J | -33339721.41 | -33339721.28 | -33339721.16 | 0.1918 | 0.0638 | | |
| Venus | -95991-10-23 10:32 J | -33338994.23 | -33338994.06 | -33338993.89 | 0.1908 | 0.0514 | | |
| Mercury | -95988-06-25 15:35 J | -33338017.87 | -33338017.85 | -33338017.82 | 0.1610 | 0.1573 | | |
| Mercury | -95986-06-01 07:25 J | -33337312.33 | -33337312.19 | -33337312.05 | 0.1608 | 0.0187 | | |
| Mercury | -95983-03-18 07:54 J | -33336291.26 | -33336291.17 | -33336291.08 | 0.1918 | 0.1460 | | |
| Mercury | -95981-02-22 19:25 J | -33335584.73 | -33335584.69 | -33335584.65 | 0.1918 | 0.1797 | | |
| Moon | -95980-01-04 22:47 J | -33335267.61 | -33335267.55 | -33335267.49 | 0.1609 | 0.1524 | | |
| Mercury | -95977-10-21 15:20 J | -33333882.00 | -33333881.86 | -33333881.73 | 0.1608 | 0.0252 | | |
| Mercury | -95972-07-14 23:15 J | -33332154.64 | -33332154.53 | -33332154.42 | 0.1919 | 0.1044 | | |
| Mercury | -95967-03-13 23:15 J | -33330451.65 | -33330451.53 | -33330451.40 | 0.1608 | 0.0683 | | |
| Mercury | -95965-02-17 16:18 J | -33329745.91 | -33329745.82 | -33329745.72 | 0.1608 | 0.1150 | | |

Mercury -95963-12-05 02:37 J -33328724.53 -33328724.39 -33328724.26 0.1919 0.0258

Venus -95961-01-10 21:35 J -33328322.71 -33328322.60 -33328322.48 0.1623 0.1194

Mercury -95958-08-04 07:25 J -33327021.28 -33327021.19 -33327021.09 0.1609 0.1106

Mercury -95956-07-09 23:59 J -33326315.63 -33326315.50 -33326315.38 0.1608 0.0692

Mercury -95953-04-26 05:30 J -33325294.40 -33325294.27 -33325294.14 0.1918 0.0555

Mercury -95949-12-24 15:49 J -33323590.88 -33323590.84 -33323590.80 0.1609 0.1519

Earth -95948-01-12 09:49 J -33323572.26 -33323572.09 -33323571.91 0.1608 0.0495

Moon -95948-01-12 11:30 J -33323572.21 -33323572.02 -33323571.83 0.1608 0.0422 *

Mercury -95947-11-30 07:39 J -33322885.32 -33322885.18 -33322885.04 0.1608 0.0246

Mercury -95944-09-16 08:08 J -33321864.25 -33321864.16 -33321864.07 0.1918 0.1389

Mercury -95942-08-23 19:54 J -33321157.70 -33321157.67 -33321157.65 0.1918 0.1875

Mercury -95937-04-21 15:20 J -33319454.99 -33319454.86 -33319454.72 0.1608 0.0203

Mercury -95932-01-12 23:15 J -33317727.63 -33317727.53 -33317727.42 0.1919 0.1113

Mercury -95928-09-11 23:30 J -33316024.65 -33316024.52 -33316024.39 0.1608 0.0626

Venus -95928-11-08 17:15 J -33315966.95 -33315966.78 -33315966.61 0.1618 0.0370

Mercury -95926-08-18 16:32 J -33315318.90 -33315318.81 -33315318.72 0.1608 0.1206

Venus -95925-08-19 13:39 J -33314952.08 -33314951.93 -33314951.79 0.1910 0.1069

Mercury -95923-06-05 02:51 J -33314297.52 -33314297.38 -33314297.25 0.1919 0.0332

Mercury -95918-02-02 07:39 J -33312594.28 -33312594.18 -33312594.07 0.1609 0.1050

Mercury -95916-01-08 00:13 J -33311888.61 -33311888.49 -33311888.37 0.1608 0.0755

Mercury -95914-10-26 05:59 J -33310867.38 -33310867.25 -33310867.12 0.1918 0.0472

Mercury -95909-06-24 16:03 J -33309163.88 -33309163.83 -33309163.77 0.1609 0.1462

Mercury -95907-05-31 07:54 J -33308458.31 -33308458.17 -33308458.03 0.1608 0.0305

Mercury -95904-03-17 08:23 J -33307437.25 -33307437.15 -33307437.05 0.1918 0.1311

Earth -95901-01-07 22:32 J -33306410.70 -33306410.56 -33306410.42 0.1608 0.0995

Moon -95901-01-08 03:49 J -33306410.48 -33306410.34 -33306410.20 0.1608 0.1061 *

Mercury -95898-10-21 15:49 J -33305027.98 -33305027.84 -33305027.70 0.1608 0.0138

Venus -95896-11-07 09:49 J -33304280.22 -33304280.09 -33304279.95 0.1621 0.1022

Mercury -95893-07-13 23:44 J -33303300.61 -33303300.51 -33303300.41 0.1919 0.1189

Venus -95893-08-19 14:08 J -33303263.92 -33303263.91 -33303263.91 0.1904 0.1901

Mercury -95888-03-12 23:44 J -33301597.64 -33301597.51 -33301597.38 0.1608 0.0570

Mercury -95886-02-16 17:01 J -33300891.88 -33300891.79 -33300891.71 0.1608 0.1272

Mercury -95884-12-04 03:06 J -33299870.50 -33299870.37 -33299870.24 0.1919 0.0408

Mercury -95879-08-03 07:54 J -33298167.27 -33298167.17 -33298167.06 0.1608 0.0995

Mercury -95877-07-09 00:27 J -33297461.60 -33297461.48 -33297461.36 0.1607 0.0812

Mercury -95874-04-26 05:59 J -33296440.38 -33296440.25 -33296440.12 0.1919 0.0409

Mercury -95870-12-24 16:18 J -33294736.88 -33294736.82 -33294736.75 0.1609 0.1408

Earth -95869-01-15 09:35 J -33294715.23 -33294715.10 -33294714.97 0.1607 0.1147

Moon -95869-01-15 16:03 J -33294714.93 -33294714.83 -33294714.73 0.1607 0.1328

Mercury -95868-11-29 08:08 J -33294031.29 -33294031.16 -33294031.02 0.1607 0.0365

Mercury -95865-09-15 08:51 J -33293010.23 -33293010.13 -33293010.02 0.1918 0.1226

Venus -95862-09-06 05:30 J -33291924.44 -33291924.27 -33291924.11 0.1616 0.0542

Venus -95859-06-16 15:49 J -33290909.93 -33290909.84 -33290909.76 0.1911 0.1656

Mercury -95858-04-21 16:03 J -33290600.97 -33290600.83 -33290600.69 0.1608 0.0086

Mercury -95853-01-13 00:13 J -33288873.59 -33288873.49 -33288873.39 0.1919 0.1271

Mercury -95849-09-10 23:59 J -33287170.63 -33287170.50 -33287170.37 0.1608 0.0511

Mercury -95847-08-17 17:15 J -33286464.86 -33286464.78 -33286464.70 0.1608 0.1334

Mercury -95844-06-04 03:20 J -33285443.49 -33285443.36 -33285443.23 0.1919 0.0479

Mercury -95839-02-01 08:08 J -33283740.27 -33283740.16 -33283740.05 0.1608 0.0937

Mercury -95837-01-08 00:42 J -33283034.58 -33283034.47 -33283034.35 0.1607 0.0878

Mercury -95835-10-25 06:27 J -33282013.36 -33282013.23 -33282013.09 0.1919 0.0325

Mercury -95830-06-24 16:32 J -33280309.88 -33280309.81 -33280309.74 0.1609 0.1357

Venus -95830-09-04 21:49 J -33280237.74 -33280237.59 -33280237.44 0.1620 0.0840

Mercury -95828-05-30 08:23 J -33279604.28 -33279604.15 -33279604.02 0.1607 0.0423

Venus -95827-06-16 16:47 J -33279221.92 -33279221.80 -33279221.68 0.1906 0.1353

Mercury -95825-03-16 09:06 J -33278583.23 -33278583.12 -33278583.02 0.1918 0.1163

Earth -95822-01-09 21:35 J -33277553.78 -33277553.60 -33277553.42 0.1608 0.0344

Moon -95822-01-10 01:54 J -33277553.60 -33277553.42 -33277553.25 0.1608 0.0287 *

Mercury -95819-10-20 16:18 J -33276173.96 -33276173.82 -33276173.68 0.1607 0.0046

Mercury -95814-07-14 00:13 J -33274446.59 -33274446.49 -33274446.40 0.1919 0.1333

Mercury -95809-03-12 00:13 J -33272743.62 -33272743.49 -33272743.36 0.1608 0.0454

Mercury -95807-02-15 17:30 J -33272037.84 -33272037.77 -33272037.70 0.1608 0.1395

Mercury -95805-12-03 03:49 J -33271016.47 -33271016.34 -33271016.21 0.1920 0.0564

Mercury -95800-08-02 08:23 J -33269313.26 -33269313.15 -33269313.03 0.1608 0.0881

Earth -95799-07-20 10:32 J -33268961.27 -33268961.06 -33268960.85 0.1919 0.0056

Moon -95799-07-20 18:13 J -33268960.93 -33268960.74 -33268960.54 0.1919 0.0498 *

Mercury -95798-07-09 00:56 J -33268607.57 -33268607.46 -33268607.34 0.1607 0.0936

Venus -95796-07-03 18:13 J -33267881.90 -33267881.74 -33267881.59 0.1616 0.0709

Mercury -95795-04-25 06:42 J -33267586.35 -33267586.22 -33267586.08 0.1919 0.0252

Mercury -95791-12-23 16:47 J -33265882.88 -33265882.80 -33265882.72 0.1609 0.1298

Mercury -95789-11-28 08:37 J -33265177.27 -33265177.14 -33265177.00 0.1607 0.0488

Mercury -95786-09-15 09:35 J -33264156.21 -33264156.10 -33264155.99 0.1918 0.1074

Mercury -95779-04-20 16:32 J -33261746.95 -33261746.81 -33261746.67 0.1607 0.0042

Mercury -95774-01-12 00:42 J -33260019.56 -33260019.47 -33260019.39 0.1919 0.1420

Mercury -95770-09-11 00:27 J -33258316.61 -33258316.48 -33258316.35 0.1608 0.0397

Mercury -95768-08-16 17:44 J -33257610.81 -33257610.76 -33257610.70 0.1607 0.1458

Mercury -95765-06-03 03:49 J -33256589.46 -33256589.34 -33256589.21 0.1919 0.0632

Venus -95764-07-02 10:32 J -33256195.21 -33256195.06 -33256194.90 0.1619 0.0679

Venus -95761-04-12 19:54 J -33255179.83 -33255179.67 -33255179.51 0.1908 0.0810

Mercury -95760-01-31 08:37 J -33254886.26 -33254886.14 -33254886.02 0.1608 0.0826

Mercury -95758-01-07 01:11 J -33254180.56 -33254180.45 -33254180.34 0.1607 0.0997

Mercury -95756-10-24 06:56 J -33253159.34 -33253159.21 -33253159.07 0.1919 0.0180

Mercury -95751-06-23 17:01 J -33251455.88 -33251455.79 -33251455.71 0.1609 0.1244

Mercury -95749-05-29 08:51 J -33250750.26 -33250750.13 -33250750.00 0.1607 0.0546

Mercury -95746-03-16 09:49 J -33249729.20 -33249729.09 -33249728.97 0.1919 0.0996

Moon -95743-01-11 19:11 J -33248696.87 -33248696.70 -33248696.53 0.1607 0.0344

Earth -95743-01-11 20:51 J -33248696.81 -33248696.63 -33248696.44 0.1607 0.0309 *

Mercury -95740-10-19 16:47 J -33247319.94 -33247319.80 -33247319.66 0.1607 0.0101

Mercury -95737-08-05 12:13 J -33246299.03 -33246298.99 -33246298.96 0.1917 0.1852

Mercury -95735-07-13 00:56 J -33245592.54 -33245592.46 -33245592.38 0.1919 0.1493

Mercury -95730-03-12 00:42 J -33243889.60 -33243889.47 -33243889.33 0.1608 0.0338
 Venus -95730-05-01 06:42 J -33243839.37 -33243839.22 -33243839.08 0.1614 0.0871
 Mercury -95728-02-14 18:13 J -33243183.78 -33243183.74 -33243183.70 0.1607 0.1522
 Mercury -95726-12-03 04:18 J -33242162.44 -33242162.32 -33242162.20 0.1920 0.0711
 Mercury -95721-08-01 08:51 J -33240459.25 -33240459.13 -33240459.01 0.1608 0.0768
 Moon -95720-07-24 04:18 J -33240102.38 -33240102.32 -33240102.27 0.1920 0.1832
 Mercury -95719-07-08 01:39 J -33239753.54 -33239753.43 -33239753.33 0.1607 0.1061
 Mercury -95716-04-24 07:25 J -33238732.32 -33238732.19 -33238732.05 0.1919 0.0092
 Mercury -95712-12-22 17:15 J -33237028.87 -33237028.78 -33237028.69 0.1609 0.1189
 Mercury -95710-11-28 09:20 J -33236323.24 -33236323.11 -33236322.98 0.1607 0.0608
 Mercury -95707-09-14 10:03 J -33235302.20 -33235302.08 -33235301.96 0.1919 0.0924
 Mercury -95702-05-15 01:39 J -33233598.44 -33233598.43 -33233598.42 0.1610 0.1602
 Mercury -95700-04-19 17:01 J -33232892.93 -33232892.79 -33232892.66 0.1607 0.0161
 Venus -95698-04-29 22:47 J -33232152.72 -33232152.55 -33232152.39 0.1617 0.0505
 Mercury -95697-02-04 12:27 J -33231872.03 -33231871.98 -33231871.93 0.1918 0.1775
 Moon -95696-01-06 04:18 J -33231535.46 -33231535.32 -33231535.19 0.1609 0.1050
 Earth -95696-01-06 10:03 J -33231535.21 -33231535.08 -33231534.96 0.1609 0.1166 *
 Mercury -95695-01-11 00:56 J -33231165.53 -33231165.46 -33231165.38 0.1920 0.1561
 Venus -95695-02-07 22:18 J -33231137.74 -33231137.57 -33231137.39 0.1910 0.0244
 Mercury -95691-09-10 00:56 J -33229462.59 -33229462.46 -33229462.32 0.1607 0.0281
 Mercury -95689-08-15 18:27 J -33228756.75 -33228756.73 -33228756.71 0.1607 0.1583
 Mercury -95686-06-03 04:32 J -33227735.43 -33227735.31 -33227735.19 0.1920 0.0790
 Mercury -95681-01-31 09:06 J -33226032.24 -33226032.12 -33226031.99 0.1608 0.0709
 Mercury -95679-01-06 01:54 J -33225326.52 -33225326.42 -33225326.32 0.1607 0.1124
 Mercury -95677-10-23 07:54 J -33224305.31 -33224305.17 -33224305.04 0.1919 0.0055
 Mercury -95672-06-22 17:30 J -33222601.87 -33222601.77 -33222601.68 0.1608 0.1132
 Mercury -95670-05-29 09:35 J -33221896.23 -33221896.10 -33221895.98 0.1607 0.0668
 Mercury -95667-03-15 10:32 J -33220875.18 -33220875.06 -33220874.94 0.1919 0.0845
 Moon -95664-01-13 13:25 J -33219840.10 -33219839.94 -33219839.78 0.1607 0.0778
 Earth -95664-01-13 19:39 J -33219839.83 -33219839.68 -33219839.53 0.1607 0.0949 *

Venus -95664-02-25 19:11 J -33219796.83 -33219796.70 -33219796.57 0.1613 0.1040

Mercury -95663-11-13 01:54 J -33219171.46 -33219171.42 -33219171.39 0.1609 0.1548

Mercury -95661-10-18 17:15 J -33218465.92 -33218465.78 -33218465.64 0.1607 0.0220

Mercury -95658-08-05 12:56 J -33217445.03 -33217444.96 -33217444.90 0.1918 0.1694

Mercury -95656-07-12 01:25 J -33216738.51 -33216738.44 -33216738.38 0.1920 0.1641

Mercury -95651-03-11 01:11 J -33215035.59 -33215035.45 -33215035.31 0.1607 0.0222

Mercury -95647-12-02 04:47 J -33213308.41 -33213308.30 -33213308.18 0.1920 0.0867

Mercury -95642-08-01 09:20 J -33211605.24 -33211605.11 -33211604.99 0.1608 0.0654

Mercury -95640-07-07 02:08 J -33210899.51 -33210899.41 -33210899.32 0.1607 0.1181

Mercury -95637-04-23 07:54 J -33209878.31 -33209878.17 -33209878.04 0.1920 0.0056

Mercury -95633-12-21 17:30 J -33208174.86 -33208174.77 -33208174.66 0.1609 0.1078

Venus -95632-02-24 11:30 J -33208110.19 -33208110.02 -33208109.85 0.1616 0.0343

Mercury -95631-11-27 09:49 J -33207469.22 -33207469.09 -33207468.97 0.1607 0.0728

Venus -95630-12-06 01:25 J -33207095.62 -33207095.44 -33207095.27 0.1912 0.0317

Mercury -95628-09-13 11:01 J -33206448.17 -33206448.04 -33206447.92 0.1919 0.0757

Mercury -95623-05-14 02:08 J -33204744.46 -33204744.41 -33204744.36 0.1609 0.1492

Mercury -95621-04-18 17:30 J -33204038.91 -33204038.77 -33204038.63 0.1607 0.0279

Mercury -95618-02-03 13:11 J -33203018.02 -33203017.95 -33203017.88 0.1918 0.1616

Moon -95617-01-09 04:03 J -33202678.51 -33202678.33 -33202678.15 0.1608 0.0608

Earth -95617-01-09 08:51 J -33202678.31 -33202678.13 -33202677.96 0.1608 0.0517 *

Mercury -95616-01-10 01:54 J -33202311.48 -33202311.42 -33202311.37 0.1920 0.1724

Mercury -95612-09-09 01:25 J -33200608.57 -33200608.44 -33200608.30 0.1607 0.0168

Mercury -95607-06-02 05:01 J -33198881.40 -33198881.29 -33198881.17 0.1920 0.0939

Mercury -95602-01-30 09:35 J -33197178.23 -33197178.10 -33197177.97 0.1608 0.0595

Mercury -95600-01-05 02:23 J -33196472.48 -33196472.40 -33196472.31 0.1607 0.1248

Venus -95599-12-24 08:08 J -33195754.27 -33195754.16 -33195754.04 0.1613 0.1194

Mercury -95598-10-23 08:23 J -33195451.28 -33195451.15 -33195451.01 0.1920 0.0144

Mercury -95593-06-21 17:44 J -33193747.86 -33193747.76 -33193747.65 0.1608 0.1023

Mercury -95591-05-28 10:03 J -33193042.20 -33193042.08 -33193041.96 0.1607 0.0788

Mercury -95588-03-14 11:01 J -33192021.17 -33192021.04 -33192020.91 0.1919 0.0693

Earth -95585-01-16 19:11 J -33190982.72 -33190982.70 -33190982.68 0.1607 0.1595
 Mercury -95584-11-12 02:23 J -33190317.46 -33190317.40 -33190317.34 0.1609 0.1436
 Mercury -95582-10-18 17:44 J -33189611.89 -33189611.76 -33189611.62 0.1607 0.0339
 Mercury -95579-08-04 13:39 J -33188591.01 -33188590.93 -33188590.85 0.1918 0.1536
 Mercury -95577-07-11 01:39 J -33187884.47 -33187884.43 -33187884.38 0.1920 0.1786
 Mercury -95572-03-10 01:39 J -33186181.57 -33186181.43 -33186181.29 0.1607 0.0108
 Mercury -95568-12-01 05:30 J -33184454.38 -33184454.27 -33184454.16 0.1920 0.1024
 Venus -95567-12-23 00:13 J -33184067.67 -33184067.49 -33184067.32 0.1615 0.0180
 Venus -95564-10-02 03:35 J -33183053.51 -33183053.35 -33183053.20 0.1913 0.0907
 Mercury -95563-07-31 09:49 J -33182751.22 -33182751.09 -33182750.96 0.1608 0.0538
 Mercury -95561-07-06 02:37 J -33182045.47 -33182045.39 -33182045.31 0.1607 0.1310
 Mercury -95558-04-23 08:37 J -33181024.27 -33181024.14 -33181024.01 0.1920 0.0215
 Mercury -95554-12-21 18:13 J -33179320.85 -33179320.74 -33179320.64 0.1608 0.0963
 Mercury -95552-11-26 10:18 J -33178615.19 -33178615.07 -33178614.95 0.1607 0.0853
 Mercury -95549-09-12 11:30 J -33177594.15 -33177594.02 -33177593.89 0.1919 0.0604
 Mercury -95544-05-13 02:23 J -33175890.46 -33175890.40 -33175890.33 0.1609 0.1383
 Mercury -95542-04-18 17:59 J -33175184.88 -33175184.75 -33175184.61 0.1607 0.0401
 Mercury -95539-02-02 13:54 J -33174164.01 -33174163.92 -33174163.83 0.1918 0.1457
 Earth -95538-01-11 07:39 J -33173821.36 -33173821.18 -33173821.00 0.1608 0.0127
 Moon -95538-01-11 09:35 J -33173821.30 -33173821.10 -33173820.91 0.1608 0.0136 *
 Mercury -95537-01-10 02:08 J -33173457.43 -33173457.41 -33173457.38 0.1920 0.1872
 Venus -95535-12-21 16:47 J -33172380.84 -33172380.80 -33172380.77 0.1619 0.1576
 Mercury -95533-09-08 01:54 J -33171754.56 -33171754.42 -33171754.28 0.1607 0.0046
 Venus -95533-10-20 20:37 J -33171711.73 -33171711.64 -33171711.55 0.1612 0.1364
 Mercury -95528-06-01 05:30 J -33170027.37 -33170027.27 -33170027.16 0.1920 0.1090
 Mercury -95523-01-29 10:03 J -33168324.21 -33168324.08 -33168323.95 0.1608 0.0480
 Mercury -95521-01-05 02:51 J -33167618.45 -33167618.38 -33167618.30 0.1607 0.1372
 Mercury -95519-10-22 08:51 J -33166597.26 -33166597.13 -33166596.99 0.1920 0.0296
 Moon -95515-07-18 23:44 J -33165231.75 -33165231.51 -33165231.28 0.1919 0.0091
 Earth -95515-07-19 02:23 J -33165231.61 -33165231.40 -33165231.19 0.1919 0.0370 *

Mercury -95514-06-21 18:13 J -33164893.85 -33164893.74 -33164893.62 0.1608 0.0907

Mercury -95512-05-27 10:32 J -33164188.17 -33164188.06 -33164187.94 0.1607 0.0912

Mercury -95509-03-13 11:59 J -33163167.13 -33163167.00 -33163166.87 0.1920 0.0525

Mercury -95505-11-11 02:37 J -33161463.46 -33161463.39 -33161463.31 0.1609 0.1326

Mercury -95503-10-17 18:13 J -33160757.87 -33160757.74 -33160757.60 0.1607 0.0462

Venus -95501-10-19 12:42 J -33160025.15 -33160024.97 -33160024.80 0.1614 0.0034

Mercury -95500-08-03 14:08 J -33159737.00 -33159736.91 -33159736.81 0.1918 0.1380

Venus -95498-07-30 06:13 J -33159011.35 -33159011.24 -33159011.13 0.1915 0.1486

Mercury -95493-03-09 02:08 J -33157327.54 -33157327.41 -33157327.27 0.1607 0.0052

Earth -95491-01-05 21:06 J -33156659.72 -33156659.62 -33156659.51 0.1610 0.1317

Moon -95491-01-06 03:20 J -33156659.43 -33156659.36 -33156659.29 0.1610 0.1472

Mercury -95489-11-30 05:59 J -33155600.35 -33155600.25 -33155600.14 0.1921 0.1174

Mercury -95484-07-30 10:18 J -33153897.20 -33153897.07 -33153896.94 0.1607 0.0422

Mercury -95482-07-06 03:20 J -33153191.42 -33153191.36 -33153191.30 0.1606 0.1436

Mercury -95479-04-22 09:20 J -33152170.25 -33152170.11 -33152169.98 0.1920 0.0377

Mercury -95475-12-20 18:27 J -33150466.84 -33150466.73 -33150466.61 0.1608 0.0851

Mercury -95473-11-25 10:47 J -33149761.16 -33149761.05 -33149760.94 0.1606 0.0974

Mercury -95470-09-12 11:59 J -33148740.13 -33148740.00 -33148739.87 0.1920 0.0457

Venus -95469-10-18 04:47 J -33148338.38 -33148338.30 -33148338.21 0.1617 0.1403

Venus -95467-08-18 09:20 J -33147669.16 -33147669.11 -33147669.05 0.1611 0.1523

Venus -95466-07-30 07:54 J -33147323.27 -33147323.17 -33147323.08 0.1910 0.1592

Mercury -95465-05-12 02:51 J -33147036.46 -33147036.38 -33147036.30 0.1609 0.1272

Mercury -95463-04-17 18:27 J -33146330.86 -33146330.73 -33146330.60 0.1607 0.0518

Mercury -95460-02-01 14:37 J -33145309.99 -33145309.89 -33145309.79 0.1919 0.1300

Earth -95459-01-13 06:42 J -33144964.38 -33144964.22 -33144964.06 0.1607 0.0765

Moon -95459-01-13 12:42 J -33144964.13 -33144963.97 -33144963.82 0.1607 0.0857 *

Mercury -95454-09-08 02:23 J -33142900.53 -33142900.40 -33142900.26 0.1607 0.0088

Mercury -95449-05-31 06:13 J -33141173.33 -33141173.24 -33141173.14 0.1921 0.1252

Mercury -95444-01-28 10:32 J -33139470.19 -33139470.06 -33139469.93 0.1607 0.0362

Mercury -95442-01-04 03:35 J -33138764.40 -33138764.35 -33138764.30 0.1606 0.1499

Mercury -95440-10-21 09:35 J -33137743.23 -33137743.10 -33137742.97 0.1920 0.0452
 Earth -95436-07-23 03:35 J -33136372.41 -33136372.35 -33136372.29 0.1920 0.1834
 Moon -95436-07-23 14:08 J -33136372.02 -33136371.91 -33136371.79 0.1920 0.1628
 Mercury -95435-06-20 18:42 J -33136039.84 -33136039.72 -33136039.60 0.1608 0.0793
 Venus -95435-08-17 01:11 J -33135982.62 -33135982.45 -33135982.28 0.1613 0.0159
 Mercury -95433-05-26 11:01 J -33135334.14 -33135334.04 -33135333.93 0.1606 0.1036
 Mercury -95430-03-13 12:27 J -33134313.12 -33134312.98 -33134312.85 0.1920 0.0374
 Mercury -95426-11-11 03:06 J -33132609.46 -33132609.37 -33132609.28 0.1609 0.1215
 Mercury -95424-10-16 18:56 J -33131903.84 -33131903.71 -33131903.58 0.1606 0.0585
 Mercury -95421-08-02 14:51 J -33130882.98 -33130882.88 -33130882.77 0.1919 0.1221
 Mercury -95414-03-09 02:37 J -33128473.53 -33128473.39 -33128473.25 0.1607 0.0137
 Earth -95412-01-07 20:08 J -33127802.83 -33127802.66 -33127802.50 0.1609 0.0686
 Moon -95412-01-08 00:13 J -33127802.65 -33127802.49 -33127802.32 0.1609 0.0557 *
 Mercury -95410-11-30 06:27 J -33126746.32 -33126746.23 -33126746.13 0.1921 0.1324
 Mercury -95405-07-29 10:47 J -33125043.19 -33125043.05 -33125042.92 0.1607 0.0308
 Mercury -95403-07-05 03:49 J -33124337.37 -33124337.34 -33124337.31 0.1606 0.1557
 Venus -95403-08-15 17:01 J -33124295.90 -33124295.79 -33124295.68 0.1616 0.1227
 Mercury -95400-04-21 09:35 J -33123316.22 -33123316.10 -33123315.97 0.1921 0.0526
 Venus -95400-05-26 10:18 J -33123281.22 -33123281.07 -33123280.92 0.1912 0.1019
 Mercury -95396-12-19 18:56 J -33121612.83 -33121612.71 -33121612.59 0.1608 0.0735
 Mercury -95394-11-25 11:15 J -33120907.13 -33120907.03 -33120906.92 0.1606 0.1100
 Mercury -95391-09-11 12:56 J -33119886.09 -33119885.96 -33119885.83 0.1920 0.0286
 Mercury -95386-05-12 03:20 J -33118182.45 -33118182.36 -33118182.27 0.1609 0.1158
 Mercury -95384-04-16 19:11 J -33117476.83 -33117476.70 -33117476.58 0.1606 0.0644
 Mercury -95381-02-01 15:06 J -33116455.97 -33116455.87 -33116455.76 0.1919 0.1144
 Earth -95380-01-15 05:30 J -33116107.35 -33116107.27 -33116107.18 0.1607 0.1403
 Moon -95380-01-15 07:39 J -33116107.28 -33116107.18 -33116107.08 0.1607 0.1318 *
 Mercury -95377-10-01 11:44 J -33114752.03 -33114752.01 -33114751.98 0.1610 0.1575
 Mercury -95375-09-07 02:51 J -33114046.51 -33114046.38 -33114046.24 0.1606 0.0202
 Mercury -95370-05-31 06:42 J -33112319.31 -33112319.22 -33112319.13 0.1921 0.1397

Venus -95369-06-13 13:54 J -33111940.09 -33111939.92 -33111939.75 0.1612 0.0327
 Mercury -95365-01-28 11:01 J -33110616.18 -33110616.04 -33110615.91 0.1607 0.0247
 Mercury -95361-10-20 10:18 J -33108889.20 -33108889.07 -33108888.95 0.1921 0.0612
 Mercury -95356-06-19 19:11 J -33107185.83 -33107185.70 -33107185.58 0.1608 0.0680
 Mercury -95354-05-26 11:30 J -33106480.11 -33106480.02 -33106479.92 0.1606 0.1160
 Mercury -95351-03-12 12:56 J -33105459.09 -33105458.96 -33105458.83 0.1920 0.0222
 Mercury -95347-11-10 03:35 J -33103755.45 -33103755.35 -33103755.25 0.1609 0.1102
 Mercury -95345-10-15 19:25 J -33103049.82 -33103049.69 -33103049.57 0.1606 0.0704
 Mercury -95342-08-02 15:35 J -33102028.96 -33102028.85 -33102028.74 0.1919 0.1061
 Mercury -95337-04-01 11:59 J -33100325.04 -33100325.00 -33100324.96 0.1610 0.1521
 Venus -95337-06-12 05:44 J -33100253.38 -33100253.26 -33100253.13 0.1615 0.1066
 Mercury -95335-03-08 03:06 J -33099619.50 -33099619.37 -33099619.23 0.1607 0.0257
 Venus -95334-03-23 12:56 J -33099239.13 -33099238.96 -33099238.79 0.1914 0.0447
 Moon -95333-01-10 16:18 J -33098946.00 -33098945.82 -33098945.65 0.1608 0.0119
 Earth -95333-01-10 18:42 J -33098945.91 -33098945.72 -33098945.54 0.1608 0.0055 *
 Mercury -95331-11-29 07:11 J -33097892.28 -33097892.20 -33097892.12 0.1921 0.1484
 Mercury -95326-07-29 11:15 J -33096189.17 -33096189.03 -33096188.89 0.1607 0.0188
 Mercury -95321-04-20 10:18 J -33094462.19 -33094462.07 -33094461.94 0.1921 0.0682
 Mercury -95317-12-18 19:25 J -33092758.81 -33092758.69 -33092758.56 0.1608 0.0619
 Mercury -95315-11-24 11:59 J -33092053.09 -33092053.00 -33092052.91 0.1606 0.1225
 Mercury -95312-09-10 13:25 J -33091032.07 -33091031.94 -33091031.80 0.1920 0.0133
 Mercury -95307-05-11 03:35 J -33089328.45 -33089328.35 -33089328.24 0.1608 0.1050
 Mercury -95305-04-15 19:39 J -33088622.81 -33088622.68 -33088622.56 0.1606 0.0766
 Venus -95303-04-11 02:23 J -33087897.56 -33087897.40 -33087897.23 0.1611 0.0490
 Mercury -95302-01-31 15:49 J -33087601.96 -33087601.84 -33087601.72 0.1919 0.0986
 Mercury -95298-10-01 12:13 J -33085898.04 -33085897.99 -33085897.94 0.1610 0.1466
 Mercury -95296-09-06 03:20 J -33085192.49 -33085192.36 -33085192.22 0.1606 0.0313
 Mercury -95293-06-22 17:59 J -33084171.78 -33084171.75 -33084171.72 0.1918 0.1860
 Mercury -95291-05-30 07:11 J -33083465.27 -33083465.20 -33083465.12 0.1921 0.1548
 Moon -95286-01-05 02:51 J -33081784.48 -33081784.38 -33081784.28 0.1612 0.1323

Earth -95286-01-05 08:37 J -33081784.21 -33081784.14 -33081784.07 0.1612 0.1481
 Mercury -95286-01-27 11:30 J -33081762.16 -33081762.02 -33081761.88 0.1607 0.0129
 Mercury -95282-10-20 10:47 J -33080035.18 -33080035.05 -33080034.93 0.1921 0.0763
 Mercury -95277-06-18 19:39 J -33078331.81 -33078331.68 -33078331.55 0.1608 0.0563
 Mercury -95275-05-25 12:13 J -33077626.08 -33077625.99 -33077625.91 0.1606 0.1285
 Mercury -95272-03-11 13:39 J -33076605.06 -33076604.93 -33076604.79 0.1920 0.0077
 Venus -95271-04-09 18:13 J -33076210.89 -33076210.74 -33076210.60 0.1614 0.0893
 Venus -95268-01-17 14:51 J -33075197.05 -33075196.88 -33075196.70 0.1916 0.0162
 Mercury -95268-11-09 04:03 J -33074901.44 -33074901.33 -33074901.23 0.1608 0.0989
 Mercury -95266-10-15 19:54 J -33074195.79 -33074195.67 -33074195.55 0.1606 0.0827
 Mercury -95263-08-01 16:03 J -33073174.95 -33073174.83 -33073174.71 0.1919 0.0908
 Mercury -95258-04-01 12:27 J -33071471.04 -33071470.98 -33071470.92 0.1609 0.1410
 Mercury -95256-03-07 03:49 J -33070765.48 -33070765.34 -33070765.21 0.1606 0.0379
 Moon -95254-01-12 11:30 J -33070089.19 -33070089.02 -33070088.85 0.1608 0.0568
 Earth -95254-01-12 17:30 J -33070088.94 -33070088.77 -33070088.60 0.1608 0.0590 *
 Mercury -95254-12-22 18:27 J -33069744.78 -33069744.73 -33069744.68 0.1918 0.1767
 Mercury -95252-11-28 07:39 J -33069038.25 -33069038.18 -33069038.11 0.1921 0.1632
 Mercury -95247-07-28 11:44 J -33067335.15 -33067335.01 -33067334.88 0.1607 0.0081
 Mercury -95242-04-20 11:01 J -33065608.16 -33065608.04 -33065607.92 0.1921 0.0837
 Mercury -95238-12-18 19:54 J -33063904.80 -33063904.67 -33063904.54 0.1607 0.0509
 Venus -95237-02-06 15:06 J -33063855.03 -33063854.87 -33063854.72 0.1610 0.0659
 Mercury -95236-11-23 12:27 J -33063199.06 -33063198.98 -33063198.91 0.1606 0.1347
 Mercury -95233-09-09 13:54 J -33062178.06 -33062177.92 -33062177.79 0.1921 0.0029
 Moon -95231-07-17 12:42 J -33061502.15 -33061501.97 -33061501.80 0.1917 0.0783
 Earth -95231-07-17 15:35 J -33061502.04 -33061501.85 -33061501.66 0.1917 0.0820 *
 Mercury -95228-05-10 04:03 J -33060474.44 -33060474.33 -33060474.22 0.1608 0.0935
 Mercury -95226-04-15 20:08 J -33059768.78 -33059768.66 -33059768.55 0.1606 0.0887
 Mercury -95223-01-30 16:32 J -33058747.93 -33058747.81 -33058747.69 0.1920 0.0822
 Mercury -95219-09-30 12:42 J -33057044.04 -33057043.97 -33057043.90 0.1609 0.1353
 Mercury -95217-09-05 03:49 J -33056338.47 -33056338.34 -33056338.20 0.1606 0.0440

Mercury -95214-06-22 18:42 J -33055317.78 -33055317.72 -33055317.66 0.1918 0.1692
 Mercury -95212-05-29 07:54 J -33054611.23 -33054611.17 -33054611.11 0.1922 0.1709
 Moon -95207-01-07 03:20 J -33052927.51 -33052927.36 -33052927.21 0.1611 0.0993
 Earth -95207-01-07 07:11 J -33052927.36 -33052927.20 -33052927.05 0.1611 0.0841 *
 Mercury -95207-01-26 11:59 J -33052908.14 -33052908.00 -33052907.86 0.1607 0.0032
 Venus -95205-02-05 06:56 J -33052168.37 -33052168.21 -33052168.06 0.1613 0.0730
 Mercury -95203-10-19 11:15 J -33051181.15 -33051181.03 -33051180.91 0.1921 0.0915
 Venus -95203-11-14 17:15 J -33051154.94 -33051154.78 -33051154.62 0.1917 0.0747
 Mercury -95198-06-18 20:08 J -33049477.79 -33049477.66 -33049477.53 0.1607 0.0448
 Mercury -95196-05-24 12:42 J -33048772.03 -33048771.97 -33048771.90 0.1606 0.1411
 Mercury -95193-03-10 14:23 J -33047751.04 -33047750.90 -33047750.77 0.1921 0.0115
 Mercury -95189-11-08 04:18 J -33046047.43 -33046047.32 -33046047.20 0.1608 0.0877
 Mercury -95187-10-14 20:23 J -33045341.76 -33045341.65 -33045341.54 0.1606 0.0951
 Mercury -95184-07-31 16:47 J -33044320.92 -33044320.80 -33044320.67 0.1920 0.0749
 Mercury -95179-03-31 12:42 J -33042617.04 -33042616.97 -33042616.89 0.1609 0.1301
 Mercury -95177-03-06 04:03 J -33041911.46 -33041911.33 -33041911.20 0.1606 0.0494
 Moon -95175-01-14 14:08 J -33041232.03 -33041231.91 -33041231.79 0.1607 0.1257
 Earth -95175-01-14 16:03 J -33041231.95 -33041231.83 -33041231.71 0.1607 0.1212 *
 Mercury -95175-12-21 18:56 J -33040890.78 -33040890.71 -33040890.64 0.1918 0.1618
 Mercury -95173-11-27 08:08 J -33040184.21 -33040184.16 -33040184.11 0.1922 0.1779
 Venus -95172-12-04 04:03 J -33039812.48 -33039812.33 -33039812.18 0.1610 0.0817
 Mercury -95168-07-27 12:13 J -33038481.13 -33038480.99 -33038480.86 0.1606 0.0073
 Mercury -95163-04-19 11:30 J -33036754.14 -33036754.02 -33036753.91 0.1922 0.0989
 Mercury -95159-12-17 20:23 J -33035050.79 -33035050.65 -33035050.52 0.1607 0.0389
 Mercury -95157-11-22 12:56 J -33034345.01 -33034344.96 -33034344.90 0.1606 0.1476
 Mercury -95154-09-09 14:37 J -33033324.02 -33033323.89 -33033323.75 0.1921 0.0188
 Moon -95152-07-21 08:51 J -33032643.31 -33032643.13 -33032642.95 0.1920 0.1129
 Earth -95152-07-21 18:27 J -33032642.87 -33032642.73 -33032642.58 0.1920 0.1409
 Mercury -95149-05-09 04:32 J -33031620.42 -33031620.31 -33031620.19 0.1608 0.0819
 Mercury -95147-04-14 20:37 J -33030914.75 -33030914.64 -33030914.53 0.1606 0.1012

Mercury -95144-01-29 17:01 J -33029893.91 -33029893.79 -33029893.66 0.1920 0.0671

Mercury -95140-09-29 12:56 J -33028190.04 -33028189.96 -33028189.87 0.1609 0.1243

Venus -95140-12-02 19:25 J -33028125.85 -33028125.69 -33028125.52 0.1612 0.0561

Mercury -95138-09-05 04:18 J -33027484.45 -33027484.32 -33027484.19 0.1606 0.0559

Venus -95137-09-10 18:56 J -33027112.83 -33027112.71 -33027112.59 0.1918 0.1367

Mercury -95135-06-21 19:25 J -33026463.77 -33026463.69 -33026463.61 0.1918 0.1536

Mercury -95133-05-28 08:23 J -33025757.18 -33025757.15 -33025757.12 0.1922 0.1855

Earth -95128-01-09 05:30 J -33024070.45 -33024070.27 -33024070.09 0.1610 0.0218

Moon -95128-01-09 09:20 J -33024070.31 -33024070.11 -33024069.92 0.1610 0.0063 *

Mercury -95128-01-25 12:27 J -33024054.12 -33024053.98 -33024053.85 0.1606 0.0122

Mercury -95124-10-18 11:44 J -33022327.12 -33022327.01 -33022326.89 0.1922 0.1075

Mercury -95119-06-17 20:23 J -33020623.78 -33020623.65 -33020623.51 0.1607 0.0334

Mercury -95117-05-23 13:11 J -33019917.99 -33019917.95 -33019917.91 0.1605 0.1535

Mercury -95114-03-10 14:37 J -33018897.02 -33018896.89 -33018896.75 0.1921 0.0250

Mercury -95110-11-08 04:47 J -33017193.42 -33017193.30 -33017193.18 0.1608 0.0762

Mercury -95108-10-13 20:51 J -33016487.74 -33016487.63 -33016487.53 0.1606 0.1072

Venus -95106-10-01 16:18 J -33015769.96 -33015769.82 -33015769.69 0.1609 0.0991

Mercury -95105-07-30 17:30 J -33015466.90 -33015466.77 -33015466.64 0.1920 0.0587

Venus -95105-09-10 22:03 J -33015424.63 -33015424.58 -33015424.52 0.1914 0.1806

Mercury -95100-03-30 13:11 J -33013763.04 -33013762.95 -33013762.86 0.1609 0.1188

Mercury -95098-03-06 04:32 J -33013057.43 -33013057.31 -33013057.18 0.1606 0.0620

Mercury -95096-12-20 19:39 J -33012036.76 -33012036.68 -33012036.59 0.1918 0.1452

Mercury -95091-08-20 21:49 J -33010332.60 -33010332.59 -33010332.58 0.1610 0.1603

Mercury -95089-07-26 12:42 J -33009627.11 -33009626.97 -33009626.84 0.1606 0.0175

Mercury -95084-04-18 11:59 J -33007900.11 -33007900.00 -33007899.89 0.1922 0.1144

Mercury -95080-12-16 20:37 J -33006196.77 -33006196.64 -33006196.50 0.1607 0.0276

Mercury -95078-11-22 13:25 J -33005490.94 -33005490.94 -33005490.93 0.1605 0.1602

Mercury -95075-09-08 15:06 J -33004470.00 -33004469.87 -33004469.73 0.1921 0.0337

Venus -95074-09-30 07:54 J -33004083.34 -33004083.17 -33004083.00 0.1611 0.0389

Mercury -95070-05-09 05:01 J -33002766.42 -33002766.29 -33002766.17 0.1608 0.0709

Mercury -95068-04-13 21:06 J -33002060.72 -33002060.62 -33002060.52 0.1605 0.1135

Mercury -95065-01-29 17:44 J -33001039.89 -33001039.76 -33001039.63 0.1920 0.0513

Mercury -95061-09-28 13:25 J -32999336.04 -32999335.94 -32999335.85 0.1609 0.1131

Mercury -95059-09-04 04:47 J -32998630.42 -32998630.30 -32998630.17 0.1606 0.0677

Mercury -95056-06-20 19:54 J -32997609.76 -32997609.67 -32997609.58 0.1919 0.1382

Mercury -95051-02-18 22:03 J -32995905.62 -32995905.58 -32995905.55 0.1610 0.1550

Earth -95049-01-12 04:03 J -32995213.50 -32995213.33 -32995213.15 0.1609 0.0413

Moon -95049-01-12 10:18 J -32995213.25 -32995213.07 -32995212.89 0.1609 0.0360 *

Mercury -95049-01-25 12:56 J -32995200.10 -32995199.96 -32995199.83 0.1606 0.0236

Mercury -95045-10-17 12:13 J -32993473.09 -32993472.99 -32993472.88 0.1922 0.1226

Mercury -95040-06-16 20:51 J -32991769.76 -32991769.63 -32991769.49 0.1607 0.0214

Venus -95040-07-29 05:15 J -32991727.40 -32991727.28 -32991727.16 0.1608 0.1150

Venus -95039-07-08 23:59 J -32991382.64 -32991382.50 -32991382.37 0.1916 0.1206

Mercury -95035-03-09 15:20 J -32990042.99 -32990042.86 -32990042.72 0.1921 0.0418

Mercury -95031-11-07 05:15 J -32988339.41 -32988339.28 -32988339.16 0.1608 0.0646

Mercury -95029-10-12 21:20 J -32987633.70 -32987633.61 -32987633.52 0.1605 0.1200

Mercury -95026-07-30 17:59 J -32986612.88 -32986612.75 -32986612.62 0.1920 0.0433

Mercury -95021-03-29 13:39 J -32984909.03 -32984908.93 -32984908.83 0.1609 0.1075

Mercury -95019-03-05 05:15 J -32984203.41 -32984203.28 -32984203.16 0.1606 0.0743

Mercury -95017-12-19 20:23 J -32983182.75 -32983182.65 -32983182.55 0.1919 0.1291

Mercury -95012-08-19 22:03 J -32981478.63 -32981478.58 -32981478.53 0.1610 0.1497

Mercury -95010-07-26 12:56 J -32980773.09 -32980772.96 -32980772.82 0.1606 0.0288

Venus -95008-07-27 20:37 J -32980040.81 -32980040.64 -32980040.47 0.1610 0.0222

Mercury -95005-04-17 12:27 J -32979046.07 -32979045.98 -32979045.88 0.1922 0.1298

Earth -95002-01-06 17:44 J -32978051.90 -32978051.76 -32978051.61 0.1613 0.1012

Moon -95002-01-06 20:08 J -32978051.81 -32978051.66 -32978051.51 0.1613 0.0821 *

Mercury -95001-12-15 21:06 J -32977342.76 -32977342.62 -32977342.48 0.1607 0.0155

95TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 95th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -94996-09-07 15:35 J | -32975615.98 | -32975615.85 | -32975615.72 | 0.1922 | 0.0484 | | |
| Mercury | -94991-05-08 05:30 J | -32973912.40 | -32973912.27 | -32973912.15 | 0.1608 | 0.0592 | | |
| Mercury | -94989-04-12 21:35 J | -32973206.68 | -32973206.60 | -32973206.51 | 0.1605 | 0.1260 | | |
| Mercury | -94986-01-28 18:27 J | -32972185.87 | -32972185.73 | -32972185.60 | 0.1921 | 0.0348 | | |
| Mercury | -94982-09-28 13:54 J | -32970482.03 | -32970481.92 | -32970481.82 | 0.1609 | 0.1018 | | |
| Mercury | -94980-09-03 05:15 J | -32969776.40 | -32969776.28 | -32969776.16 | 0.1606 | 0.0802 | | |
| Mercury | -94977-06-19 20:37 J | -32968755.75 | -32968755.64 | -32968755.53 | 0.1919 | 0.1219 | | |
| Venus | -94976-07-26 12:13 J | -32968353.99 | -32968353.99 | -32968353.99 | 0.1612 | 0.1612 | | |
| Venus | -94974-05-26 17:59 J | -32967684.85 | -32967684.75 | -32967684.65 | 0.1607 | 0.1315 | | |
| Venus | -94973-05-05 01:54 J | -32967340.59 | -32967340.42 | -32967340.25 | 0.1918 | 0.0602 | | |
| Mercury | -94972-02-17 22:18 J | -32967051.63 | -32967051.57 | -32967051.51 | 0.1610 | 0.1439 | | |
| Earth | -94970-01-14 02:37 J | -32966356.53 | -32966356.39 | -32966356.25 | 0.1608 | 0.1039 | | |
| Moon | -94970-01-14 04:18 J | -32966356.45 | -32966356.32 | -32966356.18 | 0.1608 | 0.1033 | * | |
| Mercury | -94970-01-24 13:11 J | -32966346.08 | -32966345.95 | -32966345.81 | 0.1606 | 0.0355 | | |
| Mercury | -94966-10-17 12:56 J | -32964619.05 | -32964618.96 | -32964618.87 | 0.1922 | 0.1379 | | |
| Mercury | -94961-06-15 21:20 J | -32962915.75 | -32962915.61 | -32962915.47 | 0.1607 | 0.0095 | | |
| Mercury | -94956-03-08 16:03 J | -32961188.96 | -32961188.83 | -32961188.71 | 0.1922 | 0.0570 | | |
| Mercury | -94952-11-06 05:30 J | -32959485.40 | -32959485.27 | -32959485.14 | 0.1607 | 0.0533 | | |
| Mercury | -94950-10-12 21:49 J | -32958779.67 | -32958779.59 | -32958779.51 | 0.1605 | 0.1324 | | |
| Earth | -94947-07-16 02:08 J | -32957772.56 | -32957772.41 | -32957772.25 | 0.1915 | 0.1292 | | |
| Moon | -94947-07-16 12:27 J | -32957772.16 | -32957771.98 | -32957771.81 | 0.1916 | 0.1207 | | |
| Mercury | -94947-07-29 18:27 J | -32957758.86 | -32957758.73 | -32957758.59 | 0.1921 | 0.0283 | | |

Mercury -94942-03-29 13:54 J -32956055.03 -32956054.92 -32956054.81 0.1609 0.0964

Venus -94942-05-25 09:06 J -32955998.29 -32955998.12 -32955997.94 0.1609 0.0068

Mercury -94940-03-04 05:30 J -32955349.39 -32955349.27 -32955349.15 0.1605 0.0860

Mercury -94938-12-19 20:51 J -32954328.74 -32954328.63 -32954328.52 0.1919 0.1140

Mercury -94933-08-18 22:32 J -32952624.63 -32952624.56 -32952624.49 0.1610 0.1384

Mercury -94931-07-25 13:25 J -32951919.07 -32951918.94 -32951918.80 0.1606 0.0411

Mercury -94926-04-17 12:56 J -32950192.04 -32950191.96 -32950191.87 0.1923 0.1455

Moon -94923-01-08 12:27 J -32949195.14 -32949194.98 -32949194.81 0.1611 0.0562

Earth -94923-01-08 16:32 J -32949194.99 -32949194.81 -32949194.63 0.1611 0.0373 *

Mercury -94922-12-15 21:35 J -32948488.74 -32948488.60 -32948488.46 0.1607 0.0036

Mercury -94917-09-06 16:18 J -32946761.95 -32946761.82 -32946761.69 0.1922 0.0649

Mercury -94912-05-07 05:44 J -32945058.39 -32945058.26 -32945058.13 0.1607 0.0474

Mercury -94910-04-12 22:03 J -32944352.65 -32944352.58 -32944352.51 0.1605 0.1386

Venus -94910-05-24 00:42 J -32944311.54 -32944311.47 -32944311.39 0.1611 0.1448

Venus -94908-03-23 06:56 J -32943642.28 -32943642.21 -32943642.15 0.1607 0.1477

Mercury -94907-01-27 18:56 J -32943331.85 -32943331.71 -32943331.58 0.1921 0.0199

Venus -94907-03-02 03:49 J -32943298.52 -32943298.34 -32943298.16 0.1919 0.0005

Mercury -94903-09-27 14:08 J -32941628.02 -32941627.91 -32941627.80 0.1608 0.0905

Mercury -94901-09-02 05:44 J -32940922.37 -32940922.26 -32940922.14 0.1605 0.0926

Mercury -94898-06-19 21:20 J -32939901.73 -32939901.61 -32939901.50 0.1919 0.1058

Mercury -94893-02-17 22:32 J -32938197.63 -32938197.56 -32938197.48 0.1610 0.1331

Mercury -94891-01-23 13:39 J -32937492.06 -32937491.93 -32937491.80 0.1606 0.0472

Mercury -94887-10-16 13:25 J -32935765.02 -32935764.94 -32935764.86 0.1922 0.1533

Mercury -94882-06-15 21:49 J -32934061.73 -32934061.59 -32934061.46 0.1606 0.0050

Mercury -94877-03-07 16:18 J -32932334.94 -32932334.82 -32932334.69 0.1922 0.0714

Venus -94876-03-21 22:03 J -32931955.76 -32931955.58 -32931955.41 0.1608 0.0115

Mercury -94873-11-05 05:59 J -32930631.38 -32930631.25 -32930631.12 0.1607 0.0415

Mercury -94871-10-11 22:18 J -32929925.63 -32929925.57 -32929925.51 0.1605 0.1448

Earth -94868-07-20 06:42 J -32928913.41 -32928913.22 -32928913.04 0.1918 0.0947

Moon -94868-07-20 11:15 J -32928913.19 -32928913.03 -32928912.87 0.1918 0.1078 *

Mercury -94868-07-28 19:11 J -32928904.83 -32928904.70 -32928904.56 0.1921 0.0124

Mercury -94863-03-28 14:23 J -32927201.02 -32927200.90 -32927200.79 0.1608 0.0847

Mercury -94861-03-03 05:59 J -32926495.35 -32926495.25 -32926495.14 0.1605 0.0989

Mercury -94859-12-18 21:35 J -32925474.72 -32925474.60 -32925474.48 0.1919 0.0976

Mercury -94854-08-18 22:47 J -32923770.63 -32923770.55 -32923770.46 0.1609 0.1272

Mercury -94852-07-24 13:54 J -32923065.05 -32923064.92 -32923064.79 0.1606 0.0533

Mercury -94849-05-09 23:30 J -32922044.55 -32922044.52 -32922044.49 0.1918 0.1862

Mercury -94847-04-16 13:25 J -32921338.01 -32921337.94 -32921337.86 0.1923 0.1606

Moon -94844-01-10 08:08 J -32920338.34 -32920338.16 -32920337.98 0.1610 0.0296

Earth -94844-01-10 14:23 J -32920338.08 -32920337.90 -32920337.72 0.1610 0.0238 *

Venus -94844-03-20 13:11 J -32920269.05 -32920268.95 -32920268.84 0.1610 0.1275

Mercury -94843-12-14 22:03 J -32919634.72 -32919634.58 -32919634.44 0.1606 0.0089

Venus -94842-12-28 05:30 J -32919256.44 -32919256.27 -32919256.10 0.1920 0.0635

Mercury -94838-09-06 16:47 J -32917907.92 -32917907.80 -32917907.68 0.1922 0.0803

Mercury -94833-05-06 06:13 J -32916204.38 -32916204.24 -32916204.11 0.1607 0.0362

Mercury -94831-04-11 22:32 J -32915498.60 -32915498.56 -32915498.51 0.1605 0.1512

Mercury -94828-01-26 19:25 J -32914477.82 -32914477.69 -32914477.55 0.1921 0.0044

Mercury -94824-09-26 14:37 J -32912774.01 -32912773.89 -32912773.77 0.1608 0.0790

Mercury -94822-09-02 06:13 J -32912068.34 -32912068.24 -32912068.13 0.1605 0.1046

Mercury -94819-06-18 21:49 J -32911047.71 -32911047.59 -32911047.47 0.1920 0.0905

Mercury -94814-02-16 23:01 J -32909343.63 -32909343.54 -32909343.45 0.1609 0.1217

Mercury -94812-01-22 14:08 J -32908638.04 -32908637.91 -32908637.78 0.1606 0.0593

Venus -94810-01-17 10:32 J -32907913.23 -32907913.06 -32907912.89 0.1608 0.0281

Mercury -94810-11-08 23:59 J -32907617.55 -32907617.50 -32907617.45 0.1918 0.1772

Mercury -94808-10-15 13:54 J -32906910.98 -32906910.92 -32906910.86 0.1923 0.1688

Mercury -94803-06-14 22:18 J -32905207.71 -32905207.57 -32905207.44 0.1606 0.0150

Mercury -94798-03-07 17:01 J -32903480.91 -32903480.79 -32903480.67 0.1922 0.0882

Moon -94797-01-06 01:54 J -32903176.52 -32903176.42 -32903176.32 0.1615 0.1370

Earth -94797-01-06 04:18 J -32903176.45 -32903176.32 -32903176.20 0.1615 0.1165 *

Mercury -94794-11-05 06:27 J -32901777.36 -32901777.23 -32901777.10 0.1607 0.0296

Mercury -94792-10-10 22:47 J -32901071.57 -32901071.55 -32901071.52 0.1605 0.1578

Mercury -94789-07-27 19:39 J -32900050.81 -32900050.68 -32900050.54 0.1921 0.0065

Mercury -94784-03-27 14:37 J -32898347.01 -32898346.89 -32898346.77 0.1608 0.0735

Mercury -94782-03-03 06:27 J -32897641.33 -32897641.23 -32897641.13 0.1605 0.1112

Mercury -94780-12-17 22:18 J -32896620.70 -32896620.57 -32896620.45 0.1920 0.0816

Venus -94778-01-16 02:08 J -32896226.54 -32896226.41 -32896226.29 0.1610 0.1115

Venus -94776-10-24 07:11 J -32895214.33 -32895214.20 -32895214.06 0.1921 0.1255

Mercury -94775-08-17 23:15 J -32894916.63 -32894916.53 -32894916.44 0.1609 0.1163

Mercury -94773-07-23 14:23 J -32894211.03 -32894210.90 -32894210.77 0.1605 0.0652

Mercury -94770-05-09 23:59 J -32893190.56 -32893190.50 -32893190.44 0.1918 0.1710

Mercury -94768-04-15 14:08 J -32892483.96 -32892483.91 -32892483.86 0.1923 0.1761

Mercury -94765-01-08 07:54 J -32891486.19 -32891486.17 -32891486.15 0.1611 0.1580

Moon -94765-01-13 11:44 J -32891481.18 -32891481.01 -32891480.84 0.1609 0.0829

Earth -94765-01-13 13:11 J -32891481.11 -32891480.95 -32891480.80 0.1609 0.0864 *

Mercury -94764-12-13 22:18 J -32890780.70 -32890780.57 -32890780.43 0.1606 0.0212

Mercury -94759-09-05 17:15 J -32889053.90 -32889053.78 -32889053.67 0.1923 0.0953

Mercury -94754-05-06 06:42 J -32887350.36 -32887350.22 -32887350.09 0.1607 0.0245

Mercury -94749-01-26 20:08 J -32885623.79 -32885623.66 -32885623.52 0.1922 0.0128

Mercury -94745-09-25 14:51 J -32883920.00 -32883919.88 -32883919.75 0.1608 0.0676

Venus -94745-11-13 23:30 J -32883870.69 -32883870.52 -32883870.35 0.1607 0.0440

Mercury -94743-09-01 06:42 J -32883214.31 -32883214.22 -32883214.12 0.1605 0.1173

Mercury -94740-06-17 22:18 J -32882193.69 -32882193.57 -32882193.44 0.1920 0.0745

Mercury -94735-02-15 23:30 J -32880489.62 -32880489.52 -32880489.43 0.1609 0.1103

Mercury -94733-01-22 14:37 J -32879784.01 -32879783.89 -32879783.76 0.1605 0.0718

Mercury -94731-11-08 00:42 J -32878763.54 -32878763.47 -32878763.40 0.1918 0.1613

Mercury -94729-10-14 14:23 J -32878056.94 -32878056.90 -32878056.87 0.1923 0.1841

Mercury -94726-07-09 07:54 J -32877059.21 -32877059.17 -32877059.13 0.1610 0.1526

Mercury -94724-06-13 22:32 J -32876353.69 -32876353.56 -32876353.42 0.1606 0.0270

Mercury -94719-03-06 17:30 J -32874626.88 -32874626.77 -32874626.66 0.1923 0.1037

Earth -94718-01-08 02:51 J -32874319.55 -32874319.38 -32874319.21 0.1614 0.0546

Moon -94718-01-08 06:56 J -32874319.40 -32874319.21 -32874319.02 0.1614 0.0336 *
 Mercury -94715-11-04 06:42 J -32872923.35 -32872923.22 -32872923.08 0.1607 0.0183
 Venus -94713-11-12 14:37 J -32872184.03 -32872183.89 -32872183.75 0.1609 0.0943
 Mercury -94710-07-27 20:08 J -32871196.79 -32871196.66 -32871196.52 0.1922 0.0199
 Venus -94710-08-21 08:23 J -32871172.16 -32871172.15 -32871172.13 0.1922 0.1910
 Mercury -94705-03-26 15:06 J -32869492.99 -32869492.87 -32869492.74 0.1608 0.0618
 Mercury -94703-03-02 06:56 J -32868787.30 -32868787.21 -32868787.12 0.1605 0.1235
 Mercury -94701-12-16 22:47 J -32867766.68 -32867766.55 -32867766.42 0.1920 0.0658
 Mercury -94696-08-16 23:30 J -32866062.62 -32866062.52 -32866062.41 0.1609 0.1047
 Mercury -94694-07-23 14:51 J -32865357.00 -32865356.88 -32865356.76 0.1605 0.0778
 Mercury -94691-05-09 00:56 J -32864336.54 -32864336.46 -32864336.38 0.1918 0.1534
 Mercury -94689-04-14 14:37 J -32863629.90 -32863629.89 -32863629.89 0.1924 0.1919
 Mercury -94686-01-07 08:08 J -32862632.21 -32862632.16 -32862632.10 0.1610 0.1469
 Earth -94686-01-15 11:30 J -32862624.08 -32862624.02 -32862623.94 0.1608 0.1481
 Moon -94686-01-15 17:01 J -32862623.85 -32862623.79 -32862623.73 0.1608 0.1514
 Mercury -94685-12-12 22:47 J -32861926.68 -32861926.55 -32861926.41 0.1606 0.0329
 Mercury -94680-09-04 17:44 J -32860199.86 -32860199.76 -32860199.65 0.1923 0.1118
 Venus -94679-09-11 11:44 J -32859828.17 -32859828.01 -32859827.85 0.1606 0.0616
 Venus -94678-08-21 12:42 J -32859484.09 -32859483.97 -32859483.85 0.1919 0.1364
 Mercury -94675-05-05 06:56 J -32858496.34 -32858496.21 -32858496.07 0.1607 0.0126
 Mercury -94670-01-25 20:37 J -32856769.77 -32856769.64 -32856769.50 0.1922 0.0281
 Mercury -94666-09-25 15:20 J -32855065.99 -32855065.86 -32855065.73 0.1608 0.0558
 Mercury -94664-08-31 07:11 J -32854360.28 -32854360.20 -32854360.12 0.1605 0.1301
 Earth -94663-07-14 11:59 J -32854043.08 -32854043.00 -32854042.91 0.1912 0.1742
 Mercury -94661-06-16 23:01 J -32853339.67 -32853339.54 -32853339.41 0.1920 0.0580
 Mercury -94656-02-14 23:44 J -32851635.61 -32851635.51 -32851635.40 0.1609 0.0991
 Mercury -94654-01-21 15:06 J -32850929.99 -32850929.87 -32850929.75 0.1605 0.0839
 Mercury -94652-11-07 01:11 J -32849909.54 -32849909.45 -32849909.36 0.1919 0.1463
 Mercury -94647-07-08 08:23 J -32848205.21 -32848205.15 -32848205.09 0.1610 0.1414
 Venus -94647-09-10 03:06 J -32848141.52 -32848141.37 -32848141.22 0.1608 0.0773

Mercury -94645-06-12 23:01 J -32847499.67 -32847499.54 -32847499.41 0.1606 0.0383

Mercury -94640-03-05 17:59 J -32845772.86 -32845772.75 -32845772.65 0.1923 0.1186

Earth -94639-01-10 01:25 J -32845462.63 -32845462.44 -32845462.26 0.1612 0.0087

Moon -94639-01-10 06:56 J -32845462.39 -32845462.21 -32845462.03 0.1612 0.0039 *

Mercury -94636-11-03 07:11 J -32844069.33 -32844069.20 -32844069.06 0.1607 0.0066

Mercury -94631-07-26 21:06 J -32842342.76 -32842342.62 -32842342.49 0.1922 0.0368

Mercury -94626-03-26 15:35 J -32840638.98 -32840638.85 -32840638.72 0.1608 0.0499

Mercury -94624-03-01 07:25 J -32839933.26 -32839933.19 -32839933.11 0.1605 0.1365

Mercury -94622-12-16 23:30 J -32838912.66 -32838912.52 -32838912.39 0.1920 0.0499

Mercury -94617-08-15 23:59 J -32837208.61 -32837208.50 -32837208.39 0.1609 0.0932

Mercury -94615-07-22 15:20 J -32836502.98 -32836502.86 -32836502.75 0.1605 0.0902

Venus -94613-07-09 00:56 J -32835785.61 -32835785.46 -32835785.30 0.1606 0.0775

Mercury -94612-05-08 01:25 J -32835482.53 -32835482.44 -32835482.34 0.1919 0.1378

Venus -94612-06-17 14:23 J -32835442.06 -32835441.90 -32835441.74 0.1921 0.0741

Mercury -94607-01-06 08:37 J -32833778.21 -32833778.14 -32833778.07 0.1610 0.1359

Mercury -94606-12-12 23:15 J -32833072.66 -32833072.53 -32833072.39 0.1606 0.0449

Mercury -94601-09-03 18:27 J -32831345.83 -32831345.73 -32831345.63 0.1923 0.1275

Mercury -94596-05-04 07:25 J -32829642.33 -32829642.19 -32829642.05 0.1606 0.0019

Earth -94592-01-04 15:06 J -32828300.98 -32828300.87 -32828300.77 0.1618 0.1323

Moon -94592-01-04 17:15 J -32828300.90 -32828300.78 -32828300.66 0.1618 0.1129 *

Mercury -94591-01-24 21:06 J -32827915.75 -32827915.62 -32827915.49 0.1922 0.0435

Mercury -94587-09-24 15:49 J -32826211.98 -32826211.84 -32826211.71 0.1608 0.0444

Mercury -94585-08-30 07:39 J -32825506.24 -32825506.18 -32825506.12 0.1604 0.1423

Earth -94584-07-18 17:30 J -32825183.98 -32825183.77 -32825183.57 0.1916 0.0484

Moon -94584-07-18 18:13 J -32825183.96 -32825183.74 -32825183.52 0.1916 0.0781 *

Mercury -94582-06-16 23:30 J -32824485.65 -32824485.52 -32824485.38 0.1921 0.0426

Venus -94581-07-07 16:03 J -32824098.99 -32824098.83 -32824098.67 0.1607 0.0607

Mercury -94577-02-15 00:13 J -32822781.61 -32822781.49 -32822781.38 0.1609 0.0875

Mercury -94575-01-20 15:35 J -32822075.96 -32822075.85 -32822075.74 0.1605 0.0965

Mercury -94573-11-06 02:08 J -32821055.52 -32821055.41 -32821055.31 0.1919 0.1288

Mercury -94568-07-07 08:51 J -32819351.21 -32819351.13 -32819351.06 0.1610 0.1300

Mercury -94566-06-12 23:30 J -32818645.65 -32818645.52 -32818645.39 0.1606 0.0509

Mercury -94561-03-04 18:42 J -32816918.82 -32816918.72 -32816918.63 0.1923 0.1351

Earth -94560-01-11 23:30 J -32816605.69 -32816605.52 -32816605.36 0.1611 0.0696

Moon -94560-01-11 23:30 J -32816605.67 -32816605.52 -32816605.37 0.1611 0.0799 *

Mercury -94557-11-02 07:39 J -32815215.32 -32815215.18 -32815215.04 0.1606 0.0063

Mercury -94552-07-25 21:20 J -32813488.74 -32813488.61 -32813488.48 0.1922 0.0521

Mercury -94547-03-25 15:49 J -32811784.97 -32811784.84 -32811784.71 0.1607 0.0385

Venus -94547-05-06 13:39 J -32811743.07 -32811742.93 -32811742.79 0.1605 0.0941

Venus -94546-04-14 15:49 J -32811400.01 -32811399.84 -32811399.66 0.1922 0.0117

Mercury -94545-02-29 07:54 J -32811079.21 -32811079.17 -32811079.12 0.1604 0.1492

Mercury -94543-12-15 23:59 J -32810058.63 -32810058.50 -32810058.36 0.1921 0.0337

Mercury -94538-08-16 00:13 J -32808354.60 -32808354.49 -32808354.37 0.1609 0.0820

Mercury -94536-07-21 15:49 J -32807648.95 -32807648.84 -32807648.74 0.1605 0.1026

Mercury -94533-05-07 02:08 J -32806628.52 -32806628.41 -32806628.31 0.1919 0.1224

Mercury -94528-01-05 08:51 J -32804924.21 -32804924.13 -32804924.04 0.1610 0.1244

Mercury -94527-12-11 23:44 J -32804218.64 -32804218.51 -32804218.38 0.1605 0.0570

Mercury -94522-09-03 18:42 J -32802491.81 -32802491.72 -32802491.63 0.1924 0.1425

Mercury -94517-05-03 07:54 J -32800788.31 -32800788.17 -32800788.04 0.1606 0.0125

Venus -94515-05-05 04:32 J -32800056.47 -32800056.31 -32800056.14 0.1607 0.0439

Moon -94513-01-07 09:06 J -32799444.27 -32799444.12 -32799443.98 0.1616 0.0911

Earth -94513-01-07 13:11 J -32799444.12 -32799443.95 -32799443.79 0.1616 0.0700 *

Mercury -94512-01-23 21:49 J -32799061.72 -32799061.59 -32799061.46 0.1923 0.0607

Mercury -94508-09-23 16:03 J -32797357.96 -32797357.83 -32797357.69 0.1607 0.0326

Mercury -94506-08-30 08:08 J -32796652.19 -32796652.16 -32796652.12 0.1604 0.1555

Mercury -94503-06-16 00:13 J -32795631.62 -32795631.49 -32795631.35 0.1921 0.0260

Mercury -94498-02-14 00:27 J -32793927.59 -32793927.48 -32793927.36 0.1608 0.0759

Mercury -94496-01-19 16:03 J -32793221.93 -32793221.83 -32793221.73 0.1605 0.1092

Mercury -94494-11-06 02:37 J -32792201.50 -32792201.39 -32792201.28 0.1919 0.1126

Mercury -94489-07-06 09:06 J -32790497.21 -32790497.12 -32790497.03 0.1610 0.1189

Mercury -94487-06-11 23:59 J -32789791.63 -32789791.50 -32789791.37 0.1605 0.0631

Mercury -94482-03-04 19:11 J -32788064.78 -32788064.70 -32788064.62 0.1923 0.1509

Moon -94481-01-14 16:18 J -32787748.93 -32787748.82 -32787748.70 0.1610 0.1233

Earth -94481-01-14 22:03 J -32787748.69 -32787748.58 -32787748.48 0.1610 0.1308

Venus -94481-03-03 02:51 J -32787700.51 -32787700.38 -32787700.26 0.1605 0.1102

Venus -94480-02-08 17:44 J -32787357.93 -32787357.76 -32787357.59 0.1923 0.0517

Mercury -94480-11-26 17:44 J -32787066.76 -32787066.76 -32787066.76 0.1612 0.1610

Mercury -94478-11-02 08:08 J -32786361.30 -32786361.16 -32786361.03 0.1606 0.0185

Mercury -94473-07-24 21:49 J -32784634.71 -32784634.59 -32784634.46 0.1923 0.0676

Mercury -94468-03-24 16:18 J -32782930.95 -32782930.82 -32782930.68 0.1607 0.0263

Mercury -94464-12-15 00:42 J -32781204.61 -32781204.47 -32781204.34 0.1922 0.0175

Mercury -94459-08-15 00:42 J -32779500.59 -32779500.47 -32779500.35 0.1608 0.0700

Mercury -94457-07-20 16:18 J -32778794.92 -32778794.82 -32778794.73 0.1605 0.1153

Mercury -94454-05-07 02:51 J -32777774.49 -32777774.38 -32777774.26 0.1919 0.1048

Mercury -94449-01-05 09:20 J -32776070.21 -32776070.11 -32776070.02 0.1610 0.1129

Venus -94449-03-01 17:30 J -32776013.94 -32776013.77 -32776013.60 0.1606 0.0278

Mercury -94448-12-11 00:13 J -32775364.61 -32775364.49 -32775364.37 0.1605 0.0695

Mercury -94443-09-02 19:25 J -32773637.76 -32773637.69 -32773637.62 0.1923 0.1588

Mercury -94440-05-27 17:59 J -32772639.78 -32772639.75 -32772639.72 0.1611 0.1553

Mercury -94438-05-03 08:23 J -32771934.29 -32771934.15 -32771934.02 0.1606 0.0245

Moon -94434-01-09 06:42 J -32770587.41 -32770587.22 -32770587.03 0.1615 0.0075

Earth -94434-01-09 11:59 J -32770587.18 -32770587.00 -32770586.81 0.1615 0.0081 *

Mercury -94433-01-23 22:18 J -32770207.69 -32770207.57 -32770207.44 0.1923 0.0765

Mercury -94429-09-22 16:32 J -32768503.95 -32768503.81 -32768503.67 0.1607 0.0203

Mercury -94424-06-15 00:56 J -32766777.60 -32766777.46 -32766777.33 0.1921 0.0100

Mercury -94419-02-13 00:56 J -32765073.59 -32765073.46 -32765073.34 0.1608 0.0644

Mercury -94417-01-19 16:32 J -32764367.90 -32764367.81 -32764367.72 0.1604 0.1216

Venus -94416-12-29 15:49 J -32763657.94 -32763657.84 -32763657.73 0.1604 0.1261

Mercury -94415-11-05 03:06 J -32763347.49 -32763347.37 -32763347.25 0.1920 0.0973

Venus -94415-12-06 18:56 J -32763315.85 -32763315.71 -32763315.57 0.1924 0.1170

Mercury -94410-07-06 09:35 J -32761643.20 -32761643.10 -32761643.00 0.1610 0.1073

Mercury -94408-06-11 00:27 J -32760937.60 -32760937.48 -32760937.36 0.1605 0.0756

Mercury -94405-03-27 05:01 J -32759917.32 -32759917.29 -32759917.26 0.1918 0.1862

Mercury -94403-03-03 19:39 J -32759210.75 -32759210.68 -32759210.62 0.1924 0.1663

Mercury -94401-11-25 18:13 J -32758212.79 -32758212.74 -32758212.69 0.1611 0.1495

Mercury -94399-11-01 08:37 J -32757507.28 -32757507.14 -32757507.01 0.1606 0.0307

Mercury -94394-07-24 22:47 J -32755780.67 -32755780.55 -32755780.43 0.1923 0.0847

Mercury -94389-03-23 16:47 J -32754076.94 -32754076.80 -32754076.66 0.1607 0.0142

Earth -94387-01-04 01:11 J -32753425.52 -32753425.45 -32753425.37 0.1622 0.1479

Mercury -94385-12-14 01:11 J -32752350.58 -32752350.45 -32752350.31 0.1921 0.0034

Venus -94384-12-28 06:27 J -32751971.40 -32751971.23 -32751971.06 0.1605 0.0109

Mercury -94380-08-14 01:11 J -32750646.58 -32750646.45 -32750646.33 0.1608 0.0582

Mercury -94378-07-20 16:47 J -32749940.88 -32749940.80 -32749940.72 0.1604 0.1281

Mercury -94375-05-06 03:35 J -32748920.47 -32748920.35 -32748920.23 0.1920 0.0886

Mercury -94370-01-04 09:35 J -32747216.20 -32747216.10 -32747215.99 0.1609 0.1015

Mercury -94369-12-10 00:42 J -32746510.59 -32746510.47 -32746510.35 0.1605 0.0821

Mercury -94366-09-26 05:30 J -32745490.32 -32745490.27 -32745490.22 0.1917 0.1782

Mercury -94364-09-01 19:54 J -32744783.72 -32744783.67 -32744783.61 0.1924 0.1751

Mercury -94361-05-26 18:13 J -32743785.79 -32743785.74 -32743785.68 0.1611 0.1441

Mercury -94359-05-02 08:37 J -32743080.27 -32743080.14 -32743080.00 0.1606 0.0364

Earth -94355-01-11 10:47 J -32741730.22 -32741730.05 -32741729.88 0.1613 0.0544

Moon -94355-01-11 11:30 J -32741730.21 -32741730.02 -32741729.83 0.1613 0.0390 *

Mercury -94354-01-22 22:47 J -32741353.67 -32741353.55 -32741353.43 0.1923 0.0917

Venus -94352-12-26 21:35 J -32740284.65 -32740284.60 -32740284.54 0.1607 0.1510

Mercury -94350-09-22 17:01 J -32739649.93 -32739649.79 -32739649.66 0.1607 0.0087

Venus -94350-10-27 04:47 J -32739615.38 -32739615.30 -32739615.22 0.1604 0.1426

Venus -94349-10-02 20:37 J -32739273.70 -32739273.64 -32739273.58 0.1924 0.1809

Mercury -94345-06-14 01:25 J -32737923.57 -32737923.44 -32737923.30 0.1922 0.0072

Mercury -94340-02-12 01:25 J -32736219.57 -32736219.44 -32736219.31 0.1608 0.0522

Mercury -94338-01-18 17:01 J -32735513.86 -32735513.79 -32735513.71 0.1604 0.1347

Mercury -94336-11-04 04:03 J -32734493.46 -32734493.33 -32734493.21 0.1920 0.0794

Mercury -94331-07-05 09:49 J -32732789.19 -32732789.09 -32732788.98 0.1609 0.0955

Mercury -94329-06-10 00:56 J -32732083.58 -32732083.46 -32732083.35 0.1605 0.0884

Mercury -94326-03-27 05:44 J -32731063.32 -32731063.26 -32731063.20 0.1918 0.1701

Mercury -94324-03-02 20:08 J -32730356.70 -32730356.66 -32730356.62 0.1924 0.1826

Mercury -94322-11-25 18:27 J -32729358.79 -32729358.73 -32729358.66 0.1611 0.1383

Mercury -94320-10-31 09:06 J -32728653.26 -32728653.12 -32728652.99 0.1606 0.0432

Venus -94318-10-25 19:25 J -32727928.86 -32727928.69 -32727928.52 0.1605 0.0054

Venus -94317-10-03 01:11 J -32727585.56 -32727585.45 -32727585.34 0.1922 0.1514

Mercury -94315-07-23 23:15 J -32726926.65 -32726926.53 -32726926.42 0.1923 0.1003

Mercury -94310-03-23 17:15 J -32725222.92 -32725222.78 -32725222.65 0.1607 0.0050

Earth -94308-01-06 00:13 J -32724568.64 -32724568.49 -32724568.33 0.1620 0.0851

Moon -94308-01-06 05:30 J -32724568.44 -32724568.27 -32724568.09 0.1619 0.0650 *

Mercury -94306-12-14 01:54 J -32723496.55 -32723496.42 -32723496.28 0.1922 0.0157

Mercury -94301-08-13 01:25 J -32721792.57 -32721792.44 -32721792.31 0.1608 0.0466

Moon -94300-07-16 20:51 J -32721454.83 -32721454.63 -32721454.44 0.1912 0.0310

Earth -94300-07-17 04:32 J -32721454.52 -32721454.31 -32721454.09 0.1912 0.0073 *

Mercury -94299-07-19 17:15 J -32721086.84 -32721086.78 -32721086.72 0.1604 0.1408

Mercury -94296-05-05 04:03 J -32720066.46 -32720066.33 -32720066.21 0.1920 0.0730

Mercury -94291-01-03 10:03 J -32718362.19 -32718362.08 -32718361.97 0.1609 0.0897

Mercury -94290-12-10 01:11 J -32717656.56 -32717656.45 -32717656.34 0.1605 0.0946

Mercury -94287-09-25 06:13 J -32716636.31 -32716636.24 -32716636.17 0.1918 0.1608

Venus -94286-10-24 10:03 J -32716242.17 -32716242.08 -32716241.98 0.1606 0.1339

Mercury -94285-08-31 20:23 J -32715929.67 -32715929.65 -32715929.63 0.1925 0.1903

Venus -94284-08-23 17:44 J -32715572.78 -32715572.76 -32715572.74 0.1603 0.1589

Mercury -94282-05-26 18:42 J -32714931.79 -32714931.72 -32714931.65 0.1611 0.1326

Mercury -94280-05-01 09:06 J -32714226.25 -32714226.12 -32714225.98 0.1606 0.0492

Earth -94276-01-13 08:51 J -32712873.26 -32712873.13 -32712873.00 0.1612 0.1153

Moon -94276-01-13 14:51 J -32712872.99 -32712872.88 -32712872.77 0.1612 0.1277

Mercury -94275-01-21 23:44 J -32712499.62 -32712499.51 -32712499.40 0.1923 0.1093

Mercury -94271-09-21 17:30 J -32710795.91 -32710795.77 -32710795.63 0.1607 0.0047
 Mercury -94266-06-14 02:08 J -32709069.55 -32709069.41 -32709069.28 0.1922 0.0233
 Mercury -94261-02-12 01:39 J -32707365.56 -32707365.43 -32707365.29 0.1608 0.0405
 Mercury -94259-01-17 17:30 J -32706659.82 -32706659.77 -32706659.72 0.1604 0.1476
 Mercury -94257-11-03 04:32 J -32705639.44 -32705639.31 -32705639.18 0.1920 0.0633
 Mercury -94252-07-04 10:18 J -32703935.19 -32703935.07 -32703934.96 0.1609 0.0842
 Venus -94252-08-22 08:08 J -32703886.34 -32703886.16 -32703885.99 0.1604 0.0225
 Venus -94251-07-31 02:51 J -32703543.53 -32703543.38 -32703543.22 0.1923 0.0891
 Mercury -94250-06-10 01:25 J -32703229.55 -32703229.44 -32703229.34 0.1605 0.1009
 Mercury -94247-03-26 06:27 J -32702209.31 -32702209.23 -32702209.15 0.1918 0.1538
 Mercury -94243-11-24 18:56 J -32700504.79 -32700504.71 -32700504.63 0.1611 0.1268
 Mercury -94241-10-30 09:20 J -32699799.24 -32699799.11 -32699798.98 0.1605 0.0553
 Mercury -94236-07-22 23:44 J -32698072.62 -32698072.51 -32698072.41 0.1924 0.1159
 Mercury -94231-03-22 17:44 J -32696368.90 -32696368.76 -32696368.63 0.1607 0.0112
 Earth -94229-01-08 22:47 J -32695711.73 -32695711.55 -32695711.37 0.1618 0.0226
 Moon -94229-01-09 03:49 J -32695711.52 -32695711.34 -32695711.17 0.1618 0.0411 *
 Mercury -94227-12-13 02:37 J -32694642.53 -32694642.39 -32694642.26 0.1923 0.0325
 Mercury -94222-08-13 01:54 J -32692938.55 -32692938.42 -32692938.29 0.1608 0.0343
 Moon -94221-07-20 23:44 J -32692595.61 -32692595.51 -32692595.41 0.1916 0.1720
 Mercury -94220-07-18 17:44 J -32692232.79 -32692232.76 -32692232.72 0.1604 0.1539
 Venus -94220-08-20 23:01 J -32692199.65 -32692199.54 -32692199.42 0.1605 0.1176
 Mercury -94217-05-04 04:47 J -32691212.43 -32691212.30 -32691212.16 0.1920 0.0555
 Mercury -94212-01-02 10:32 J -32689508.18 -32689508.06 -32689507.94 0.1609 0.0777
 Mercury -94211-12-09 01:39 J -32688802.53 -32688802.43 -32688802.33 0.1605 0.1076
 Mercury -94208-09-24 06:56 J -32687782.30 -32687782.21 -32687782.12 0.1918 0.1444
 Mercury -94203-05-25 19:11 J -32686077.79 -32686077.70 -32686077.62 0.1611 0.1211
 Mercury -94201-04-30 09:35 J -32685372.22 -32685372.10 -32685371.97 0.1605 0.0619
 Mercury -94196-01-21 00:13 J -32683645.59 -32683645.49 -32683645.39 0.1924 0.1252
 Mercury -94192-09-20 17:44 J -32681941.89 -32681941.76 -32681941.62 0.1606 0.0167
 Mercury -94187-06-13 02:37 J -32680215.52 -32680215.39 -32680215.25 0.1922 0.0401

Venus -94186-06-19 21:20 J -32679843.78 -32679843.61 -32679843.45 0.1604 0.0380
 Venus -94185-05-27 04:32 J -32679501.48 -32679501.31 -32679501.13 0.1924 0.0251
 Moon -94182-01-03 11:59 J -32678550.05 -32678550.00 -32678549.94 0.1625 0.1538
 Mercury -94182-02-11 02:08 J -32678511.54 -32678511.41 -32678511.28 0.1608 0.0283
 Mercury -94180-01-16 17:59 J -32677805.75 -32677805.75 -32677805.75 0.1604 0.1604
 Mercury -94178-11-03 05:01 J -32676785.42 -32676785.29 -32676785.15 0.1921 0.0477
 Mercury -94173-07-03 10:47 J -32675081.18 -32675081.05 -32675080.93 0.1609 0.0721
 Mercury -94171-06-09 01:54 J -32674375.52 -32674375.42 -32674375.32 0.1604 0.1138
 Mercury -94168-03-25 07:11 J -32673355.29 -32673355.20 -32673355.10 0.1919 0.1359
 Mercury -94164-11-23 19:25 J -32671650.79 -32671650.69 -32671650.60 0.1611 0.1151
 Mercury -94162-10-30 09:49 J -32670945.21 -32670945.09 -32670944.96 0.1605 0.0682
 Mercury -94157-07-22 00:27 J -32669218.57 -32669218.48 -32669218.38 0.1924 0.1334
 Mercury -94154-04-16 04:03 J -32668220.36 -32668220.33 -32668220.31 0.1612 0.1578
 Venus -94154-06-18 11:59 J -32668157.13 -32668157.00 -32668156.87 0.1605 0.1011
 Mercury -94152-03-21 17:59 J -32667514.88 -32667514.75 -32667514.61 0.1606 0.0232
 Moon -94150-01-10 21:06 J -32666854.78 -32666854.62 -32666854.46 0.1616 0.0563
 Earth -94150-01-10 21:35 J -32666854.78 -32666854.60 -32666854.42 0.1616 0.0387 *
 Mercury -94148-12-12 03:06 J -32665788.50 -32665788.37 -32665788.24 0.1922 0.0484
 Mercury -94143-08-12 02:23 J -32664084.53 -32664084.40 -32664084.26 0.1607 0.0220
 Mercury -94138-05-04 05:30 J -32662358.40 -32662358.27 -32662358.13 0.1921 0.0385
 Mercury -94133-01-02 10:47 J -32660654.17 -32660654.05 -32660653.92 0.1609 0.0661
 Mercury -94132-12-08 02:08 J -32659948.50 -32659948.41 -32659948.32 0.1604 0.1204
 Mercury -94129-09-23 07:25 J -32658928.29 -32658928.19 -32658928.08 0.1918 0.1281
 Mercury -94124-05-24 19:25 J -32657223.79 -32657223.69 -32657223.59 0.1610 0.1094
 Mercury -94122-04-30 10:03 J -32656518.20 -32656518.08 -32656517.96 0.1605 0.0739
 Venus -94120-04-16 10:03 J -32655801.24 -32655801.08 -32655800.91 0.1603 0.0544
 Venus -94119-03-24 05:59 J -32655459.43 -32655459.25 -32655459.08 0.1925 0.0403
 Mercury -94117-01-21 00:42 J -32654791.56 -32654791.47 -32654791.38 0.1924 0.1407
 Mercury -94115-10-15 04:18 J -32653793.37 -32653793.32 -32653793.28 0.1612 0.1519
 Mercury -94113-09-19 18:13 J -32653087.87 -32653087.74 -32653087.60 0.1606 0.0292

Mercury -94108-06-12 03:20 J -32651361.49 -32651361.36 -32651361.23 0.1923 0.0569

Moon -94103-01-05 05:30 J -32649693.39 -32649693.27 -32649693.15 0.1624 0.1198

Earth -94103-01-05 11:01 J -32649693.19 -32649693.04 -32649692.90 0.1623 0.0996 *

Mercury -94103-02-10 02:37 J -32649657.52 -32649657.39 -32649657.25 0.1607 0.0159

Mercury -94099-11-02 05:59 J -32647931.38 -32647931.25 -32647931.11 0.1921 0.0295

Mercury -94094-07-03 11:01 J -32646227.16 -32646227.04 -32646226.91 0.1609 0.0600

Mercury -94092-06-08 02:23 J -32645521.48 -32645521.40 -32645521.32 0.1604 0.1268

Mercury -94089-03-24 07:54 J -32644501.28 -32644501.17 -32644501.06 0.1919 0.1196

Venus -94088-04-15 00:56 J -32644114.61 -32644114.46 -32644114.31 0.1604 0.0848

Mercury -94085-11-22 19:39 J -32642796.78 -32642796.68 -32642796.58 0.1610 0.1034

Mercury -94083-10-29 10:32 J -32642091.18 -32642091.06 -32642090.95 0.1605 0.0809

Mercury -94078-07-22 00:56 J -32640364.54 -32640364.46 -32640364.37 0.1924 0.1495

Mercury -94075-04-15 04:18 J -32639366.37 -32639366.32 -32639366.27 0.1612 0.1464

Mercury -94073-03-20 18:27 J -32638660.86 -32638660.73 -32638660.59 0.1606 0.0352

Moon -94071-01-12 15:20 J -32637998.02 -32637997.86 -32637997.71 0.1614 0.0864

Earth -94071-01-12 20:37 J -32637997.78 -32637997.64 -32637997.49 0.1614 0.1007 *

Mercury -94069-12-11 03:49 J -32636934.47 -32636934.34 -32636934.21 0.1923 0.0652

Mercury -94064-08-11 02:51 J -32635230.52 -32635230.38 -32635230.25 0.1607 0.0103

Mercury -94059-05-03 05:59 J -32633504.38 -32633504.25 -32633504.11 0.1921 0.0229

Mercury -94054-01-01 11:15 J -32631800.16 -32631800.03 -32631799.90 0.1609 0.0539

Venus -94054-02-11 23:30 J -32631758.68 -32631758.52 -32631758.37 0.1603 0.0702

Venus -94053-01-19 07:39 J -32631417.33 -32631417.18 -32631417.03 0.1926 0.1042

Mercury -94053-12-07 02:37 J -32631094.46 -32631094.39 -32631094.31 0.1604 0.1333

Mercury -94050-09-23 08:23 J -32630074.26 -32630074.15 -32630074.03 0.1919 0.1100

Mercury -94045-05-23 19:54 J -32628369.78 -32628369.67 -32628369.56 0.1610 0.0974

Mercury -94043-04-29 10:32 J -32627664.17 -32627664.06 -32627663.94 0.1605 0.0872

Mercury -94038-01-20 01:25 J -32625937.51 -32625937.44 -32625937.36 0.1924 0.1585

Mercury -94036-10-14 04:32 J -32624939.37 -32624939.31 -32624939.24 0.1612 0.1402

Mercury -94034-09-19 18:56 J -32624233.85 -32624233.71 -32624233.58 0.1606 0.0419

Mercury -94029-06-11 04:03 J -32622507.46 -32622507.33 -32622507.21 0.1923 0.0730

Moon -94024-01-07 04:32 J -32620836.49 -32620836.31 -32620836.12 0.1621 0.0199
 Earth -94024-01-07 10:03 J -32620836.26 -32620836.08 -32620835.90 0.1621 0.0378 *
 Mercury -94024-02-09 03:06 J -32620803.51 -32620803.37 -32620803.24 0.1607 0.0044
 Venus -94022-02-10 13:54 J -32620072.07 -32620071.92 -32620071.76 0.1604 0.0690
 Mercury -94020-11-01 06:42 J -32619077.36 -32619077.22 -32619077.09 0.1921 0.0135
 Earth -94016-07-15 16:47 J -32617725.01 -32617724.80 -32617724.58 0.1908 0.0315
 Moon -94016-07-16 04:18 J -32617724.53 -32617724.32 -32617724.10 0.1908 0.0117
 Mercury -94015-07-02 11:30 J -32617373.15 -32617373.02 -32617372.89 0.1608 0.0480
 Mercury -94013-06-07 02:51 J -32616667.44 -32616667.38 -32616667.31 0.1604 0.1398
 Mercury -94010-03-24 08:37 J -32615647.26 -32615647.14 -32615647.03 0.1919 0.1029
 Mercury -94006-11-22 20:08 J -32613942.77 -32613942.66 -32613942.55 0.1610 0.0915
 Mercury -94004-10-28 10:47 J -32613237.16 -32613237.05 -32613236.93 0.1605 0.0935

94TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 94th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -93999-07-21 01:25 J | -32611510.51 | -32611510.44 | -32611510.37 | 0.1925 | 0.1650 | | |
| Mercury | -93996-04-14 04:47 J | -32610512.37 | -32610512.30 | -32610512.23 | 0.1612 | 0.1346 | | |
| Mercury | -93994-03-20 18:56 J | -32609806.84 | -32609806.71 | -32609806.58 | 0.1606 | 0.0477 | | |
| Earth | -93992-01-14 19:11 J | -32609140.70 | -32609140.70 | -32609140.69 | 0.1613 | 0.1610 | | |
| Mercury | -93990-12-11 04:32 J | -32608080.44 | -32608080.31 | -32608080.19 | 0.1924 | 0.0823 | | |
| Venus | -93989-12-09 12:42 J | -32607716.12 | -32607715.97 | -32607715.83 | 0.1603 | 0.0862 | | |
| Venus | -93988-11-15 08:37 J | -32607375.22 | -32607375.14 | -32607375.06 | 0.1926 | 0.1716 | | |

Mercury -93985-08-10 03:20 J -32606376.50 -32606376.36 -32606376.23 0.1607 0.0036

Mercury -93980-05-02 06:56 J -32604650.35 -32604650.21 -32604650.07 0.1921 0.0048

Mercury -93976-12-31 11:44 J -32602946.14 -32602946.01 -32602945.88 0.1608 0.0416

Mercury -93974-12-07 03:20 J -32602240.42 -32602240.36 -32602240.31 0.1604 0.1467

Mercury -93971-09-22 09:06 J -32601220.24 -32601220.12 -32601220.00 0.1919 0.0935

Mercury -93966-05-23 20:08 J -32599515.77 -32599515.66 -32599515.54 0.1610 0.0858

Mercury -93964-04-28 11:01 J -32598810.14 -32598810.04 -32598809.93 0.1605 0.1001

Mercury -93961-02-12 10:47 J -32597790.09 -32597790.05 -32597790.02 0.1916 0.1850

Mercury -93959-01-19 01:54 J -32597083.47 -32597083.42 -32597083.36 0.1925 0.1744

Mercury -93957-10-13 04:47 J -32596085.37 -32596085.30 -32596085.22 0.1612 0.1290

Venus -93957-12-08 03:06 J -32596029.54 -32596029.37 -32596029.21 0.1603 0.0522

Venus -93956-11-15 14:23 J -32595686.98 -32595686.90 -32595686.82 0.1925 0.1693

Mercury -93955-09-18 19:11 J -32595379.83 -32595379.70 -32595379.57 0.1606 0.0539

Mercury -93950-06-11 04:32 J -32593653.43 -32593653.31 -32593653.19 0.1923 0.0899

Earth -93945-01-10 09:06 J -32591979.30 -32591979.12 -32591978.94 0.1619 0.0254

Moon -93945-01-10 10:03 J -32591979.27 -32591979.08 -32591978.88 0.1619 0.0078 *

Mercury -93945-02-09 03:35 J -32591949.49 -32591949.35 -32591949.22 0.1607 0.0095

Mercury -93941-10-31 07:11 J -32590223.34 -32590223.20 -32590223.06 0.1922 0.0034

Earth -93937-07-19 20:51 J -32588865.68 -32588865.63 -32588865.57 0.1912 0.1841

Moon -93937-07-19 22:18 J -32588865.66 -32588865.57 -32588865.46 0.1912 0.1626 *

Mercury -93936-07-01 11:59 J -32588519.13 -32588519.00 -32588518.87 0.1608 0.0356

Mercury -93934-06-07 03:20 J -32587813.39 -32587813.36 -32587813.32 0.1604 0.1530

Mercury -93931-03-23 09:20 J -32586793.23 -32586793.11 -32586792.98 0.1920 0.0849

Mercury -93927-11-21 20:23 J -32585088.76 -32585088.65 -32585088.53 0.1610 0.0796

Mercury -93925-10-27 11:30 J -32584383.13 -32584383.02 -32584382.92 0.1605 0.1066

Venus -93923-10-07 01:39 J -32583673.56 -32583673.43 -32583673.30 0.1603 0.1027

Mercury -93922-08-13 11:01 J -32583363.09 -32583363.04 -32583362.99 0.1917 0.1764

Mercury -93920-07-20 02:08 J -32582656.44 -32582656.41 -32582656.37 0.1925 0.1828

Mercury -93917-04-13 05:01 J -32581658.37 -32581658.29 -32581658.20 0.1611 0.1230

Mercury -93915-03-19 19:25 J -32580952.81 -32580952.69 -32580952.56 0.1605 0.0607

Mercury -93911-12-10 05:01 J -32579226.40 -32579226.29 -32579226.17 0.1924 0.0987

Mercury -93906-08-10 03:49 J -32577522.48 -32577522.34 -32577522.21 0.1607 0.0156

Mercury -93901-05-01 07:39 J -32575796.32 -32575796.18 -32575796.05 0.1922 0.0132

Earth -93898-01-04 21:35 J -32574817.73 -32574817.60 -32574817.47 0.1628 0.1150

Moon -93898-01-05 03:06 J -32574817.51 -32574817.37 -32574817.22 0.1627 0.0978 *

Mercury -93897-12-30 12:13 J -32574092.13 -32574091.99 -32574091.86 0.1608 0.0301

Mercury -93895-12-06 03:35 J -32573386.35 -32573386.35 -32573386.34 0.1604 0.1596

Mercury -93892-09-21 09:35 J -32572366.22 -32572366.10 -32572365.97 0.1920 0.0772

Venus -93891-10-05 16:03 J -32571987.00 -32571986.83 -32571986.66 0.1603 0.0362

Venus -93890-09-12 15:49 J -32571644.99 -32571644.84 -32571644.70 0.1925 0.1044

Mercury -93887-05-22 20:37 J -32570661.76 -32570661.64 -32570661.52 0.1610 0.0737

Mercury -93885-04-27 11:30 J -32569956.11 -32569956.02 -32569955.92 0.1604 0.1127

Mercury -93882-02-11 11:30 J -32568936.09 -32568936.02 -32568935.96 0.1917 0.1679

Mercury -93880-01-18 02:23 J -32568229.41 -32568229.40 -32568229.38 0.1925 0.1903

Mercury -93878-10-13 05:15 J -32567231.37 -32567231.28 -32567231.18 0.1612 0.1169

Mercury -93876-09-17 19:39 J -32566525.80 -32566525.68 -32566525.55 0.1605 0.0670

Mercury -93871-06-10 05:15 J -32564799.39 -32564799.28 -32564799.16 0.1924 0.1072

Mercury -93868-03-04 14:08 J -32563800.92 -32563800.91 -32563800.89 0.1613 0.1595

Earth -93866-01-12 07:39 J -32563122.33 -32563122.18 -32563122.02 0.1618 0.0860

Moon -93866-01-12 13:39 J -32563122.07 -32563121.93 -32563121.79 0.1617 0.1070 *

Mercury -93866-02-08 04:03 J -32563095.47 -32563095.33 -32563095.20 0.1607 0.0217

Mercury -93862-10-31 07:54 J -32561369.30 -32561369.17 -32561369.03 0.1922 0.0218

Mercury -93857-06-30 12:27 J -32559665.12 -32559664.98 -32559664.85 0.1608 0.0235

Venus -93857-08-03 14:51 J -32559630.99 -32559630.88 -32559630.76 0.1602 0.1186

Mercury -93852-03-22 10:03 J -32557939.21 -32557939.08 -32557938.95 0.1920 0.0681

Mercury -93848-11-20 20:51 J -32556234.75 -32556234.63 -32556234.51 0.1609 0.0674

Mercury -93846-10-27 11:59 J -32555529.09 -32555529.00 -32555528.91 0.1604 0.1197

Mercury -93843-08-12 11:59 J -32554509.08 -32554509.00 -32554508.93 0.1917 0.1589

Mercury -93838-04-13 05:30 J -32552804.37 -32552804.27 -32552804.17 0.1611 0.1112

Mercury -93836-03-18 19:54 J -32552098.79 -32552098.67 -32552098.55 0.1605 0.0732

Mercury -93832-12-09 05:44 J -32550372.37 -32550372.26 -32550372.15 0.1924 0.1153

Mercury -93829-09-02 14:23 J -32549373.94 -32549373.90 -32549373.87 0.1613 0.1539

Mercury -93827-08-09 04:03 J -32548668.46 -32548668.33 -32548668.19 0.1606 0.0278

Venus -93825-08-02 05:01 J -32547944.46 -32547944.29 -32547944.12 0.1602 0.0195

Venus -93824-07-09 17:15 J -32547602.95 -32547602.78 -32547602.61 0.1926 0.0400

Mercury -93822-05-01 08:08 J -32546942.30 -32546942.16 -32546942.03 0.1922 0.0286

Earth -93819-01-06 20:51 J -32545960.81 -32545960.63 -32545960.46 0.1625 0.0515

Moon -93819-01-07 01:25 J -32545960.60 -32545960.44 -32545960.28 0.1625 0.0671 *

Mercury -93818-12-30 12:42 J -32545238.11 -32545237.97 -32545237.84 0.1608 0.0175

Mercury -93813-09-20 10:32 J -32543512.19 -32543512.06 -32543511.92 0.1920 0.0587

Mercury -93808-05-21 21:06 J -32541807.74 -32541807.62 -32541807.49 0.1609 0.0613

Mercury -93806-04-27 12:13 J -32541102.08 -32541101.99 -32541101.91 0.1604 0.1261

Mercury -93803-02-10 12:13 J -32540082.07 -32540081.99 -32540081.91 0.1917 0.1505

Mercury -93799-10-12 05:44 J -32538377.36 -32538377.26 -32538377.16 0.1611 0.1049

Mercury -93797-09-16 20:08 J -32537671.78 -32537671.66 -32537671.54 0.1605 0.0799

Venus -93793-07-31 19:39 J -32536257.68 -32536257.68 -32536257.67 0.1603 0.1601

Mercury -93792-06-09 05:59 J -32535945.36 -32535945.25 -32535945.15 0.1924 0.1234

Venus -93791-06-01 03:49 J -32535588.43 -32535588.34 -32535588.25 0.1602 0.1353

Mercury -93789-03-03 14:23 J -32534946.95 -32534946.90 -32534946.85 0.1613 0.1483

Earth -93787-01-14 06:42 J -32534265.29 -32534265.22 -32534265.14 0.1616 0.1467

Moon -93787-01-14 09:35 J -32534265.20 -32534265.10 -32534265.01 0.1616 0.1343 *

Mercury -93787-02-07 04:32 J -32534241.45 -32534241.31 -32534241.18 0.1606 0.0344

Mercury -93783-10-30 08:37 J -32532515.27 -32532515.14 -32532515.00 0.1922 0.0384

Mercury -93778-06-30 12:42 J -32530811.10 -32530810.97 -32530810.83 0.1608 0.0116

Mercury -93773-03-21 10:47 J -32529085.19 -32529085.05 -32529084.92 0.1920 0.0518

Mercury -93769-11-19 21:20 J -32527380.74 -32527380.61 -32527380.48 0.1609 0.0552

Mercury -93767-10-26 12:27 J -32526675.06 -32526674.98 -32526674.91 0.1604 0.1325

Mercury -93764-08-11 12:42 J -32525655.07 -32525654.97 -32525654.88 0.1918 0.1420

Mercury -93759-04-12 05:59 J -32523950.36 -32523950.25 -32523950.15 0.1611 0.0992

Venus -93759-05-30 18:13 J -32523901.91 -32523901.74 -32523901.57 0.1602 0.0040

Venus -93758-05-06 18:42 J -32523560.89 -32523560.72 -32523560.54 0.1927 0.0257

Mercury -93757-03-17 20:23 J -32523244.76 -32523244.65 -32523244.53 0.1605 0.0862

Mercury -93753-12-08 06:27 J -32521518.33 -32521518.23 -32521518.14 0.1924 0.1328

Mercury -93750-09-02 14:37 J -32520519.95 -32520519.89 -32520519.82 0.1613 0.1421

Mercury -93748-08-08 04:47 J -32519814.44 -32519814.30 -32519814.17 0.1606 0.0408

Mercury -93743-04-30 08:51 J -32518088.26 -32518088.13 -32518088.00 0.1922 0.0463

Moon -93740-01-08 17:44 J -32517103.93 -32517103.76 -32517103.59 0.1623 0.0269

Earth -93740-01-08 20:08 J -32517103.85 -32517103.66 -32517103.48 0.1623 0.0107 *

Mercury -93739-12-29 13:11 J -32516384.09 -32516383.95 -32516383.82 0.1607 0.0066

Mercury -93734-09-20 11:15 J -32514658.17 -32514658.03 -32514657.90 0.1920 0.0422

Moon -93732-07-13 20:51 J -32513995.83 -32513995.63 -32513995.43 0.1903 0.0813

Earth -93732-07-14 06:56 J -32513995.42 -32513995.21 -32513995.01 0.1903 0.0629

Mercury -93729-05-20 21:20 J -32512953.73 -32512953.61 -32512953.48 0.1609 0.0496

Mercury -93727-04-26 12:42 J -32512248.04 -32512247.97 -32512247.91 0.1604 0.1391

Venus -93727-05-29 08:37 J -32512215.21 -32512215.14 -32512215.06 0.1603 0.1438

Venus -93725-03-28 17:15 J -32511545.84 -32511545.78 -32511545.73 0.1602 0.1509

Mercury -93724-02-09 12:56 J -32511228.06 -32511227.96 -32511227.86 0.1918 0.1332

Mercury -93720-10-11 06:13 J -32509523.35 -32509523.24 -32509523.14 0.1611 0.0932

Mercury -93718-09-16 20:37 J -32508817.75 -32508817.64 -32508817.53 0.1605 0.0925

Mercury -93713-06-08 06:27 J -32507091.32 -32507091.23 -32507091.14 0.1924 0.1402

Mercury -93710-03-03 14:51 J -32506092.95 -32506092.88 -32506092.81 0.1613 0.1363

Mercury -93708-02-06 04:47 J -32505387.43 -32505387.30 -32505387.16 0.1606 0.0471

Mercury -93704-10-29 09:06 J -32503661.25 -32503661.12 -32503660.99 0.1923 0.0547

Mercury -93699-06-29 13:11 J -32501957.08 -32501956.95 -32501956.81 0.1607 0.0025

Mercury -93694-03-21 11:30 J -32500231.15 -32500231.02 -32500230.88 0.1921 0.0335

Moon -93693-01-04 02:23 J -32499942.48 -32499942.40 -32499942.31 0.1632 0.1428

Earth -93693-01-04 07:39 J -32499942.28 -32499942.18 -32499942.07 0.1632 0.1299

Venus -93693-03-27 07:11 J -32499859.37 -32499859.20 -32499859.03 0.1602 0.0127

Venus -93692-03-02 19:54 J -32499518.83 -32499518.67 -32499518.52 0.1927 0.0926

Mercury -93690-11-19 21:49 J -32498526.72 -32498526.59 -32498526.46 0.1609 0.0430

Mercury -93688-10-25 12:56 J -32497821.02 -32497820.96 -32497820.91 0.1604 0.1459

Mercury -93685-08-10 13:25 J -32496801.05 -32496800.94 -32496800.84 0.1918 0.1245

Mercury -93680-04-11 06:13 J -32495096.35 -32495096.24 -32495096.12 0.1611 0.0872

Mercury -93678-03-17 20:51 J -32494390.73 -32494390.63 -32494390.52 0.1605 0.0995

Mercury -93674-12-08 06:56 J -32492664.29 -32492664.21 -32492664.13 0.1925 0.1491

Mercury -93671-09-01 15:06 J -32491665.95 -32491665.87 -32491665.80 0.1613 0.1305

Mercury -93669-08-07 05:01 J -32490960.42 -32490960.29 -32490960.16 0.1606 0.0532

Mercury -93664-04-29 09:35 J -32489234.23 -32489234.10 -32489233.97 0.1923 0.0631

Moon -93661-01-11 12:42 J -32488247.14 -32488246.97 -32488246.79 0.1621 0.0486

Earth -93661-01-11 18:56 J -32488246.87 -32488246.71 -32488246.54 0.1621 0.0721 *

Venus -93661-03-25 21:49 J -32488172.69 -32488172.59 -32488172.49 0.1602 0.1275

Mercury -93660-12-28 13:25 J -32487530.08 -32487529.94 -32487529.80 0.1607 0.0077

Mercury -93655-09-19 11:44 J -32485804.15 -32485804.01 -32485803.87 0.1921 0.0255

Earth -93653-07-18 10:32 J -32485136.19 -32485136.06 -32485135.93 0.1908 0.1489

Moon -93653-07-18 18:13 J -32485135.89 -32485135.74 -32485135.59 0.1908 0.1433

Mercury -93650-05-20 21:49 J -32484099.72 -32484099.59 -32484099.45 0.1609 0.0372

Mercury -93648-04-25 13:11 J -32483393.99 -32483393.95 -32483393.91 0.1604 0.1522

Mercury -93645-02-09 13:39 J -32482374.04 -32482373.93 -32482373.82 0.1918 0.1158

Mercury -93641-10-10 06:27 J -32480669.34 -32480669.23 -32480669.11 0.1611 0.0810

Mercury -93639-09-15 21:06 J -32479963.72 -32479963.62 -32479963.51 0.1605 0.1058

Mercury -93634-06-08 07:11 J -32478237.27 -32478237.20 -32478237.12 0.1925 0.1576

Mercury -93631-03-02 15:20 J -32477238.95 -32477238.86 -32477238.78 0.1613 0.1245

Mercury -93629-02-06 05:15 J -32476533.40 -32476533.28 -32476533.15 0.1606 0.0598

Venus -93627-01-22 20:37 J -32475816.81 -32475816.64 -32475816.47 0.1602 0.0283

Venus -93627-12-28 21:35 J -32475476.70 -32475476.60 -32475476.50 0.1927 0.1588

Mercury -93625-10-28 09:49 J -32474807.21 -32474807.09 -32474806.96 0.1923 0.0723

Mercury -93620-06-28 13:39 J -32473103.06 -32473102.93 -32473102.79 0.1607 0.0144

Mercury -93615-03-20 12:13 J -32471377.13 -32471376.99 -32471376.85 0.1921 0.0164

Moon -93614-01-06 03:35 J -32471085.53 -32471085.35 -32471085.17 0.1630 0.0546

Earth -93614-01-06 07:25 J -32471085.36 -32471085.19 -32471085.02 0.1630 0.0666 *

Mercury -93611-11-18 22:03 J -32469672.71 -32469672.58 -32469672.44 0.1609 0.0308

Mercury -93609-10-24 13:25 J -32468966.95 -32468966.94 -32468966.93 0.1604 0.1592

Mercury -93606-08-10 14:08 J -32467947.03 -32467946.91 -32467946.80 0.1918 0.1072

Mercury -93601-04-10 06:42 J -32466242.34 -32466242.22 -32466242.10 0.1611 0.0752

Mercury -93599-03-16 21:20 J -32465536.71 -32465536.61 -32465536.51 0.1605 0.1119

Venus -93595-01-21 11:01 J -32464130.16 -32464130.04 -32464129.92 0.1602 0.1118

Mercury -93595-12-07 07:25 J -32463810.25 -32463810.19 -32463810.12 0.1925 0.1656

Venus -93595-12-29 02:37 J -32463788.44 -32463788.39 -32463788.34 0.1927 0.1839

Mercury -93592-08-31 15:20 J -32462811.95 -32462811.86 -32462811.77 0.1613 0.1187

Mercury -93590-08-07 05:30 J -32462106.39 -32462106.27 -32462106.14 0.1606 0.0659

Mercury -93585-04-28 10:03 J -32460380.20 -32460380.08 -32460379.95 0.1923 0.0798

Moon -93582-01-13 14:51 J -32459389.95 -32459389.88 -32459389.80 0.1619 0.1475

Earth -93582-01-13 17:59 J -32459389.85 -32459389.75 -32459389.64 0.1619 0.1331 *

Mercury -93582-01-22 00:13 J -32459381.49 -32459381.49 -32459381.49 0.1615 0.1615

Mercury -93581-12-27 13:54 J -32458676.05 -32458675.92 -32458675.78 0.1607 0.0206

Mercury -93576-09-18 12:42 J -32456950.11 -32456949.97 -32456949.83 0.1921 0.0069

Mercury -93571-05-19 22:18 J -32455245.70 -32455245.57 -32455245.43 0.1609 0.0246

Mercury -93566-02-08 14:23 J -32453520.02 -32453519.90 -32453519.78 0.1918 0.0987

Mercury -93562-10-10 06:56 J -32451815.33 -32451815.21 -32451815.09 0.1610 0.0688

Venus -93562-11-20 09:49 J -32451774.26 -32451774.09 -32451773.93 0.1602 0.0446

Mercury -93560-09-14 21:35 J -32451109.69 -32451109.60 -32451109.50 0.1604 0.1189

Mercury -93557-06-30 16:03 J -32450089.84 -32450089.83 -32450089.83 0.1915 0.1912

Mercury -93555-06-07 07:39 J -32449383.23 -32449383.18 -32449383.12 0.1925 0.1740

Mercury -93552-03-01 15:35 J -32448384.94 -32448384.85 -32448384.76 0.1612 0.1127

Mercury -93550-02-05 05:44 J -32447679.38 -32447679.26 -32447679.13 0.1606 0.0726

Mercury -93546-10-28 10:32 J -32445953.18 -32445953.06 -32445952.94 0.1923 0.0893

Mercury -93543-07-23 00:27 J -32444954.51 -32444954.48 -32444954.45 0.1614 0.1558

Mercury -93541-06-27 14:08 J -32444249.05 -32444248.91 -32444248.78 0.1607 0.0268

Mercury -93536-03-19 12:42 J -32442523.11 -32442522.97 -32442522.83 0.1921 0.0012

Earth -93535-01-08 06:42 J -32442228.41 -32442228.22 -32442228.04 0.1627 0.0048

Moon -93535-01-08 09:49 J -32442228.28 -32442228.09 -32442227.90 0.1627 0.0189 *
 Mercury -93532-11-17 22:32 J -32440818.70 -32440818.56 -32440818.43 0.1609 0.0183
 Venus -93530-11-18 23:59 J -32440087.64 -32440087.50 -32440087.37 0.1602 0.0949
 Venus -93529-10-25 04:32 J -32439746.45 -32439746.31 -32439746.18 0.1927 0.1206
 Mercury -93527-08-09 14:51 J -32439093.00 -32439092.88 -32439092.76 0.1919 0.0897
 Mercury -93522-04-10 07:11 J -32437388.33 -32437388.20 -32437388.08 0.1610 0.0628
 Mercury -93520-03-15 21:49 J -32436682.67 -32436682.59 -32436682.50 0.1604 0.1254
 Mercury -93518-12-30 16:32 J -32435662.85 -32435662.81 -32435662.77 0.1915 0.1818
 Mercury -93516-12-06 08:23 J -32434956.19 -32434956.15 -32434956.12 0.1925 0.1835
 Mercury -93513-08-30 15:49 J -32433957.94 -32433957.84 -32433957.74 0.1612 0.1065
 Mercury -93511-08-06 05:59 J -32433252.37 -32433252.25 -32433252.13 0.1605 0.0791
 Mercury -93506-04-28 10:47 J -32431526.17 -32431526.05 -32431525.93 0.1923 0.0970
 Mercury -93503-01-21 00:42 J -32430527.52 -32430527.47 -32430527.43 0.1614 0.1500
 Mercury -93502-12-27 14:23 J -32429822.04 -32429821.90 -32429821.77 0.1607 0.0333
 Mercury -93497-09-17 13:11 J -32428096.08 -32428095.95 -32428095.81 0.1921 0.0102
 Venus -93496-09-16 22:32 J -32427731.72 -32427731.56 -32427731.40 0.1602 0.0615
 Mercury -93492-05-18 22:47 J -32426391.69 -32426391.55 -32426391.42 0.1608 0.0127
 Earth -93488-01-02 17:30 J -32425066.85 -32425066.77 -32425066.68 0.1637 0.1448
 Moon -93488-01-02 23:30 J -32425066.61 -32425066.52 -32425066.43 0.1637 0.1425
 Mercury -93487-02-07 15:06 J -32424665.99 -32424665.87 -32424665.74 0.1919 0.0813
 Mercury -93483-10-09 07:25 J -32422961.32 -32422961.19 -32422961.07 0.1610 0.0569
 Mercury -93481-09-13 22:03 J -32422255.66 -32422255.58 -32422255.50 0.1604 0.1318
 Mercury -93478-06-30 16:32 J -32421235.86 -32421235.81 -32421235.75 0.1916 0.1746
 Mercury -93476-06-06 08:23 J -32420529.17 -32420529.15 -32420529.14 0.1925 0.1903
 Mercury -93473-02-29 16:03 J -32419530.94 -32419530.83 -32419530.73 0.1612 0.1007
 Mercury -93471-02-04 06:13 J -32418825.35 -32418825.24 -32418825.12 0.1605 0.0854
 Mercury -93467-10-27 11:01 J -32417099.15 -32417099.04 -32417098.92 0.1924 0.1058
 Mercury -93464-07-22 00:42 J -32416100.52 -32416100.47 -32416100.41 0.1614 0.1441
 Venus -93464-09-15 12:42 J -32416045.11 -32416044.97 -32416044.81 0.1601 0.0786
 Venus -93463-08-22 05:15 J -32415704.45 -32415704.28 -32415704.11 0.1928 0.0521

Mercury -93462-06-27 14:37 J -32415395.03 -32415394.89 -32415394.76 0.1607 0.0397

Mercury -93457-03-18 13:39 J -32413669.07 -32413668.93 -32413668.79 0.1922 0.0185

Earth -93456-01-10 05:30 J -32413371.44 -32413371.27 -32413371.10 0.1625 0.0571

Moon -93456-01-10 11:44 J -32413371.17 -32413371.01 -32413370.85 0.1625 0.0813 *

Mercury -93453-11-16 23:01 J -32411964.68 -32411964.54 -32411964.41 0.1608 0.0056

Earth -93448-07-12 20:51 J -32410265.82 -32410265.63 -32410265.45 0.1897 0.0908

Moon -93448-07-12 23:44 J -32410265.67 -32410265.51 -32410265.35 0.1897 0.1068 *

Mercury -93448-08-08 15:35 J -32410238.98 -32410238.85 -32410238.72 0.1919 0.0726

Mercury -93443-04-09 07:25 J -32408534.31 -32408534.19 -32408534.06 0.1610 0.0507

Mercury -93441-03-14 22:18 J -32407828.63 -32407828.57 -32407828.50 0.1604 0.1387

Mercury -93439-12-29 17:15 J -32406808.85 -32406808.78 -32406808.71 0.1916 0.1646

Mercury -93434-08-30 16:03 J -32405103.94 -32405103.83 -32405103.72 0.1612 0.0949

Mercury -93432-08-05 06:27 J -32404398.34 -32404398.23 -32404398.12 0.1605 0.0917

Venus -93430-07-15 11:59 J -32403689.15 -32403689.00 -32403688.85 0.1601 0.0776

Mercury -93427-04-27 11:30 J -32402672.13 -32402672.02 -32402671.91 0.1924 0.1142

Mercury -93424-01-20 00:56 J -32401673.52 -32401673.46 -32401673.39 0.1614 0.1382

Mercury -93423-12-26 14:37 J -32400968.02 -32400967.89 -32400967.75 0.1607 0.0460

Mercury -93418-09-17 13:54 J -32399242.06 -32399241.92 -32399241.79 0.1922 0.0269

Mercury -93413-05-17 23:15 J -32397537.67 -32397537.53 -32397537.40 0.1608 0.0051

Earth -93409-01-05 16:32 J -32396209.97 -32396209.81 -32396209.65 0.1635 0.0820

Moon -93409-01-05 19:54 J -32396209.82 -32396209.67 -32396209.53 0.1635 0.0892 *

Mercury -93408-02-06 15:49 J -32395811.97 -32395811.84 -32395811.71 0.1919 0.0637

Mercury -93404-10-08 07:39 J -32394107.31 -32394107.18 -32394107.05 0.1610 0.0444

Mercury -93402-09-13 22:32 J -32393401.61 -32393401.56 -32393401.50 0.1604 0.1450

Mercury -93399-06-29 17:30 J -32392381.85 -32392381.77 -32392381.69 0.1916 0.1565

Venus -93398-07-14 01:54 J -32392002.58 -32392002.42 -32392002.26 0.1601 0.0617

Venus -93397-06-18 06:56 J -32391662.39 -32391662.21 -32391662.04 0.1928 0.0141

Mercury -93394-02-28 16:18 J -32390676.93 -32390676.82 -32390676.71 0.1612 0.0886

Mercury -93392-02-03 06:42 J -32389971.33 -32389971.22 -32389971.11 0.1605 0.0985

Mercury -93388-10-26 11:44 J -32388245.11 -32388245.01 -32388244.90 0.1924 0.1230

Mercury -93385-07-21 01:11 J -32387246.53 -32387246.45 -32387246.38 0.1614 0.1323

Mercury -93383-06-26 15:06 J -32386541.00 -32386540.87 -32386540.75 0.1606 0.0526

Mercury -93378-03-18 14:08 J -32384815.04 -32384814.91 -32384814.77 0.1922 0.0353

Earth -93377-01-13 04:32 J -32384514.44 -32384514.31 -32384514.19 0.1623 0.1186

Moon -93377-01-13 06:56 J -32384514.34 -32384514.21 -32384514.08 0.1623 0.1026 *

Mercury -93374-11-16 23:15 J -32383110.66 -32383110.53 -32383110.39 0.1608 0.0076

Moon -93369-07-16 12:56 J -32381407.11 -32381406.96 -32381406.80 0.1902 0.1244

Earth -93369-07-16 23:15 J -32381406.70 -32381406.53 -32381406.36 0.1903 0.1138

Mercury -93369-08-07 16:03 J -32381384.96 -32381384.83 -32381384.69 0.1919 0.0557

Mercury -93364-04-08 07:54 J -32379680.30 -32379680.17 -32379680.04 0.1610 0.0386

Venus -93364-05-12 00:56 J -32379646.60 -32379646.46 -32379646.32 0.1602 0.0945

Mercury -93362-03-14 22:47 J -32378974.59 -32378974.55 -32378974.51 0.1604 0.1515

Mercury -93360-12-28 17:44 J -32377954.85 -32377954.76 -32377954.67 0.1916 0.1480

Mercury -93355-08-29 16:32 J -32376249.92 -32376249.81 -32376249.70 0.1612 0.0825

Mercury -93353-08-04 06:56 J -32375544.31 -32375544.21 -32375544.11 0.1605 0.1048

Mercury -93348-04-26 11:59 J -32373818.10 -32373818.00 -32373817.90 0.1924 0.1309

Mercury -93345-01-20 01:25 J -32372819.52 -32372819.44 -32372819.36 0.1614 0.1262

Mercury -93344-12-25 15:06 J -32372113.99 -32372113.87 -32372113.74 0.1606 0.0589

Mercury -93339-09-16 14:37 J -32370388.02 -32370387.89 -32370387.76 0.1922 0.0443

Mercury -93334-05-17 23:30 J -32368683.65 -32368683.52 -32368683.38 0.1608 0.0132

Venus -93332-05-10 15:06 J -32367960.04 -32367959.87 -32367959.71 0.1601 0.0458

Venus -93331-04-15 07:54 J -32367620.33 -32367620.17 -32367620.01 0.1928 0.0822

Moon -93330-01-07 13:11 J -32367353.12 -32367352.95 -32367352.77 0.1632 0.0057

Earth -93330-01-07 16:03 J -32367353.01 -32367352.83 -32367352.65 0.1632 0.0198 *

Mercury -93329-02-06 16:32 J -32366957.95 -32366957.81 -32366957.68 0.1920 0.0467

Mercury -93325-10-07 08:08 J -32365253.29 -32365253.16 -32365253.03 0.1610 0.0320

Mercury -93323-09-12 23:01 J -32364547.55 -32364547.54 -32364547.52 0.1604 0.1585

Mercury -93320-06-28 18:13 J -32363527.84 -32363527.74 -32363527.65 0.1916 0.1388

Mercury -93315-02-27 16:47 J -32361822.92 -32361822.80 -32361822.69 0.1612 0.0768

Mercury -93313-02-03 07:11 J -32361117.30 -32361117.20 -32361117.10 0.1605 0.1114

Mercury -93309-10-25 12:27 J -32359391.07 -32359390.98 -32359390.89 0.1924 0.1400

Mercury -93306-07-21 01:25 J -32358392.53 -32358392.44 -32358392.35 0.1614 0.1205

Mercury -93304-06-25 15:20 J -32357686.99 -32357686.86 -32357686.74 0.1606 0.0648

Mercury -93299-03-17 14:37 J -32355961.02 -32355960.89 -32355960.76 0.1922 0.0513

Venus -93298-03-09 14:23 J -32355604.03 -32355603.90 -32355603.78 0.1602 0.1106

Mercury -93295-11-15 23:44 J -32354256.64 -32354256.51 -32354256.37 0.1608 0.0195

Mercury -93290-08-07 17:01 J -32352530.93 -32352530.79 -32352530.66 0.1920 0.0378

Mercury -93285-04-07 08:23 J -32350826.29 -32350826.15 -32350826.02 0.1610 0.0262

Moon -93283-01-01 19:25 J -32350191.71 -32350191.69 -32350191.66 0.1644 0.1618

Earth -93283-01-02 01:54 J -32350191.45 -32350191.42 -32350191.40 0.1643 0.1620

Mercury -93281-12-27 18:42 J -32349100.82 -32349100.72 -32349100.62 0.1916 0.1299

Mercury -93276-08-28 17:01 J -32347395.91 -32347395.79 -32347395.67 0.1611 0.0705

Mercury -93274-08-04 07:25 J -32346690.28 -32346690.19 -32346690.10 0.1605 0.1179

Mercury -93269-04-25 12:27 J -32344964.06 -32344963.98 -32344963.89 0.1924 0.1478

Mercury -93266-01-19 01:39 J -32343965.52 -32343965.43 -32343965.34 0.1614 0.1145

Venus -93266-03-08 04:03 J -32343917.50 -32343917.33 -32343917.16 0.1601 0.0291

Venus -93265-02-10 08:37 J -32343578.25 -32343578.14 -32343578.03 0.1928 0.1515

Mercury -93265-12-24 15:35 J -32343259.97 -32343259.85 -32343259.73 0.1606 0.0716

Mercury -93260-09-15 15:06 J -32341534.00 -32341533.87 -32341533.74 0.1922 0.0614

Mercury -93257-06-10 10:32 J -32340535.09 -32340535.06 -32340535.04 0.1616 0.1579

Mercury -93255-05-16 23:59 J -32339829.64 -32339829.50 -32339829.37 0.1608 0.0257

Moon -93251-01-09 09:49 J -32338496.28 -32338496.09 -32338495.91 0.1630 0.0210

Earth -93251-01-09 15:49 J -32338496.02 -32338495.84 -32338495.67 0.1630 0.0436 *

Mercury -93250-02-05 17:15 J -32338103.92 -32338103.78 -32338103.65 0.1920 0.0298

Mercury -93246-10-07 08:23 J -32336399.28 -32336399.15 -32336399.01 0.1609 0.0200

Mercury -93241-06-27 18:42 J -32334673.83 -32334673.72 -32334673.61 0.1917 0.1225

Mercury -93236-02-26 17:01 J -32332968.91 -32332968.79 -32332968.67 0.1611 0.0644

Mercury -93234-02-02 07:39 J -32332263.27 -32332263.18 -32332263.10 0.1605 0.1245

Venus -93232-01-04 03:20 J -32331561.46 -32331561.36 -32331561.26 0.1602 0.1272

Mercury -93230-10-25 12:56 J -32330537.04 -32330536.96 -32330536.88 0.1925 0.1566

Mercury -93227-07-20 01:54 J -32329538.52 -32329538.42 -32329538.32 0.1613 0.1084

Mercury -93225-06-24 15:49 J -32328832.96 -32328832.84 -32328832.72 0.1606 0.0780

Mercury -93220-03-16 15:35 J -32327106.98 -32327106.85 -32327106.73 0.1923 0.0699

Mercury -93218-12-10 10:47 J -32326108.09 -32326108.05 -32326108.01 0.1616 0.1518

Mercury -93216-11-15 00:13 J -32325402.62 -32325402.49 -32325402.36 0.1608 0.0322

Mercury -93211-08-06 17:30 J -32323676.91 -32323676.77 -32323676.63 0.1920 0.0207

Mercury -93206-04-07 08:37 J -32321972.28 -32321972.14 -32321972.01 0.1609 0.0135

Moon -93204-01-03 22:03 J -32321334.74 -32321334.58 -32321334.43 0.1640 0.0926

Earth -93204-01-04 01:39 J -32321334.57 -32321334.43 -32321334.28 0.1640 0.0979 *

Mercury -93202-12-27 19:11 J -32320246.81 -32320246.70 -32320246.58 0.1917 0.1127

Venus -93200-01-02 17:30 J -32319874.95 -32319874.77 -32319874.60 0.1601 0.0136

Mercury -93197-08-27 17:15 J -32318541.91 -32318541.78 -32318541.66 0.1611 0.0585

Mercury -93195-08-03 07:54 J -32317836.25 -32317836.17 -32317836.10 0.1604 0.1310

Mercury -93190-04-25 13:11 J -32316110.02 -32316109.95 -32316109.88 0.1925 0.1649

Mercury -93187-01-18 01:54 J -32315111.52 -32315111.42 -32315111.31 0.1613 0.1025

Mercury -93186-12-24 16:03 J -32314405.95 -32314405.83 -32314405.72 0.1606 0.0844

Mercury -93181-09-14 15:35 J -32312679.97 -32312679.85 -32312679.72 0.1923 0.0775

Mercury -93178-06-10 10:47 J -32311681.10 -32311681.05 -32311680.99 0.1616 0.1461

Mercury -93176-05-16 00:13 J -32310975.62 -32310975.49 -32310975.35 0.1607 0.0387

Moon -93172-01-11 12:42 J -32309639.10 -32309638.97 -32309638.84 0.1627 0.1199

Earth -93172-01-11 14:08 J -32309639.05 -32309638.91 -32309638.77 0.1627 0.1032 *

Mercury -93171-02-04 17:59 J -32309249.89 -32309249.75 -32309249.61 0.1921 0.0123

Venus -93168-01-01 07:39 J -32308188.22 -32308188.18 -32308188.14 0.1601 0.1542

Venus -93168-12-07 15:35 J -32307847.98 -32307847.85 -32307847.72 0.1929 0.1297

Mercury -93167-10-06 08:51 J -32307545.27 -32307545.13 -32307545.00 0.1609 0.0071

Venus -93167-11-01 16:47 J -32307518.88 -32307518.80 -32307518.73 0.1602 0.1434

Earth -93164-07-11 10:32 J -32306536.22 -32306536.06 -32306535.89 0.1891 0.1164

Moon -93164-07-11 13:11 J -32306536.10 -32306535.95 -32306535.80 0.1891 0.1469 *

Mercury -93162-06-27 19:39 J -32305819.80 -32305819.68 -32305819.57 0.1917 0.1045

Mercury -93157-02-26 17:30 J -32304114.90 -32304114.77 -32304114.64 0.1611 0.0520

Mercury -93155-02-01 08:08 J -32303409.23 -32303409.16 -32303409.09 0.1604 0.1379

Mercury -93151-10-24 13:25 J -32301682.99 -32301682.94 -32301682.88 0.1925 0.1736

Mercury -93148-07-19 02:08 J -32300684.52 -32300684.41 -32300684.30 0.1613 0.0965

Mercury -93146-06-24 16:18 J -32299978.93 -32299978.82 -32299978.71 0.1606 0.0910

Mercury -93141-03-15 16:03 J -32298252.95 -32298252.83 -32298252.71 0.1923 0.0865

Mercury -93139-12-09 11:01 J -32297254.11 -32297254.04 -32297253.98 0.1616 0.1404

Mercury -93137-11-14 00:27 J -32296548.61 -32296548.48 -32296548.35 0.1607 0.0447

Venus -93135-10-31 06:27 J -32295832.40 -32295832.23 -32295832.06 0.1601 0.0039

Mercury -93132-08-05 17:59 J -32294822.88 -32294822.75 -32294822.61 0.1920 0.0068

Mercury -93127-04-06 09:06 J -32293118.26 -32293118.12 -32293117.99 0.1609 0.0050

Earth -93125-01-07 00:42 J -32292477.65 -32292477.47 -32292477.29 0.1638 0.0349

Moon -93125-01-07 04:03 J -32292477.52 -32292477.33 -32292477.14 0.1637 0.0433 *

Mercury -93123-12-26 19:54 J -32291392.79 -32291392.67 -32291392.55 0.1918 0.0956

Mercury -93118-08-27 17:30 J -32289687.89 -32289687.77 -32289687.64 0.1611 0.0462

Mercury -93116-08-02 08:23 J -32288982.21 -32288982.15 -32288982.10 0.1604 0.1443

Mercury -93113-05-17 21:20 J -32287962.62 -32287962.61 -32287962.59 0.1914 0.1891

Mercury -93111-04-24 13:39 J -32287255.97 -32287255.93 -32287255.89 0.1926 0.1817

Mercury -93108-01-17 02:23 J -32286257.51 -32286257.40 -32286257.29 0.1613 0.0903

Mercury -93107-12-23 16:32 J -32285551.92 -32285551.81 -32285551.71 0.1606 0.0976

Venus -93103-10-29 20:23 J -32284145.74 -32284145.65 -32284145.56 0.1601 0.1369

Mercury -93102-09-14 16:18 J -32283825.93 -32283825.82 -32283825.70 0.1923 0.0957

Venus -93102-10-04 17:01 J -32283805.96 -32283805.79 -32283805.62 0.1929 0.0636

Mercury -93099-06-09 11:15 J -32282827.11 -32282827.03 -32282826.96 0.1615 0.1344

Mercury -93097-05-15 00:42 J -32282121.60 -32282121.47 -32282121.34 0.1607 0.0513

Moon -93093-01-14 18:42 J -32280781.80 -32280781.72 -32280781.64 0.1625 0.1461

Mercury -93092-02-03 18:27 J -32280395.87 -32280395.73 -32280395.59 0.1921 0.0055

Mercury -93088-10-05 09:20 J -32278691.25 -32278691.11 -32278690.98 0.1609 0.0079

Earth -93085-07-15 11:01 J -32277677.23 -32277677.04 -32277676.84 0.1896 0.0813

Moon -93085-07-15 20:37 J -32277676.79 -32277676.64 -32277676.48 0.1897 0.1257

Mercury -93083-06-26 20:08 J -32276965.78 -32276965.66 -32276965.53 0.1918 0.0869

Mercury -93078-02-25 17:44 J -32275260.89 -32275260.76 -32275260.63 0.1611 0.0400

Mercury -93076-01-31 08:23 J -32274555.19 -32274555.15 -32274555.10 0.1604 0.1508

Mercury -93074-11-16 21:35 J -32273535.64 -32273535.60 -32273535.56 0.1914 0.1812

Mercury -93072-10-23 14:08 J -32272828.93 -32272828.91 -32272828.90 0.1925 0.1905

Mercury -93069-07-18 02:23 J -32271830.51 -32271830.40 -32271830.28 0.1613 0.0846

Venus -93069-08-27 19:25 J -32271789.86 -32271789.69 -32271789.52 0.1601 0.0206

Mercury -93067-06-23 16:32 J -32271124.91 -32271124.81 -32271124.70 0.1606 0.1037

Mercury -93062-03-15 16:32 J -32269398.93 -32269398.81 -32269398.70 0.1923 0.1028

Mercury -93060-12-08 11:15 J -32268400.11 -32268400.03 -32268399.95 0.1615 0.1283

Mercury -93058-11-14 00:56 J -32267694.59 -32267694.46 -32267694.33 0.1607 0.0577

Mercury -93053-08-04 18:56 J -32265968.85 -32265968.71 -32265968.58 0.1921 0.0151

Mercury -93048-04-05 09:20 J -32264264.24 -32264264.11 -32264263.97 0.1609 0.0121

Earth -93046-01-08 23:59 J -32263620.68 -32263620.50 -32263620.32 0.1635 0.0270

Moon -93046-01-09 05:44 J -32263620.44 -32263620.26 -32263620.09 0.1635 0.0442 *

Mercury -93044-12-25 20:37 J -32262538.77 -32262538.64 -32262538.51 0.1918 0.0779

Mercury -93039-08-26 17:59 J -32260833.88 -32260833.75 -32260833.62 0.1611 0.0336

Mercury -93037-08-01 08:37 J -32260128.16 -32260128.14 -32260128.11 0.1604 0.1576

Venus -93037-08-26 09:20 J -32260103.22 -32260103.11 -32260102.99 0.1600 0.1207

Venus -93036-07-31 17:15 J -32259763.95 -32259763.78 -32259763.60 0.1929 0.0084

Mercury -93034-05-17 22:03 J -32259108.64 -32259108.58 -32259108.52 0.1914 0.1721

Mercury -93029-01-17 02:37 J -32257403.50 -32257403.39 -32257403.27 0.1613 0.0783

Mercury -93028-12-22 16:47 J -32256697.89 -32256697.80 -32256697.70 0.1605 0.1107

Mercury -93023-09-13 17:01 J -32254971.90 -32254971.79 -32254971.68 0.1924 0.1126

Mercury -93020-06-08 11:30 J -32253973.11 -32253973.02 -32253972.94 0.1615 0.1225

Mercury -93018-05-15 01:11 J -32253267.58 -32253267.45 -32253267.33 0.1607 0.0639

Mercury -93013-02-03 18:56 J -32251541.84 -32251541.71 -32251541.57 0.1921 0.0229

Mercury -93009-10-04 09:35 J -32249837.24 -32249837.10 -32249836.97 0.1609 0.0179

Mercury -93004-06-25 20:51 J -32248111.76 -32248111.63 -32248111.50 0.1918 0.0704

Venus -93003-06-25 08:37 J -32247747.31 -32247747.14 -32247746.97 0.1601 0.0370

93RD MILLENNIUM BCE

This is a list of transits visible from Mars in the 93rd millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Earth | -92999-01-03 08:51 J | -32246459.26 | -32246459.13 | -32246459.00 | 0.1647 | 0.1155 | | |
| Moon | -92999-01-03 11:59 J | -32246459.12 | -32246459.00 | -32246458.88 | 0.1646 | 0.1155 | * | |
| Mercury | -92999-02-24 18:13 J | -32246406.88 | -32246406.74 | -32246406.61 | 0.1611 | 0.0276 | | |
| Mercury | -92995-11-15 22:32 J | -32244681.63 | -32244681.56 | -32244681.48 | 0.1915 | 0.1621 | | |
| Mercury | -92990-07-18 02:51 J | -32242976.50 | -32242976.38 | -32242976.26 | 0.1613 | 0.0720 | | |
| Mercury | -92988-06-22 17:01 J | -32242270.88 | -32242270.79 | -32242270.69 | 0.1605 | 0.1171 | | |
| Mercury | -92983-03-14 17:15 J | -32240544.88 | -32240544.78 | -32240544.67 | 0.1923 | 0.1209 | | |
| Mercury | -92981-12-07 11:44 J | -32239546.10 | -32239546.01 | -32239545.92 | 0.1615 | 0.1164 | | |
| Mercury | -92979-11-13 01:25 J | -32238840.56 | -32238840.44 | -32238840.32 | 0.1607 | 0.0706 | | |
| Mercury | -92974-08-04 19:25 J | -32237114.83 | -32237114.69 | -32237114.56 | 0.1921 | 0.0312 | | |
| Mercury | -92971-04-29 20:23 J | -32236115.66 | -32236115.65 | -32236115.63 | 0.1618 | 0.1604 | | |
| Venus | -92971-06-23 22:18 J | -32236060.70 | -32236060.57 | -32236060.44 | 0.1600 | 0.1036 | | |
| Venus | -92970-05-28 18:42 J | -32235721.88 | -32235721.72 | -32235721.55 | 0.1929 | 0.0755 | | |
| Mercury | -92969-04-04 09:49 J | -32235410.23 | -32235410.09 | -32235409.96 | 0.1609 | 0.0245 | | |
| Earth | -92967-01-10 23:44 J | -32234763.66 | -32234763.51 | -32234763.36 | 0.1632 | 0.0892 | | |
| Moon | -92967-01-11 00:13 J | -32234763.64 | -32234763.49 | -32234763.33 | 0.1632 | 0.0720 | * | |
| Mercury | -92965-12-24 21:20 J | -32233684.74 | -32233684.61 | -32233684.48 | 0.1918 | 0.0601 | | |
| Mercury | -92960-08-25 18:13 J | -32231979.87 | -32231979.74 | -32231979.60 | 0.1610 | 0.0215 | | |
| Mercury | -92955-05-16 22:32 J | -32230254.64 | -32230254.56 | -32230254.48 | 0.1915 | 0.1553 | | |
| Mercury | -92950-01-16 03:06 J | -32228549.50 | -32228549.37 | -32228549.25 | 0.1613 | 0.0662 | | |

Mercury -92949-12-21 17:15 J -32227843.87 -32227843.78 -32227843.69 0.1605 0.1235

Mercury -92944-09-12 17:15 J -32226117.88 -32226117.78 -32226117.67 0.1924 0.1288

Mercury -92941-06-07 11:44 J -32225119.10 -32225119.01 -32225118.91 0.1615 0.1105

Mercury -92939-05-14 01:25 J -32224413.56 -32224413.44 -32224413.32 0.1607 0.0769

Venus -92937-04-21 21:35 J -32223704.76 -32223704.60 -32223704.44 0.1601 0.0542

Mercury -92934-02-02 19:54 J -32222687.81 -32222687.67 -32222687.54 0.1922 0.0408

Mercury -92932-10-28 20:51 J -32221688.67 -32221688.63 -32221688.60 0.1617 0.1541

Mercury -92930-10-04 10:03 J -32220983.22 -32220983.08 -32220982.95 0.1608 0.0310

Mercury -92925-06-24 21:35 J -32219257.74 -32219257.60 -32219257.47 0.1918 0.0521

Moon -92920-01-05 05:01 J -32217602.45 -32217602.29 -32217602.12 0.1644 0.0498

Earth -92920-01-05 09:06 J -32217602.29 -32217602.12 -32217601.94 0.1643 0.0512 *

Mercury -92920-02-23 18:27 J -32217552.86 -32217552.73 -32217552.59 0.1610 0.0151

Mercury -92916-11-14 23:15 J -32215827.62 -32215827.53 -32215827.44 0.1915 0.1451

Mercury -92911-07-17 03:06 J -32214122.49 -32214122.37 -32214122.25 0.1612 0.0601

Mercury -92909-06-21 17:30 J -32213416.85 -32213416.77 -32213416.69 0.1605 0.1301

Venus -92905-04-20 11:30 J -32212018.16 -32212018.02 -32212017.88 0.1600 0.0874

Mercury -92904-03-13 17:44 J -32211690.85 -32211690.76 -32211690.66 0.1924 0.1379

Venus -92904-03-24 19:25 J -32211679.81 -32211679.69 -32211679.58 0.1928 0.1459

Mercury -92902-12-07 11:59 J -32210692.10 -32210692.00 -32210691.90 0.1615 0.1045

Mercury -92900-11-12 01:39 J -32209986.54 -32209986.43 -32209986.31 0.1607 0.0834

Mercury -92895-08-03 19:54 J -32208260.80 -32208260.67 -32208260.53 0.1921 0.0482

Mercury -92892-04-28 20:51 J -32207261.68 -32207261.63 -32207261.58 0.1617 0.1484

Mercury -92890-04-04 10:03 J -32206556.21 -32206556.08 -32206555.94 0.1608 0.0372

Earth -92888-01-12 22:32 J -32205906.63 -32205906.56 -32205906.49 0.1630 0.1490

Mercury -92886-12-24 21:49 J -32204830.72 -32204830.59 -32204830.45 0.1919 0.0433

Mercury -92881-08-24 18:42 J -32203125.86 -32203125.72 -32203125.59 0.1610 0.0087

Moon -92880-07-09 17:44 J -32202806.83 -32202806.76 -32202806.69 0.1883 0.1765

Earth -92880-07-10 01:54 J -32202806.57 -32202806.42 -32202806.27 0.1884 0.1370

Mercury -92876-05-15 23:30 J -32201400.62 -32201400.52 -32201400.42 0.1915 0.1364

Mercury -92871-01-15 03:20 J -32199695.48 -32199695.36 -32199695.23 0.1612 0.0536

Venus -92871-02-17 11:01 J -32199662.20 -32199662.04 -32199661.89 0.1601 0.0704
 Mercury -92870-12-21 17:44 J -32198989.83 -32198989.76 -32198989.69 0.1605 0.1369
 Mercury -92865-09-11 18:13 J -32197263.83 -32197263.74 -32197263.66 0.1924 0.1469
 Mercury -92862-06-07 11:59 J -32196265.10 -32196265.00 -32196264.89 0.1615 0.0985
 Mercury -92860-05-13 01:54 J -32195559.53 -32195559.42 -32195559.30 0.1606 0.0901
 Mercury -92855-02-01 20:23 J -32193833.78 -32193833.65 -32193833.52 0.1922 0.0574
 Mercury -92853-10-27 20:51 J -32192834.68 -32192834.63 -32192834.56 0.1617 0.1425
 Mercury -92851-10-03 10:18 J -32192129.20 -32192129.07 -32192128.94 0.1608 0.0436
 Mercury -92846-06-24 22:18 J -32190403.71 -32190403.57 -32190403.44 0.1919 0.0350
 Moon -92841-01-08 02:23 J -32188745.58 -32188745.40 -32188745.21 0.1641 0.0046
 Earth -92841-01-08 08:23 J -32188745.33 -32188745.15 -32188744.97 0.1641 0.0115 *
 Mercury -92841-02-23 18:42 J -32188698.85 -32188698.72 -32188698.58 0.1610 0.0056
 Venus -92839-02-16 00:27 J -32187975.63 -32187975.48 -32187975.32 0.1600 0.0707
 Mercury -92837-11-13 23:44 J -32186973.61 -32186973.51 -32186973.41 0.1915 0.1284
 Mercury -92832-07-16 03:35 J -32185268.48 -32185268.35 -32185268.22 0.1612 0.0477
 Mercury -92830-06-21 17:59 J -32184562.81 -32184562.75 -32184562.69 0.1605 0.1434
 Mercury -92825-03-12 18:13 J -32182836.82 -32182836.74 -32182836.66 0.1925 0.1543
 Mercury -92823-12-06 12:13 J -32181838.09 -32181837.99 -32181837.88 0.1615 0.0922
 Mercury -92821-11-11 02:08 J -32181132.52 -32181132.41 -32181132.30 0.1606 0.0966
 Mercury -92816-08-02 20:37 J -32179406.76 -32179406.64 -32179406.51 0.1922 0.0666
 Mercury -92813-04-27 21:06 J -32178407.69 -32178407.62 -32178407.55 0.1617 0.1364
 Mercury -92811-04-03 10:32 J -32177702.19 -32177702.06 -32177701.93 0.1608 0.0500
 Mercury -92807-12-23 22:32 J -32175976.70 -32175976.56 -32175976.42 0.1919 0.0256
 Venus -92806-01-20 02:23 J -32175949.52 -32175949.40 -32175949.28 0.1930 0.1388
 Venus -92806-12-15 23:59 J -32175619.64 -32175619.50 -32175619.36 0.1602 0.0876
 Mercury -92802-08-24 19:11 J -32174271.84 -32174271.70 -32174271.57 0.1610 0.0069
 Moon -92801-07-13 18:42 J -32173947.93 -32173947.72 -32173947.51 0.1889 0.0793
 Earth -92801-07-14 00:27 J -32173947.68 -32173947.48 -32173947.27 0.1890 0.0535 *
 Mercury -92797-05-15 00:13 J -32172546.60 -32172546.49 -32172546.38 0.1916 0.1190
 Moon -92794-01-02 13:25 J -32171584.04 -32171583.94 -32171583.83 0.1653 0.1389

Earth -92794-01-02 15:49 J -32171583.95 -32171583.84 -32171583.73 0.1653 0.1327 *
 Mercury -92792-01-14 03:35 J -32170841.48 -32170841.35 -32170841.22 0.1612 0.0416
 Mercury -92791-12-20 18:13 J -32170135.79 -32170135.74 -32170135.70 0.1605 0.1503
 Mercury -92786-09-11 18:42 J -32168409.79 -32168409.72 -32168409.65 0.1925 0.1640
 Mercury -92783-06-06 12:27 J -32167411.09 -32167410.98 -32167410.87 0.1614 0.0863
 Mercury -92781-05-12 02:23 J -32166705.51 -32166705.40 -32166705.30 0.1606 0.1028
 Mercury -92776-01-31 20:51 J -32164979.76 -32164979.63 -32164979.50 0.1922 0.0741
 Mercury -92774-10-27 21:20 J -32163980.69 -32163980.61 -32163980.54 0.1617 0.1305
 Venus -92774-12-14 13:54 J -32163933.08 -32163932.92 -32163932.76 0.1601 0.0543
 Mercury -92772-10-02 10:47 J -32163275.18 -32163275.05 -32163274.93 0.1608 0.0565
 Mercury -92767-06-23 22:47 J -32161549.69 -32161549.55 -32161549.41 0.1919 0.0173
 Moon -92762-01-10 07:11 J -32159888.36 -32159888.20 -32159888.04 0.1638 0.0899
 Earth -92762-01-10 07:54 J -32159888.33 -32159888.17 -32159888.00 0.1638 0.0736 *
 Mercury -92762-02-22 19:11 J -32159844.83 -32159844.70 -32159844.56 0.1610 0.0110
 Mercury -92758-11-14 00:42 J -32158119.58 -32158119.47 -32158119.35 0.1916 0.1092
 Mercury -92753-07-15 03:49 J -32156414.47 -32156414.34 -32156414.21 0.1612 0.0351
 Mercury -92751-06-20 18:13 J -32155708.76 -32155708.74 -32155708.71 0.1605 0.1570
 Mercury -92746-03-12 18:56 J -32153982.77 -32153982.71 -32153982.65 0.1924 0.1722
 Mercury -92744-12-05 12:27 J -32152984.09 -32152983.98 -32152983.86 0.1614 0.0802
 Mercury -92742-11-11 02:37 J -32152278.49 -32152278.39 -32152278.29 0.1606 0.1098
 Venus -92741-11-16 03:06 J -32151907.54 -32151907.37 -32151907.21 0.1929 0.0686
 Venus -92740-10-12 13:11 J -32151577.08 -32151576.95 -32151576.82 0.1602 0.1041
 Mercury -92737-08-01 21:06 J -32150552.74 -32150552.62 -32150552.49 0.1922 0.0835
 Mercury -92734-04-27 21:20 J -32149553.69 -32149553.61 -32149553.52 0.1617 0.1247
 Mercury -92732-04-02 10:47 J -32148848.17 -32148848.05 -32148847.92 0.1608 0.0631
 Mercury -92728-12-22 23:15 J -32147122.67 -32147122.53 -32147122.39 0.1919 0.0079
 Mercury -92723-08-23 19:25 J -32145417.83 -32145417.69 -32145417.56 0.1610 0.0167
 Mercury -92718-05-15 00:42 J -32143692.59 -32143692.47 -32143692.35 0.1916 0.1023
 Earth -92715-01-04 15:35 J -32142727.02 -32142726.85 -32142726.68 0.1650 0.0689
 Moon -92715-01-04 20:37 J -32142726.82 -32142726.64 -32142726.47 0.1650 0.0633 *

Mercury -92713-01-14 04:03 J -32141987.46 -32141987.33 -32141987.20 0.1612 0.0289

Venus -92708-10-11 02:51 J -32139890.55 -32139890.38 -32139890.21 0.1601 0.0374

Mercury -92707-09-10 19:11 J -32139555.75 -32139555.70 -32139555.66 0.1925 0.1803

Mercury -92704-06-05 12:42 J -32138557.08 -32138556.97 -32138556.85 0.1614 0.0739

Mercury -92702-05-12 02:51 J -32137851.48 -32137851.38 -32137851.29 0.1606 0.1163

Mercury -92697-01-31 21:49 J -32136125.71 -32136125.59 -32136125.47 0.1923 0.0932

Mercury -92695-10-26 21:35 J -32135126.68 -32135126.60 -32135126.51 0.1617 0.1182

Mercury -92693-10-01 11:15 J -32134421.16 -32134421.03 -32134420.91 0.1608 0.0698

Mercury -92688-06-22 23:30 J -32132695.66 -32132695.52 -32132695.38 0.1919 0.0013

Earth -92683-01-12 07:25 J -32131031.29 -32131031.19 -32131031.08 0.1635 0.1349

Moon -92683-01-12 12:42 J -32131031.10 -32131030.97 -32131030.84 0.1635 0.1170 *

Mercury -92683-02-21 19:39 J -32130990.82 -32130990.68 -32130990.55 0.1609 0.0234

Mercury -92679-11-13 01:25 J -32129265.57 -32129265.44 -32129265.32 0.1916 0.0921

Venus -92675-09-13 04:32 J -32127865.48 -32127865.31 -32127865.13 0.1929 0.0035

Mercury -92674-07-15 04:03 J -32127560.46 -32127560.33 -32127560.19 0.1612 0.0233

Venus -92674-08-10 02:08 J -32127534.52 -32127534.41 -32127534.29 0.1602 0.1214

Mercury -92669-04-04 02:23 J -32125835.42 -32125835.40 -32125835.38 0.1912 0.1881

Mercury -92667-03-11 19:39 J -32125128.70 -32125128.68 -32125128.67 0.1925 0.1898

Mercury -92665-12-04 12:56 J -32124130.08 -32124129.96 -32124129.84 0.1614 0.0676

Mercury -92663-11-10 02:51 J -32123424.46 -32123424.38 -32123424.29 0.1606 0.1230

Mercury -92658-08-01 21:49 J -32121698.71 -32121698.59 -32121698.48 0.1922 0.1004

Mercury -92655-04-26 21:49 J -32120699.69 -32120699.59 -32120699.50 0.1617 0.1124

Mercury -92653-04-01 11:15 J -32119994.15 -32119994.03 -32119993.91 0.1608 0.0760

Mercury -92649-12-21 23:59 J -32118268.64 -32118268.50 -32118268.37 0.1920 0.0114

Mercury -92646-09-17 06:42 J -32117269.25 -32117269.22 -32117269.19 0.1619 0.1563

Mercury -92644-08-22 19:54 J -32116563.81 -32116563.67 -32116563.54 0.1610 0.0302

Venus -92642-08-08 16:03 J -32115848.00 -32115847.83 -32115847.66 0.1601 0.0211

Mercury -92639-05-14 01:39 J -32114838.56 -32114838.43 -32114838.30 0.1916 0.0831

Earth -92636-01-06 16:03 J -32113870.01 -32113869.83 -32113869.64 0.1647 0.0065

Moon -92636-01-06 22:03 J -32113869.76 -32113869.58 -32113869.40 0.1646 0.0060 *

Mercury -92634-01-13 04:32 J -32113133.45 -32113133.31 -32113133.18 0.1612 0.0164

Mercury -92630-10-04 02:51 J -32111408.42 -32111408.38 -32111408.33 0.1912 0.1784

Mercury -92625-06-04 13:11 J -32109703.08 -32109702.95 -32109702.83 0.1614 0.0615

Mercury -92623-05-11 03:20 J -32108997.44 -32108997.36 -32108997.29 0.1606 0.1298

Mercury -92618-01-30 22:18 J -32107271.69 -32107271.57 -32107271.46 0.1923 0.1100

Mercury -92616-10-25 21:49 J -32106272.68 -32106272.59 -32106272.49 0.1616 0.1064

Mercury -92614-10-01 11:30 J -32105567.14 -32105567.02 -32105566.90 0.1607 0.0825

Mercury -92609-06-22 00:13 J -32103841.63 -32103841.49 -32103841.35 0.1920 0.0187

Venus -92609-07-10 04:47 J -32103823.46 -32103823.30 -32103823.13 0.1928 0.0716

Venus -92608-06-06 15:35 J -32103491.94 -32103491.85 -32103491.77 0.1603 0.1379

Mercury -92606-03-18 06:56 J -32102842.26 -32102842.21 -32102842.17 0.1619 0.1505

Mercury -92604-02-20 19:54 J -32102136.80 -32102136.67 -32102136.53 0.1609 0.0363

Mercury -92600-11-12 01:54 J -32100411.55 -32100411.42 -32100411.29 0.1916 0.0748

Earth -92596-07-08 19:25 J -32099076.82 -32099076.69 -32099076.57 0.1876 0.1507

Moon -92596-07-09 06:13 J -32099076.35 -32099076.24 -32099076.13 0.1876 0.1583

Mercury -92595-07-14 04:32 J -32098706.44 -32098706.31 -32098706.17 0.1611 0.0100

Mercury -92590-04-04 03:20 J -32096981.42 -32096981.36 -32096981.30 0.1913 0.1693

Earth -92589-01-01 21:35 J -32096708.66 -32096708.60 -32096708.53 0.1660 0.1524

Moon -92589-01-01 23:15 J -32096708.62 -32096708.53 -32096708.43 0.1660 0.1401 *

Mercury -92586-12-04 13:25 J -32095276.07 -32095275.94 -32095275.82 0.1614 0.0553

Mercury -92584-11-09 03:20 J -32094570.43 -32094570.36 -32094570.29 0.1606 0.1364

Mercury -92579-07-31 22:32 J -32092844.67 -32092844.56 -32092844.45 0.1923 0.1190

Mercury -92576-04-25 22:03 J -32091845.68 -32091845.58 -32091845.47 0.1616 0.1001

Venus -92576-06-05 05:15 J -32091805.45 -32091805.28 -32091805.11 0.1601 0.0043

Mercury -92574-04-01 11:44 J -32091140.12 -32091140.01 -32091139.90 0.1607 0.0893

Mercury -92570-12-22 00:42 J -32089414.61 -32089414.47 -32089414.34 0.1920 0.0284

Mercury -92567-09-16 06:56 J -32088415.26 -32088415.21 -32088415.15 0.1619 0.1444

Mercury -92565-08-21 20:08 J -32087709.79 -32087709.66 -32087709.53 0.1609 0.0429

Mercury -92560-05-13 02:23 J -32085984.53 -32085984.40 -32085984.27 0.1917 0.0655

Earth -92557-01-09 16:03 J -32085013.00 -32085012.83 -32085012.66 0.1644 0.0584

Moon -92557-01-09 16:32 J -32085012.97 -32085012.81 -32085012.64 0.1644 0.0455 *
 Mercury -92555-01-12 04:47 J -32084279.44 -32084279.30 -32084279.17 0.1611 0.0036
 Mercury -92551-10-03 03:35 J -32082554.42 -32082554.35 -32082554.27 0.1913 0.1607
 Mercury -92546-06-04 13:25 J -32080849.07 -32080848.94 -32080848.81 0.1614 0.0491
 Mercury -92544-05-10 03:35 J -32080143.41 -32080143.35 -32080143.29 0.1605 0.1428
 Venus -92544-06-03 18:56 J -32080118.78 -32080118.71 -32080118.64 0.1600 0.1460
 Venus -92543-05-07 06:13 J -32079781.36 -32079781.24 -32079781.12 0.1928 0.1397
 Venus -92542-04-04 04:32 J -32079449.35 -32079449.31 -32079449.27 0.1603 0.1550
 Mercury -92539-01-29 22:47 J -32078417.65 -32078417.55 -32078417.45 0.1923 0.1269
 Mercury -92537-10-24 22:18 J -32077418.68 -32077418.57 -32077418.46 0.1616 0.0938
 Mercury -92535-09-30 11:59 J -32076713.11 -32076713.00 -32076712.89 0.1607 0.0959
 Mercury -92530-06-22 00:56 J -32074987.60 -32074987.46 -32074987.33 0.1920 0.0369
 Mercury -92527-03-17 07:11 J -32073988.26 -32073988.20 -32073988.13 0.1619 0.1382
 Mercury -92525-02-20 20:23 J -32073282.78 -32073282.65 -32073282.52 0.1609 0.0494
 Mercury -92521-11-11 02:51 J -32071557.52 -32071557.38 -32071557.25 0.1917 0.0557
 Earth -92517-07-12 16:03 J -32070218.04 -32070217.83 -32070217.61 0.1882 0.0322
 Moon -92517-07-12 16:03 J -32070218.02 -32070217.83 -32070217.64 0.1882 0.0463 *
 Mercury -92516-07-13 05:01 J -32069852.43 -32069852.29 -32069852.16 0.1611 0.0039
 Mercury -92511-04-03 04:03 J -32068127.42 -32068127.33 -32068127.25 0.1913 0.1519
 Moon -92510-01-03 17:59 J -32067851.89 -32067851.75 -32067851.60 0.1657 0.0926
 Earth -92510-01-03 22:32 J -32067851.72 -32067851.56 -32067851.41 0.1657 0.0863 *
 Venus -92510-04-02 18:27 J -32067762.90 -32067762.73 -32067762.56 0.1601 0.0129
 Mercury -92507-12-03 13:39 J -32066422.06 -32066421.93 -32066421.80 0.1613 0.0425
 Mercury -92505-11-08 03:49 J -32065716.38 -32065716.34 -32065716.29 0.1605 0.1501
 Mercury -92500-07-30 23:01 J -32063990.63 -32063990.54 -32063990.44 0.1923 0.1364
 Mercury -92497-04-24 22:18 J -32062991.68 -32062991.57 -32062991.45 0.1616 0.0880
 Mercury -92495-03-31 12:13 J -32062286.10 -32062285.99 -32062285.89 0.1607 0.1026
 Mercury -92491-12-21 01:11 J -32060560.58 -32060560.45 -32060560.31 0.1920 0.0462
 Mercury -92488-09-15 07:25 J -32059561.27 -32059561.19 -32059561.12 0.1619 0.1322
 Mercury -92486-08-21 20:37 J -32058855.77 -32058855.64 -32058855.52 0.1609 0.0557

Mercury -92481-05-12 02:51 J -32057130.52 -32057130.38 -32057130.25 0.1917 0.0485

Moon -92478-01-11 10:18 J -32056156.17 -32056156.07 -32056155.97 0.1641 0.1343

Earth -92478-01-11 15:49 J -32056155.96 -32056155.84 -32056155.72 0.1641 0.1198

Venus -92478-04-01 08:23 J -32056076.25 -32056076.15 -32056076.06 0.1600 0.1303

Mercury -92476-01-11 05:15 J -32055425.42 -32055425.28 -32055425.15 0.1611 0.0109

Mercury -92472-10-02 04:32 J -32053700.40 -32053700.31 -32053700.22 0.1913 0.1416

Mercury -92467-06-03 13:54 J -32051995.05 -32051994.92 -32051994.79 0.1613 0.0362

Mercury -92465-05-09 04:03 J -32051289.35 -32051289.33 -32051289.30 0.1605 0.1567

Mercury -92460-01-28 23:30 J -32049563.60 -32049563.52 -32049563.43 0.1924 0.1461

Mercury -92458-10-24 22:47 J -32048564.67 -32048564.55 -32048564.44 0.1616 0.0814

Mercury -92456-09-29 12:27 J -32047859.08 -32047858.98 -32047858.88 0.1607 0.1094

Mercury -92451-06-21 01:25 J -32046133.57 -32046133.44 -32046133.31 0.1920 0.0541

Mercury -92448-03-16 07:25 J -32045134.27 -32045134.19 -32045134.11 0.1619 0.1263

Mercury -92446-02-19 20:51 J -32044428.76 -32044428.63 -32044428.51 0.1609 0.0625

Venus -92445-03-03 12:56 J -32044051.07 -32044050.96 -32044050.84 0.1930 0.1473

Venus -92444-01-28 07:54 J -32043720.34 -32043720.17 -32043720.00 0.1602 0.0288

Mercury -92442-11-11 03:20 J -32042703.49 -32042703.36 -32042703.22 0.1917 0.0383

Mercury -92437-07-12 05:15 J -32040998.41 -32040998.28 -32040998.14 0.1611 0.0162

Mercury -92432-04-02 04:47 J -32039273.40 -32039273.30 -32039273.20 0.1913 0.1337

Moon -92431-01-05 17:15 J -32038994.97 -32038994.78 -32038994.60 0.1654 0.0304

Earth -92431-01-05 23:01 J -32038994.72 -32038994.54 -32038994.36 0.1654 0.0214 *

Mercury -92428-12-02 13:54 J -32037568.05 -32037567.92 -32037567.78 0.1613 0.0304

Mercury -92421-07-29 23:30 J -32035136.60 -32035136.52 -32035136.43 0.1924 0.1533

Mercury -92418-04-24 22:47 J -32034137.67 -32034137.55 -32034137.43 0.1616 0.0753

Mercury -92416-03-30 12:27 J -32033432.07 -32033431.98 -32033431.88 0.1607 0.1159

Venus -92412-01-26 21:35 J -32032033.72 -32032033.60 -32032033.48 0.1600 0.1138

Mercury -92412-12-20 01:54 J -32031706.55 -32031706.42 -32031706.29 0.1921 0.0638

Mercury -92409-09-14 07:39 J -32030707.26 -32030707.18 -32030707.09 0.1618 0.1198

Mercury -92407-08-20 21:06 J -32030001.75 -32030001.62 -32030001.50 0.1609 0.0692

Mercury -92402-05-12 03:49 J -32028276.48 -32028276.34 -32028276.20 0.1917 0.0289

Moon -92399-01-13 11:44 J -32027299.05 -32027299.01 -32027298.96 0.1638 0.1587
 Mercury -92397-01-11 05:30 J -32026571.40 -32026571.27 -32026571.13 0.1611 0.0233
 Mercury -92393-10-01 05:15 J -32024846.39 -32024846.28 -32024846.17 0.1914 0.1238
 Mercury -92388-06-02 14:08 J -32023141.04 -32023140.91 -32023140.78 0.1613 0.0235
 Mercury -92381-01-28 23:59 J -32020709.57 -32020709.50 -32020709.42 0.1924 0.1632
 Venus -92380-12-29 14:23 J -32020009.06 -32020008.90 -32020008.74 0.1929 0.0786
 Mercury -92379-10-23 23:01 J -32019710.66 -32019710.54 -32019710.42 0.1616 0.0690
 Venus -92379-11-25 21:06 J -32019677.79 -32019677.62 -32019677.46 0.1602 0.0461
 Mercury -92377-09-28 12:42 J -32019005.05 -32019004.97 -32019004.88 0.1607 0.1227
 Mercury -92372-06-20 02:08 J -32017279.53 -32017279.41 -32017279.28 0.1921 0.0724
 Mercury -92369-03-15 07:54 J -32016280.26 -32016280.17 -32016280.08 0.1618 0.1138
 Mercury -92367-02-18 21:06 J -32015574.73 -32015574.62 -32015574.50 0.1609 0.0758
 Mercury -92363-11-10 04:03 J -32013849.47 -32013849.33 -32013849.19 0.1918 0.0204
 Mercury -92360-08-05 16:47 J -32012849.82 -32012849.80 -32012849.77 0.1621 0.1581
 Mercury -92358-07-12 05:44 J -32012144.39 -32012144.26 -32012144.13 0.1611 0.0291
 Mercury -92353-04-01 05:30 J -32010419.38 -32010419.27 -32010419.15 0.1914 0.1147
 Earth -92352-01-07 23:30 J -32010137.69 -32010137.52 -32010137.34 0.1650 0.0418
 Moon -92352-01-08 00:13 J -32010137.68 -32010137.49 -32010137.30 0.1650 0.0486 *
 Mercury -92349-12-01 14:23 J -32008714.03 -32008713.90 -32008713.77 0.1613 0.0169
 Venus -92347-11-24 10:47 J -32007991.18 -32007991.05 -32007990.91 0.1600 0.0976
 Mercury -92342-07-30 00:27 J -32006282.54 -32006282.48 -32006282.42 0.1924 0.1724
 Mercury -92339-04-23 23:15 J -32005283.66 -32005283.53 -32005283.41 0.1615 0.0625
 Mercury -92337-03-29 13:11 J -32004578.03 -32004577.95 -32004577.88 0.1607 0.1298
 Mercury -92333-12-19 02:37 J -32002852.51 -32002852.39 -32002852.26 0.1921 0.0819
 Mercury -92330-09-14 07:54 J -32001853.26 -32001853.17 -32001853.07 0.1618 0.1077
 Mercury -92328-08-19 21:20 J -32001147.72 -32001147.61 -32001147.49 0.1608 0.0825
 Mercury -92323-05-11 04:32 J -31999422.45 -31999422.31 -31999422.17 0.1918 0.0120
 Mercury -92320-02-03 17:01 J -31998422.83 -31998422.79 -31998422.75 0.1621 0.1521
 Mercury -92318-01-10 05:59 J -31997717.39 -31997717.25 -31997717.12 0.1610 0.0358
 Mercury -92314-10-01 05:59 J -31995992.37 -31995992.25 -31995992.14 0.1914 0.1059

Venus -92314-10-26 15:06 J -31995967.05 -31995966.87 -31995966.69 0.1929 0.0077

Venus -92313-09-22 10:18 J -31995635.23 -31995635.07 -31995634.92 0.1603 0.0627

Moon -92312-07-07 07:39 J -31995347.31 -31995347.18 -31995347.05 0.1867 0.1516

Earth -92312-07-07 16:03 J -31995346.94 -31995346.83 -31995346.72 0.1868 0.1578

Mercury -92309-06-01 14:37 J -31994287.03 -31994286.89 -31994286.76 0.1613 0.0108

Earth -92305-01-03 04:03 J -31992976.46 -31992976.33 -31992976.18 0.1664 0.1055

Moon -92305-01-03 08:51 J -31992976.29 -31992976.13 -31992975.97 0.1664 0.0932 *

Mercury -92302-01-28 00:42 J -31991855.52 -31991855.47 -31991855.43 0.1924 0.1804

Mercury -92300-10-22 23:15 J -31990856.65 -31990856.53 -31990856.40 0.1615 0.0562

Mercury -92298-09-28 13:11 J -31990151.02 -31990150.95 -31990150.88 0.1606 0.1365

Mercury -92293-06-19 02:51 J -31988425.50 -31988425.38 -31988425.26 0.1922 0.0906

Mercury -92290-03-15 08:08 J -31987426.26 -31987426.16 -31987426.05 0.1618 0.1013

Mercury -92288-02-17 21:35 J -31986720.71 -31986720.60 -31986720.48 0.1608 0.0892

Mercury -92284-11-09 05:01 J -31984995.43 -31984995.29 -31984995.15 0.1918 0.0044

Mercury -92281-08-04 17:15 J -31983995.84 -31983995.78 -31983995.73 0.1621 0.1460

Venus -92281-09-20 23:44 J -31983948.65 -31983948.51 -31983948.36 0.1601 0.0807

Mercury -92279-07-11 06:13 J -31983290.37 -31983290.24 -31983290.11 0.1610 0.0425

Mercury -92274-04-01 06:13 J -31981565.36 -31981565.24 -31981565.11 0.1914 0.0966

Earth -92273-01-10 23:59 J -31981280.63 -31981280.50 -31981280.36 0.1647 0.1054

Moon -92273-01-11 06:13 J -31981280.38 -31981280.24 -31981280.09 0.1647 0.0968 *

Mercury -92270-12-01 14:51 J -31979860.02 -31979859.88 -31979859.75 0.1613 0.0054

Mercury -92263-07-29 00:56 J -31977428.47 -31977428.46 -31977428.44 0.1924 0.1899

Mercury -92260-04-22 23:30 J -31976429.65 -31976429.52 -31976429.39 0.1615 0.0499

Mercury -92258-03-29 13:25 J -31975724.00 -31975723.94 -31975723.88 0.1606 0.1431

Mercury -92254-12-19 03:20 J -31973998.48 -31973998.36 -31973998.24 0.1921 0.0999

Mercury -92251-09-13 08:23 J -31972999.26 -31972999.15 -31972999.04 0.1618 0.0951

Mercury -92249-08-18 21:49 J -31972293.70 -31972293.59 -31972293.48 0.1608 0.0956

Venus -92248-08-22 16:32 J -31971924.98 -31971924.81 -31971924.64 0.1928 0.0615

Venus -92247-07-20 23:30 J -31971592.67 -31971592.52 -31971592.37 0.1603 0.0797

Mercury -92244-05-10 05:01 J -31970568.43 -31970568.29 -31970568.15 0.1918 0.0066

Mercury -92241-02-03 17:30 J -31969568.84 -31969568.77 -31969568.71 0.1621 0.1397

Mercury -92239-01-09 06:27 J -31968863.36 -31968863.23 -31968863.11 0.1610 0.0493

Mercury -92235-09-30 06:56 J -31967138.34 -31967138.21 -31967138.09 0.1915 0.0861

Earth -92233-07-11 11:30 J -31966488.23 -31966488.02 -31966487.81 0.1874 0.0199

Moon -92233-07-11 20:08 J -31966487.89 -31966487.66 -31966487.44 0.1875 0.0315 *

Mercury -92230-06-01 15:06 J -31965433.01 -31965432.87 -31965432.74 0.1613 0.0055

Earth -92226-01-05 05:15 J -31964119.45 -31964119.28 -31964119.10 0.1661 0.0392

Moon -92226-01-05 10:18 J -31964119.24 -31964119.07 -31964118.90 0.1661 0.0408 *

Mercury -92225-02-20 07:54 J -31963708.20 -31963708.17 -31963708.13 0.1910 0.1838

Mercury -92221-10-21 23:44 J -31962002.64 -31962002.51 -31962002.38 0.1615 0.0432

Mercury -92219-09-27 13:39 J -31961296.97 -31961296.93 -31961296.88 0.1606 0.1502

Venus -92215-07-19 13:25 J -31959906.10 -31959905.94 -31959905.79 0.1601 0.0642

Mercury -92214-06-19 03:35 J -31959571.46 -31959571.35 -31959571.24 0.1922 0.1085

Mercury -92211-03-14 08:37 J -31958572.25 -31958572.14 -31958572.03 0.1618 0.0889

Mercury -92209-02-17 22:03 J -31957866.68 -31957866.58 -31957866.47 0.1608 0.1027

Mercury -92205-11-08 05:44 J -31956141.40 -31956141.26 -31956141.12 0.1918 0.0178

Mercury -92202-08-04 17:30 J -31955141.84 -31955141.77 -31955141.70 0.1621 0.1336

Mercury -92200-07-10 06:27 J -31954436.35 -31954436.23 -31954436.10 0.1610 0.0557

Mercury -92195-03-31 06:56 J -31952711.33 -31952711.21 -31952711.08 0.1914 0.0786

Mercury -92191-11-30 15:06 J -31951006.00 -31951005.87 -31951005.73 0.1612 0.0098

Mercury -92186-08-21 08:23 J -31949281.21 -31949281.15 -31949281.10 0.1911 0.1747

Venus -92182-06-19 17:01 J -31947882.91 -31947882.79 -31947882.66 0.1927 0.1340

Mercury -92181-04-21 23:59 J -31947575.63 -31947575.50 -31947575.37 0.1615 0.0372

Venus -92181-05-17 12:42 J -31947550.10 -31947549.97 -31947549.83 0.1604 0.0966

Mercury -92179-03-28 13:54 J -31946869.94 -31946869.92 -31946869.89 0.1606 0.1570

Mercury -92175-12-18 04:03 J -31945144.44 -31945144.33 -31945144.22 0.1922 0.1186

Mercury -92172-09-12 08:51 J -31944145.25 -31944145.13 -31944145.02 0.1618 0.0822

Mercury -92170-08-18 22:18 J -31943439.67 -31943439.57 -31943439.47 0.1608 0.1095

Mercury -92165-05-09 05:59 J -31941714.39 -31941714.25 -31941714.11 0.1918 0.0261

Mercury -92162-02-02 17:44 J -31940714.84 -31940714.76 -31940714.68 0.1620 0.1273

Mercury -92160-01-08 06:42 J -31940009.34 -31940009.22 -31940009.09 0.1610 0.0628
 Mercury -92156-09-29 07:39 J -31938284.32 -31938284.18 -31938284.05 0.1915 0.0685
 Mercury -92151-05-31 15:20 J -31936578.99 -31936578.86 -31936578.73 0.1612 0.0156
 Venus -92149-05-16 02:37 J -31935863.56 -31935863.39 -31935863.23 0.1601 0.0476
 Moon -92147-01-07 05:15 J -31935262.45 -31935262.28 -31935262.11 0.1657 0.0240
 Earth -92147-01-07 06:42 J -31935262.40 -31935262.22 -31935262.04 0.1657 0.0264 *
 Mercury -92146-02-19 08:37 J -31934854.20 -31934854.14 -31934854.07 0.1910 0.1651
 Mercury -92142-10-21 23:59 J -31933148.63 -31933148.50 -31933148.36 0.1615 0.0308
 Mercury -92135-06-18 04:18 J -31930717.42 -31930717.32 -31930717.22 0.1922 0.1268
 Mercury -92132-03-13 08:51 J -31929718.24 -31929718.13 -31929718.01 0.1618 0.0760
 Mercury -92130-02-16 22:32 J -31929012.65 -31929012.56 -31929012.47 0.1608 0.1162
 Mercury -92126-11-08 06:13 J -31927287.38 -31927287.24 -31927287.10 0.1919 0.0348
 Mercury -92123-08-03 17:44 J -31926287.84 -31926287.76 -31926287.67 0.1620 0.1212
 Mercury -92121-07-09 06:56 J -31925582.33 -31925582.21 -31925582.09 0.1610 0.0690
 Mercury -92116-03-30 07:54 J -31923857.30 -31923857.17 -31923857.03 0.1915 0.0589
 Venus -92115-03-15 02:08 J -31923507.53 -31923507.41 -31923507.29 0.1604 0.1134
 Mercury -92112-11-29 15:35 J -31922151.98 -31922151.85 -31922151.71 0.1612 0.0227
 Mercury -92107-08-20 09:06 J -31920427.20 -31920427.12 -31920427.04 0.1911 0.1556
 Mercury -92102-04-22 00:13 J -31918721.62 -31918721.49 -31918721.35 0.1615 0.0240
 Moon -92100-01-01 04:18 J -31918101.41 -31918101.32 -31918101.23 0.1673 0.1414
 Earth -92100-01-01 09:20 J -31918101.23 -31918101.11 -31918100.98 0.1672 0.1238 *
 Mercury -92096-12-17 04:47 J -31916290.40 -31916290.30 -31916290.21 0.1922 0.1365
 Mercury -92093-09-11 09:06 J -31915291.24 -31915291.12 -31915291.00 0.1617 0.0697
 Mercury -92091-08-17 22:47 J -31914585.64 -31914585.55 -31914585.47 0.1608 0.1230
 Mercury -92086-05-09 06:42 J -31912860.36 -31912860.22 -31912860.09 0.1919 0.0445
 Venus -92084-04-16 00:56 J -31912152.56 -31912152.46 -31912152.37 0.1930 0.1603
 Mercury -92083-02-01 17:59 J -31911860.84 -31911860.75 -31911860.66 0.1620 0.1149
 Venus -92083-03-13 15:49 J -31911821.01 -31911820.84 -31911820.67 0.1602 0.0308
 Mercury -92081-01-08 07:11 J -31911155.32 -31911155.20 -31911155.08 0.1610 0.0758
 Mercury -92077-09-28 08:23 J -31909430.29 -31909430.15 -31909430.02 0.1915 0.0505

Mercury -92074-06-25 03:06 J -31908430.39 -31908430.37 -31908430.35 0.1623 0.1594

Mercury -92072-05-30 15:49 J -31907724.97 -31907724.84 -31907724.71 0.1612 0.0291

Moon -92068-01-09 01:11 J -31906405.59 -31906405.45 -31906405.30 0.1654 0.0984

Earth -92068-01-09 07:25 J -31906405.34 -31906405.19 -31906405.03 0.1654 0.0895 *

Mercury -92067-02-18 09:35 J -31906000.19 -31906000.10 -31906000.01 0.1911 0.1464

Mercury -92063-10-21 00:27 J -31904294.61 -31904294.48 -31904294.35 0.1615 0.0173

Mercury -92056-06-17 05:01 J -31901863.38 -31901863.29 -31901863.20 0.1923 0.1454

Mercury -92053-03-12 09:20 J -31900864.23 -31900864.11 -31900863.99 0.1617 0.0631

Mercury -92051-02-15 23:01 J -31900158.62 -31900158.54 -31900158.46 0.1608 0.1301

Venus -92049-01-10 15:35 J -31899464.95 -31899464.85 -31899464.75 0.1605 0.1299

Mercury -92047-11-07 07:11 J -31898433.34 -31898433.20 -31898433.07 0.1919 0.0543

Mercury -92044-08-02 18:13 J -31897433.84 -31897433.74 -31897433.64 0.1620 0.1084

Mercury -92042-07-09 07:25 J -31896728.30 -31896728.19 -31896728.07 0.1609 0.0828

Mercury -92037-03-29 08:37 J -31895003.27 -31895003.14 -31895003.00 0.1915 0.0406

Mercury -92035-12-24 03:20 J -31894003.40 -31894003.36 -31894003.32 0.1623 0.1534

Mercury -92033-11-28 16:03 J -31893297.96 -31893297.83 -31893297.70 0.1612 0.0359

Moon -92028-07-06 14:51 J -31891617.00 -31891616.88 -31891616.75 0.1859 0.1384

Earth -92028-07-06 15:49 J -31891616.95 -31891616.84 -31891616.73 0.1859 0.1576 *

Mercury -92028-08-19 10:03 J -31891573.18 -31891573.08 -31891572.99 0.1911 0.1368

Mercury -92023-04-21 00:42 J -31889867.61 -31889867.47 -31889867.34 0.1614 0.0120

Moon -92021-01-04 05:30 J -31889244.44 -31889244.27 -31889244.09 0.1669 0.0515

Earth -92021-01-04 10:47 J -31889244.22 -31889244.05 -31889243.88 0.1669 0.0581 *

Venus -92018-02-11 01:39 J -31888110.59 -31888110.43 -31888110.27 0.1929 0.0886

Venus -92017-01-09 05:30 J -31887778.44 -31887778.27 -31887778.10 0.1602 0.0150

Mercury -92017-12-16 05:15 J -31887436.36 -31887436.28 -31887436.20 0.1922 0.1547

Mercury -92014-09-11 09:35 J -31886437.23 -31886437.10 -31886436.98 0.1617 0.0569

Mercury -92012-08-16 23:15 J -31885731.60 -31885731.53 -31885731.46 0.1607 0.1368

Mercury -92007-05-08 07:11 J -31884006.33 -31884006.20 -31884006.07 0.1919 0.0624

Mercury -92004-01-31 18:27 J -31883006.83 -31883006.73 -31883006.63 0.1620 0.1020

Mercury -92002-01-07 07:39 J -31882301.29 -31882301.18 -31882301.07 0.1610 0.0896

92ND MILLENNIUM BCE

This is a list of transits visible from Mars in the 92nd millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -91998-09-28 09:20 J | -31880576.25 | -31880576.11 | -31880575.98 | 0.1916 | 0.0307 | | |
| Mercury | -91995-06-24 03:20 J | -31879576.41 | -31879576.36 | -31879576.30 | 0.1623 | 0.1470 | | |
| Mercury | -91993-05-29 16:18 J | -31878870.95 | -31878870.82 | -31878870.69 | 0.1612 | 0.0427 | | |
| Moon | -91989-01-12 03:49 J | -31877548.45 | -31877548.34 | -31877548.22 | 0.1651 | 0.1326 | | |
| Earth | -91989-01-12 08:08 J | -31877548.22 | -31877548.16 | -31877548.09 | 0.1651 | 0.1525 | * | |
| Mercury | -91988-02-17 10:18 J | -31877146.17 | -31877146.07 | -31877145.96 | 0.1911 | 0.1276 | | |
| Venus | -91985-01-07 18:56 J | -31876091.72 | -31876091.71 | -31876091.69 | 0.1600 | 0.1591 | | |
| Mercury | -91984-10-20 00:56 J | -31875440.60 | -31875440.46 | -31875440.33 | 0.1614 | 0.0049 | | |
| Venus | -91984-11-07 05:01 J | -31875422.36 | -31875422.29 | -31875422.23 | 0.1606 | 0.1468 | | |
| Mercury | -91977-06-16 05:44 J | -31873009.33 | -31873009.26 | -31873009.19 | 0.1923 | 0.1636 | | |
| Mercury | -91974-03-12 09:35 J | -31872010.22 | -31872010.10 | -31872009.97 | 0.1617 | 0.0503 | | |
| Mercury | -91972-02-14 23:30 J | -31871304.58 | -31871304.52 | -31871304.46 | 0.1607 | 0.1439 | | |
| Mercury | -91968-11-06 07:54 J | -31869579.30 | -31869579.17 | -31869579.04 | 0.1919 | 0.0729 | | |
| Mercury | -91965-08-01 18:27 J | -31868579.83 | -31868579.73 | -31868579.62 | 0.1620 | 0.0960 | | |
| Mercury | -91963-07-08 07:54 J | -31867874.28 | -31867874.17 | -31867874.07 | 0.1609 | 0.0962 | | |
| Mercury | -91958-03-29 09:20 J | -31866149.25 | -31866149.11 | -31866148.97 | 0.1916 | 0.0226 | | |
| Mercury | -91956-12-23 03:35 J | -31865149.41 | -31865149.35 | -31865149.29 | 0.1623 | 0.1409 | | |
| Mercury | -91954-11-28 16:18 J | -31864443.94 | -31864443.82 | -31864443.69 | 0.1612 | 0.0493 | | |
| Venus | -91953-12-08 03:06 J | -31864068.55 | -31864068.37 | -31864068.20 | 0.1928 | 0.0194 | | |

Venus -91952-11-05 18:27 J -31863735.90 -31863735.73 -31863735.55 0.1603 0.0048

Moon -91949-07-09 23:59 J -31862758.71 -31862758.50 -31862758.29 0.1866 0.0240

Earth -91949-07-10 10:47 J -31862758.26 -31862758.05 -31862757.84 0.1866 0.0150

Mercury -91949-08-18 10:47 J -31862719.16 -31862719.05 -31862718.94 0.1912 0.1179

Mercury -91944-04-20 00:56 J -31861013.59 -31861013.46 -31861013.32 0.1614 0.0058

Earth -91942-01-06 12:42 J -31860387.16 -31860386.97 -31860386.79 0.1665 0.0097

Moon -91942-01-06 13:54 J -31860387.12 -31860386.92 -31860386.73 0.1665 0.0078 *

Mercury -91938-12-16 06:13 J -31858582.30 -31858582.24 -31858582.19 0.1923 0.1738

Mercury -91935-09-10 09:49 J -31857583.22 -31857583.09 -31857582.96 0.1617 0.0436

Mercury -91933-08-15 23:44 J -31856877.56 -31856877.51 -31856877.47 0.1607 0.1508

Mercury -91928-05-07 08:08 J -31855152.29 -31855152.16 -31855152.04 0.1919 0.0814

Mercury -91925-01-31 18:42 J -31854152.83 -31854152.72 -31854152.61 0.1620 0.0895

Mercury -91923-01-06 08:08 J -31853447.27 -31853447.16 -31853447.06 0.1609 0.1032

Venus -91920-11-04 08:23 J -31852049.23 -31852049.15 -31852049.08 0.1601 0.1427

Mercury -91919-09-27 09:49 J -31851722.23 -31851722.09 -31851721.95 0.1916 0.0126

Mercury -91916-06-23 03:49 J -31850722.42 -31850722.34 -31850722.27 0.1623 0.1348

Mercury -91914-05-29 16:32 J -31850016.93 -31850016.81 -31850016.68 0.1611 0.0558

Mercury -91909-02-17 11:15 J -31848292.15 -31848292.03 -31848291.92 0.1912 0.1085

Mercury -91905-10-19 01:11 J -31846586.58 -31846586.45 -31846586.31 0.1614 0.0096

Mercury -91898-06-16 06:13 J -31844155.28 -31844155.24 -31844155.20 0.1923 0.1815

Earth -91896-12-31 12:27 J -31843226.07 -31843225.98 -31843225.89 0.1681 0.1464

Moon -91896-12-31 18:13 J -31843225.86 -31843225.74 -31843225.61 0.1681 0.1229

Mercury -91895-03-11 10:03 J -31843156.21 -31843156.08 -31843155.95 0.1617 0.0375

Mercury -91893-02-14 23:44 J -31842450.53 -31842450.51 -31842450.48 0.1607 0.1576

Mercury -91889-11-05 08:23 J -31840725.27 -31840725.15 -31840725.03 0.1920 0.0905

Venus -91887-10-05 03:49 J -31840026.51 -31840026.34 -31840026.17 0.1927 0.0531

Mercury -91886-08-01 18:56 J -31839725.82 -31839725.71 -31839725.60 0.1619 0.0830

Venus -91886-09-03 07:54 J -31839693.34 -31839693.17 -31839693.00 0.1603 0.0192

Mercury -91884-07-07 08:23 J -31839020.25 -31839020.15 -31839020.06 0.1609 0.1101

Mercury -91879-03-28 10:18 J -31837295.21 -31837295.07 -31837294.93 0.1916 0.0032

Mercury -91877-12-22 03:49 J -31836295.41 -31836295.34 -31836295.26 0.1622 0.1283
 Mercury -91875-11-27 16:47 J -31835589.92 -31835589.80 -31835589.67 0.1611 0.0630
 Mercury -91870-08-18 11:30 J -31833865.14 -31833865.02 -31833864.90 0.1912 0.0992
 Mercury -91865-04-19 01:25 J -31832159.57 -31832159.44 -31832159.31 0.1614 0.0157
 Earth -91863-01-08 13:54 J -31831530.08 -31831529.92 -31831529.75 0.1661 0.0742
 Moon -91863-01-08 20:08 J -31831529.83 -31831529.66 -31831529.50 0.1661 0.0708 *
 Mercury -91859-12-15 06:42 J -31829728.23 -31829728.22 -31829728.21 0.1923 0.1914
 Mercury -91856-09-09 10:03 J -31828729.21 -31828729.08 -31828728.95 0.1616 0.0311
 Venus -91854-09-01 21:20 J -31828006.71 -31828006.61 -31828006.50 0.1601 0.1258
 Mercury -91849-05-06 08:51 J -31826298.25 -31826298.13 -31826298.01 0.1920 0.1001
 Mercury -91846-01-30 19:11 J -31825298.82 -31825298.70 -31825298.59 0.1619 0.0767
 Mercury -91844-01-05 08:23 J -31824593.24 -31824593.15 -31824593.05 0.1609 0.1168
 Mercury -91840-09-26 10:32 J -31822868.20 -31822868.06 -31822867.92 0.1916 0.0060
 Mercury -91837-06-22 04:03 J -31821868.41 -31821868.33 -31821868.24 0.1622 0.1220
 Mercury -91835-05-28 17:01 J -31821162.91 -31821162.79 -31821162.67 0.1611 0.0693
 Mercury -91830-02-16 11:59 J -31819438.13 -31819438.00 -31819437.88 0.1913 0.0897
 Mercury -91826-10-19 01:39 J -31817732.56 -31817732.43 -31817732.30 0.1614 0.0225
 Mercury -91821-07-08 12:56 J -31816007.98 -31816007.96 -31816007.93 0.1908 0.1875
 Venus -91821-08-01 04:47 J -31815984.44 -31815984.30 -31815984.16 0.1926 0.1237
 Venus -91820-06-30 21:06 J -31815650.79 -31815650.62 -31815650.46 0.1604 0.0365
 Earth -91816-01-02 15:35 J -31814369.02 -31814368.85 -31814368.69 0.1677 0.0767
 Moon -91816-01-02 20:37 J -31814368.78 -31814368.64 -31814368.49 0.1677 0.0875 *
 Mercury -91816-03-10 10:32 J -31814302.20 -31814302.06 -31814301.93 0.1616 0.0246
 Mercury -91810-11-05 09:20 J -31811871.23 -31811871.11 -31811871.00 0.1920 0.1098
 Mercury -91807-07-31 19:11 J -31810871.82 -31810871.70 -31810871.58 0.1619 0.0702
 Mercury -91805-07-06 08:37 J -31810166.22 -31810166.14 -31810166.05 0.1609 0.1240
 Mercury -91800-03-27 11:01 J -31808441.18 -31808441.04 -31808440.90 0.1917 0.0161
 Mercury -91798-12-22 04:18 J -31807441.41 -31807441.32 -31807441.23 0.1622 0.1159
 Mercury -91796-11-26 17:15 J -31806735.90 -31806735.78 -31806735.66 0.1611 0.0762
 Mercury -91791-08-17 12:27 J -31805011.11 -31805010.98 -31805010.86 0.1912 0.0805

Mercury -91788-05-13 13:11 J -31804010.96 -31804010.95 -31804010.93 0.1626 0.1610
 Venus -91788-06-29 10:47 J -31803964.17 -31803964.05 -31803963.92 0.1602 0.1093
 Mercury -91786-04-19 01:54 J -31803305.56 -31803305.42 -31803305.29 0.1614 0.0294
 Earth -91784-01-10 14:51 J -31802672.98 -31802672.88 -31802672.78 0.1658 0.1366
 Moon -91784-01-10 17:44 J -31802672.83 -31802672.76 -31802672.68 0.1658 0.1496 *
 Mercury -91781-01-07 13:25 J -31801580.99 -31801580.94 -31801580.90 0.1908 0.1787
 Mercury -91777-09-08 10:32 J -31799875.19 -31799875.06 -31799874.93 0.1616 0.0176
 Mercury -91770-05-06 09:20 J -31797444.22 -31797444.11 -31797444.00 0.1921 0.1181
 Mercury -91767-01-29 19:25 J -31796444.81 -31796444.69 -31796444.57 0.1619 0.0636
 Mercury -91765-01-05 08:51 J -31795739.20 -31795739.13 -31795739.05 0.1609 0.1307
 Mercury -91761-09-25 11:30 J -31794014.16 -31794014.02 -31794013.88 0.1917 0.0260
 Mercury -91758-06-22 04:18 J -31793014.41 -31793014.32 -31793014.22 0.1622 0.1094
 Mercury -91756-05-27 17:30 J -31792308.89 -31792308.77 -31792308.66 0.1611 0.0831
 Venus -91754-04-28 10:18 J -31791608.23 -31791608.07 -31791607.91 0.1605 0.0534
 Mercury -91751-02-15 12:42 J -31790584.10 -31790583.97 -31790583.84 0.1913 0.0709
 Mercury -91749-11-11 13:25 J -31789583.98 -31789583.94 -31789583.90 0.1625 0.1546
 Mercury -91747-10-18 02:08 J -31788878.55 -31788878.41 -31788878.28 0.1613 0.0362
 Earth -91744-07-05 17:59 J -31787886.87 -31787886.75 -31787886.63 0.1850 0.1521
 Moon -91744-07-06 01:25 J -31787886.62 -31787886.44 -31787886.26 0.1851 0.1100
 Mercury -91742-07-08 13:54 J -31787153.99 -31787153.92 -31787153.86 0.1908 0.1684
 Moon -91737-01-05 16:03 J -31785512.00 -31785511.83 -31785511.66 0.1673 0.0065
 Earth -91737-01-05 17:01 J -31785511.97 -31785511.79 -31785511.61 0.1673 0.0105 *
 Mercury -91737-03-09 10:47 J -31785448.19 -31785448.05 -31785447.92 0.1616 0.0115
 Mercury -91731-11-04 09:49 J -31783017.19 -31783017.09 -31783016.98 0.1921 0.1284
 Mercury -91728-07-30 19:39 J -31782017.81 -31782017.68 -31782017.56 0.1619 0.0576
 Mercury -91726-07-06 09:06 J -31781312.19 -31781312.12 -31781312.05 0.1609 0.1373
 Venus -91723-05-29 12:27 J -31780254.06 -31780253.98 -31780253.90 0.1930 0.1721
 Venus -91722-04-26 23:59 J -31779921.63 -31779921.50 -31779921.35 0.1602 0.0926
 Mercury -91721-03-26 11:30 J -31779587.16 -31779587.02 -31779586.88 0.1917 0.0337
 Mercury -91719-12-21 04:32 J -31778587.41 -31778587.31 -31778587.21 0.1622 0.1030

Mercury -91717-11-25 17:44 J -31777881.88 -31777881.76 -31777881.65 0.1611 0.0900

Mercury -91712-08-16 13:11 J -31776157.08 -31776156.95 -31776156.82 0.1913 0.0610

Mercury -91709-05-12 13:39 J -31775156.98 -31775156.93 -31775156.88 0.1625 0.1482

Mercury -91707-04-18 02:08 J -31774451.54 -31774451.41 -31774451.28 0.1613 0.0427

Mercury -91702-01-06 14:23 J -31772726.98 -31772726.90 -31772726.82 0.1908 0.1586

Mercury -91698-09-08 11:01 J -31771021.18 -31771021.04 -31771020.91 0.1616 0.0052

Mercury -91691-05-05 10:03 J -31768590.17 -31768590.08 -31768589.98 0.1921 0.1369

Earth -91691-12-30 14:37 J -31768350.89 -31768350.89 -31768350.89 0.1690 0.1690

Mercury -91688-01-28 19:39 J -31767590.80 -31767590.68 -31767590.55 0.1619 0.0510

Venus -91688-02-22 23:44 J -31767565.67 -31767565.51 -31767565.36 0.1606 0.0708

Mercury -91686-01-04 09:20 J -31766885.16 -31766885.11 -31766885.05 0.1608 0.1446

Mercury -91682-09-25 12:13 J -31765160.13 -31765159.99 -31765159.86 0.1917 0.0446

Mercury -91679-06-21 04:47 J -31764160.41 -31764160.30 -31764160.20 0.1622 0.0967

Mercury -91677-05-26 17:44 J -31763454.87 -31763454.76 -31763454.65 0.1611 0.0966

Mercury -91672-02-14 13:25 J -31761730.07 -31761729.94 -31761729.80 0.1913 0.0522

Mercury -91670-11-11 13:39 J -31760729.99 -31760729.93 -31760729.86 0.1625 0.1422

Mercury -91668-10-17 02:23 J -31760024.53 -31760024.40 -31760024.27 0.1613 0.0492

Earth -91665-07-09 11:30 J -31759028.23 -31759028.02 -31759027.81 0.1858 0.0139

Moon -91665-07-09 18:42 J -31759027.92 -31759027.72 -31759027.52 0.1858 0.0100 *

Mercury -91663-07-07 14:23 J -31758299.98 -31758299.90 -31758299.81 0.1909 0.1508

Moon -91658-01-07 12:56 J -31756655.13 -31756654.96 -31756654.79 0.1669 0.0531

Earth -91658-01-07 18:56 J -31756654.88 -31756654.71 -31756654.54 0.1669 0.0557 *

Mercury -91658-03-09 11:01 J -31756594.17 -31756594.04 -31756593.90 0.1616 0.0039

Venus -91657-03-25 13:25 J -31756212.09 -31756211.94 -31756211.79 0.1928 0.1008

Venus -91656-02-21 13:25 J -31755879.09 -31755878.94 -31755878.79 0.1603 0.0754

Mercury -91652-11-03 10:32 J -31754163.15 -31754163.06 -31754162.97 0.1921 0.1464

Mercury -91649-07-29 19:54 J -31753163.79 -31753163.67 -31753163.54 0.1619 0.0442

Mercury -91647-07-05 09:35 J -31752458.14 -31752458.10 -31752458.06 0.1608 0.1515

Mercury -91642-03-26 12:27 J -31750733.11 -31750732.98 -31750732.84 0.1917 0.0540

Mercury -91640-12-20 04:47 J -31749733.40 -31749733.30 -31749733.19 0.1622 0.0903

Mercury -91638-11-25 17:59 J -31749027.85 -31749027.75 -31749027.64 0.1611 0.1038
 Mercury -91633-08-15 13:54 J -31747303.06 -31747302.92 -31747302.78 0.1913 0.0427
 Mercury -91630-05-12 13:54 J -31746302.99 -31746302.92 -31746302.85 0.1625 0.1361
 Mercury -91628-04-17 02:37 J -31745597.52 -31745597.39 -31745597.27 0.1613 0.0560
 Mercury -91623-01-05 15:06 J -31743872.96 -31743872.87 -31743872.77 0.1909 0.1396
 Venus -91623-12-21 12:56 J -31743523.10 -31743522.96 -31743522.81 0.1606 0.0878
 Mercury -91619-09-07 11:15 J -31742167.16 -31742167.03 -31742166.90 0.1616 0.0089
 Mercury -91612-05-04 10:47 J -31739736.12 -31739736.05 -31739735.97 0.1921 0.1558
 Moon -91611-01-01 12:13 J -31739494.15 -31739493.99 -31739493.83 0.1686 0.0891
 Earth -91611-01-01 17:44 J -31739493.91 -31739493.76 -31739493.62 0.1686 0.0994 *
 Mercury -91609-01-28 20:08 J -31738736.79 -31738736.66 -31738736.53 0.1619 0.0377
 Mercury -91607-01-03 09:49 J -31738031.11 -31738031.09 -31738031.07 0.1608 0.1583
 Mercury -91603-09-24 12:42 J -31736306.10 -31736305.97 -31736305.84 0.1918 0.0620
 Mercury -91600-06-20 05:01 J -31735306.40 -31735306.29 -31735306.18 0.1622 0.0838
 Mercury -91598-05-26 18:13 J -31734600.84 -31734600.74 -31734600.64 0.1611 0.1102
 Mercury -91593-02-14 14:23 J -31732876.04 -31732875.90 -31732875.76 0.1914 0.0332
 Venus -91591-01-20 14:08 J -31732170.09 -31732169.91 -31732169.74 0.1927 0.0278
 Mercury -91591-11-10 14:08 J -31731875.99 -31731875.91 -31731875.83 0.1625 0.1294
 Venus -91591-12-20 02:51 J -31731836.54 -31731836.38 -31731836.22 0.1603 0.0590
 Mercury -91589-10-16 02:51 J -31731170.51 -31731170.38 -31731170.26 0.1613 0.0629
 Earth -91586-07-14 06:27 J -31730169.26 -31730169.23 -31730169.21 0.1865 0.1848
 Mercury -91584-07-06 15:20 J -31729445.96 -31729445.86 -31729445.75 0.1909 0.1308
 Moon -91579-01-09 18:27 J -31727797.87 -31727797.73 -31727797.59 0.1665 0.1141
 Earth -91579-01-09 20:51 J -31727797.75 -31727797.63 -31727797.50 0.1665 0.1217 *
 Mercury -91579-03-08 11:30 J -31727740.15 -31727740.02 -31727739.89 0.1615 0.0158
 Mercury -91573-11-02 11:15 J -31725309.10 -31725309.03 -31725308.96 0.1921 0.1650
 Mercury -91570-07-29 20:08 J -31724309.79 -31724309.66 -31724309.53 0.1618 0.0317
 Mercury -91563-03-25 13:11 J -31721879.08 -31721878.95 -31721878.82 0.1918 0.0721
 Mercury -91561-12-19 05:15 J -31720879.40 -31720879.28 -31720879.17 0.1621 0.0777
 Mercury -91559-11-24 18:27 J -31720173.82 -31720173.73 -31720173.64 0.1610 0.1172

Venus -91557-10-18 02:08 J -31719480.54 -31719480.41 -31719480.28 0.1607 0.1052
 Mercury -91554-08-15 14:37 J -31718449.03 -31718448.89 -31718448.75 0.1913 0.0238
 Mercury -91551-05-11 14:08 J -31717448.99 -31717448.91 -31717448.82 0.1625 0.1233
 Mercury -91549-04-16 02:51 J -31716743.50 -31716743.38 -31716743.26 0.1613 0.0695
 Mercury -91544-01-04 15:49 J -31715018.95 -31715018.84 -31715018.73 0.1909 0.1217
 Mercury -91540-09-06 11:44 J -31713313.15 -31713313.01 -31713312.88 0.1615 0.0226
 Mercury -91533-05-03 11:30 J -31710882.08 -31710882.02 -31710881.97 0.1922 0.1736
 Earth -91532-01-03 20:23 J -31710636.83 -31710636.65 -31710636.47 0.1682 0.0302
 Moon -91532-01-03 22:32 J -31710636.75 -31710636.56 -31710636.37 0.1681 0.0404 *
 Mercury -91530-01-27 20:23 J -31709882.78 -31709882.65 -31709882.52 0.1618 0.0248
 Venus -91526-11-17 14:51 J -31708128.05 -31708127.88 -31708127.70 0.1926 0.0445
 Venus -91525-10-16 15:49 J -31707794.01 -31707793.84 -31707793.68 0.1604 0.0411
 Mercury -91524-09-23 13:39 J -31707452.06 -31707451.93 -31707451.81 0.1918 0.0821
 Mercury -91521-06-19 05:15 J -31706452.39 -31706452.28 -31706452.16 0.1621 0.0711
 Mercury -91519-05-25 18:42 J -31705746.81 -31705746.72 -31705746.64 0.1610 0.1243
 Mercury -91514-02-13 15:06 J -31704022.01 -31704021.87 -31704021.73 0.1914 0.0154
 Mercury -91512-11-09 14:23 J -31703021.99 -31703021.90 -31703021.81 0.1624 0.1169
 Mercury -91510-10-16 03:06 J -31702316.49 -31702316.37 -31702316.25 0.1613 0.0765
 Mercury -91505-07-05 16:18 J -31700591.94 -31700591.82 -31700591.71 0.1909 0.1118
 Mercury -91502-04-01 23:30 J -31699591.52 -31699591.52 -31699591.52 0.1628 0.1627
 Mercury -91500-03-07 11:44 J -31698886.14 -31698886.01 -31698885.88 0.1615 0.0288
 Mercury -91494-11-02 11:59 J -31696455.04 -31696455.00 -31696454.97 0.1922 0.1837
 Mercury -91491-07-28 20:37 J -31695455.77 -31695455.64 -31695455.51 0.1618 0.0181
 Venus -91491-08-15 15:20 J -31695437.97 -31695437.86 -31695437.75 0.1608 0.1233
 Moon -91486-12-29 20:37 J -31693475.65 -31693475.64 -31693475.64 0.1699 0.1697
 Mercury -91484-03-24 13:39 J -31693025.05 -31693024.93 -31693024.81 0.1918 0.0898
 Mercury -91482-12-19 05:30 J -31692025.39 -31692025.27 -31692025.15 0.1621 0.0644
 Mercury -91480-11-23 18:56 J -31691319.79 -31691319.71 -31691319.64 0.1610 0.1312
 Mercury -91475-08-14 15:20 J -31689595.00 -31689594.86 -31689594.72 0.1914 0.0059
 Mercury -91472-05-10 14:37 J -31688594.99 -31688594.89 -31688594.80 0.1624 0.1105

Mercury -91470-04-16 03:20 J -31687889.47 -31687889.36 -31687889.25 0.1613 0.0831
 Mercury -91465-01-04 16:32 J -31686164.92 -31686164.81 -31686164.69 0.1909 0.1022
 Mercury -91463-09-30 23:30 J -31685164.55 -31685164.52 -31685164.48 0.1628 0.1563
 Mercury -91461-09-05 11:59 J -31684459.13 -31684459.00 -31684458.87 0.1615 0.0358
 Moon -91460-07-04 11:01 J -31684157.18 -31684157.04 -31684156.89 0.1840 0.1273
 Earth -91460-07-04 20:37 J -31684156.76 -31684156.64 -31684156.51 0.1841 0.1455
 Venus -91460-09-13 15:35 J -31684085.99 -31684085.85 -31684085.71 0.1924 0.1176
 Venus -91459-08-14 05:15 J -31683751.45 -31683751.28 -31683751.11 0.1605 0.0244
 Earth -91453-01-06 22:18 J -31681779.75 -31681779.57 -31681779.39 0.1678 0.0364
 Moon -91453-01-07 04:47 J -31681779.48 -31681779.30 -31681779.13 0.1677 0.0485 *
 Mercury -91451-01-26 20:51 J -31681028.77 -31681028.63 -31681028.50 0.1618 0.0122
 Mercury -91445-09-22 14:08 J -31678598.02 -31678597.91 -31678597.79 0.1918 0.1006
 Mercury -91442-06-19 05:44 J -31677598.39 -31677598.26 -31677598.14 0.1621 0.0582
 Mercury -91440-05-24 18:56 J -31676892.78 -31676892.71 -31676892.64 0.1610 0.1378
 Mercury -91435-02-12 15:35 J -31675167.99 -31675167.85 -31675167.71 0.1914 0.0063
 Mercury -91433-11-08 14:37 J -31674167.99 -31674167.89 -31674167.79 0.1624 0.1042
 Mercury -91431-10-15 03:35 J -31673462.46 -31673462.35 -31673462.24 0.1612 0.0899
 Mercury -91426-07-05 16:47 J -31671737.92 -31671737.80 -31671737.68 0.1910 0.0938
 Venus -91425-06-12 04:47 J -31671395.38 -31671395.30 -31671395.22 0.1609 0.1408
 Mercury -91423-03-31 23:44 J -31670737.56 -31670737.51 -31670737.46 0.1628 0.1499
 Mercury -91421-03-06 12:13 J -31670032.12 -31670031.99 -31670031.86 0.1615 0.0424
 Mercury -91412-07-27 20:51 J -31666601.76 -31666601.63 -31666601.49 0.1618 0.0074
 Earth -91407-12-31 18:13 J -31664618.87 -31664618.74 -31664618.62 0.1695 0.1233
 Moon -91407-12-31 22:32 J -31664618.65 -31664618.56 -31664618.46 0.1695 0.1398 *
 Mercury -91405-03-23 14:37 J -31664171.01 -31664170.89 -31664170.78 0.1918 0.1097
 Mercury -91403-12-18 05:44 J -31663171.38 -31663171.26 -31663171.13 0.1621 0.0516
 Mercury -91401-11-22 19:11 J -31662465.75 -31662465.70 -31662465.64 0.1610 0.1450
 Mercury -91396-08-13 16:03 J -31660740.97 -31660740.83 -31660740.69 0.1914 0.0140
 Venus -91394-07-11 16:32 J -31660043.84 -31660043.81 -31660043.78 0.1922 0.1893
 Mercury -91393-05-09 14:51 J -31659740.99 -31659740.88 -31659740.78 0.1624 0.0981

Venus -91393-06-10 18:13 J -31659708.91 -31659708.74 -31659708.57 0.1606 0.0067

Mercury -91391-04-15 03:35 J -31659035.45 -31659035.35 -31659035.24 0.1612 0.0969

Mercury -91386-01-03 17:30 J -31657310.90 -31657310.77 -31657310.64 0.1910 0.0827

Mercury -91384-09-29 23:44 J -31656310.56 -31656310.51 -31656310.45 0.1628 0.1438

Mercury -91382-09-05 12:13 J -31655605.11 -31655604.99 -31655604.86 0.1615 0.0494

Earth -91381-07-08 13:39 J -31655298.14 -31655297.93 -31655297.72 0.1849 0.0164

Moon -91381-07-08 14:23 J -31655298.14 -31655297.90 -31655297.67 0.1849 0.0146 *

Mercury -91377-05-25 18:13 J -31653880.78 -31653880.74 -31653880.71 0.1905 0.1834

Earth -91374-01-08 23:59 J -31652922.64 -31652922.50 -31652922.35 0.1674 0.1022

Moon -91374-01-09 02:51 J -31652922.52 -31652922.38 -31652922.25 0.1674 0.1062 *

Mercury -91372-01-25 21:06 J -31652174.75 -31652174.62 -31652174.49 0.1618 0.0018

Mercury -91366-09-22 14:37 J -31649744.00 -31649743.89 -31649743.78 0.1919 0.1179

Mercury -91363-06-18 05:59 J -31648744.38 -31648744.25 -31648744.12 0.1621 0.0450

Venus -91362-07-11 23:15 J -31648355.59 -31648355.53 -31648355.47 0.1928 0.1814

Mercury -91361-05-23 19:25 J -31648038.73 -31648038.69 -31648038.65 0.1610 0.1517

Venus -91361-06-09 07:54 J -31648022.22 -31648022.17 -31648022.12 0.1603 0.1536

Venus -91359-04-09 17:30 J -31647352.79 -31647352.77 -31647352.75 0.1610 0.1595

Mercury -91356-02-11 16:32 J -31646313.95 -31646313.81 -31646313.67 0.1915 0.0241

Mercury -91354-11-08 15:06 J -31645313.98 -31645313.87 -31645313.77 0.1624 0.0912

Mercury -91352-10-14 03:49 J -31644608.44 -31644608.34 -31644608.23 0.1612 0.1040

Mercury -91347-07-04 17:44 J -31642883.89 -31642883.76 -31642883.63 0.1910 0.0740

Mercury -91344-03-30 23:59 J -31641883.57 -31641883.50 -31641883.43 0.1627 0.1375

Mercury -91342-03-06 12:27 J -31641178.10 -31641177.98 -31641177.85 0.1615 0.0562

Mercury -91338-11-24 18:42 J -31639453.78 -31639453.72 -31639453.66 0.1905 0.1725

Mercury -91333-07-26 21:06 J -31637747.75 -31637747.62 -31637747.48 0.1617 0.0100

Moon -91327-01-02 18:42 J -31635761.89 -31635761.72 -31635761.55 0.1691 0.0397

Earth -91327-01-02 21:06 J -31635761.79 -31635761.62 -31635761.44 0.1691 0.0539 *

Venus -91327-04-08 07:25 J -31635666.36 -31635666.19 -31635666.02 0.1607 0.0112

Mercury -91326-03-23 15:06 J -31635316.97 -31635316.87 -31635316.77 0.1919 0.1280

Mercury -91324-12-17 06:13 J -31634317.37 -31634317.24 -31634317.12 0.1621 0.0387

Mercury -91322-11-22 19:39 J -31633611.70 -31633611.68 -31633611.67 0.1610 0.1588

Mercury -91317-08-12 16:47 J -31631886.94 -31631886.80 -31631886.66 0.1915 0.0327

Mercury -91314-05-09 15:06 J -31630886.98 -31630886.87 -31630886.76 0.1624 0.0850

Mercury -91312-04-14 04:03 J -31630181.43 -31630181.33 -31630181.23 0.1612 0.1104

Mercury -91307-01-02 17:59 J -31628456.88 -31628456.75 -31628456.62 0.1910 0.0648

Mercury -91305-09-29 00:13 J -31627456.57 -31627456.49 -31627456.42 0.1627 0.1310

Mercury -91303-09-04 12:42 J -31626751.09 -31626750.97 -31626750.85 0.1615 0.0626

Earth -91302-07-13 05:15 J -31626439.34 -31626439.28 -31626439.22 0.1856 0.1778

Mercury -91298-05-25 19:11 J -31625026.77 -31625026.70 -31625026.63 0.1905 0.1629

Venus -91296-05-07 23:59 J -31624313.65 -31624313.50 -31624313.36 0.1927 0.1081

Moon -91295-01-10 22:32 J -31624065.62 -31624065.56 -31624065.50 0.1670 0.1562

Venus -91295-04-06 21:06 J -31623979.71 -31623979.62 -31623979.53 0.1603 0.1366

Mercury -91293-01-25 21:35 J -31623320.74 -31623320.60 -31623320.47 0.1617 0.0160

Mercury -91287-09-21 15:35 J -31620889.94 -31620889.85 -31620889.75 0.1919 0.1379

Mercury -91284-06-17 06:13 J -31619890.37 -31619890.24 -31619890.11 0.1620 0.0320

Mercury -91277-02-11 17:01 J -31617459.92 -31617459.79 -31617459.65 0.1915 0.0423

Mercury -91275-11-07 15:06 J -31616459.98 -31616459.87 -31616459.75 0.1624 0.0788

Mercury -91273-10-13 04:18 J -31615754.41 -31615754.32 -31615754.23 0.1612 0.1174

Mercury -91268-07-03 18:27 J -31614029.87 -31614029.73 -31614029.60 0.1910 0.0551

Mercury -91265-03-30 00:13 J -31613029.57 -31613029.49 -31613029.41 0.1627 0.1250

Mercury -91263-03-05 12:56 J -31612324.08 -31612323.96 -31612323.84 0.1614 0.0694

Venus -91261-02-03 20:37 J -31611623.81 -31611623.64 -31611623.47 0.1607 0.0286

Mercury -91259-11-23 19:25 J -31610599.77 -31610599.69 -31610599.61 0.1905 0.1542

Mercury -91254-07-26 21:35 J -31608893.73 -31608893.60 -31608893.47 0.1617 0.0218

Moon -91248-01-04 17:59 J -31606904.94 -31606904.75 -31606904.57 0.1687 0.0056

Earth -91248-01-05 00:27 J -31606904.66 -31606904.48 -31606904.29 0.1687 0.0163 *

Mercury -91247-03-22 15:35 J -31606462.94 -31606462.85 -31606462.76 0.1919 0.1456

Mercury -91245-12-16 06:27 J -31605463.36 -31605463.23 -31605463.10 0.1620 0.0252

Mercury -91238-08-12 17:30 J -31603032.90 -31603032.77 -31603032.64 0.1915 0.0520

Mercury -91235-05-08 15:20 J -31602032.98 -31602032.86 -31602032.74 0.1624 0.0721

Mercury -91233-04-13 04:32 J -31601327.40 -31601327.31 -31601327.23 0.1612 0.1244

Venus -91230-03-05 00:42 J -31600271.64 -31600271.47 -31600271.29 0.1925 0.0354

Venus -91229-02-02 10:18 J -31599937.18 -31599937.07 -31599936.95 0.1604 0.1195

Mercury -91228-01-01 18:56 J -31599602.85 -31599602.71 -31599602.58 0.1910 0.0456

Mercury -91226-09-29 00:27 J -31598602.57 -31598602.48 -31598602.39 0.1627 0.1184

Mercury -91224-09-03 13:11 J -31597897.07 -31597896.95 -31597896.84 0.1614 0.0765

Mercury -91219-05-24 19:54 J -31596172.77 -31596172.67 -31596172.58 0.1906 0.1444

Mercury -91214-01-24 21:49 J -31594466.72 -31594466.59 -31594466.46 0.1617 0.0287

Mercury -91208-09-20 16:03 J -31592035.91 -31592035.83 -31592035.75 0.1920 0.1562

Mercury -91205-06-16 06:27 J -31591036.36 -31591036.23 -31591036.09 0.1620 0.0196

Moon -91202-12-30 11:59 J -31589744.12 -31589744.00 -31589743.88 0.1706 0.1314

Earth -91202-12-30 16:47 J -31589743.88 -31589743.80 -31589743.71 0.1705 0.1511 *

Mercury -91198-02-10 17:44 J -31588605.89 -31588605.76 -31588605.63 0.1915 0.0606

Mercury -91196-11-06 15:35 J -31587605.97 -31587605.85 -31587605.73 0.1624 0.0656

Venus -91196-12-01 09:49 J -31587581.25 -31587581.09 -31587580.92 0.1608 0.0464

Mercury -91194-10-13 04:32 J -31586900.38 -31586900.31 -31586900.23 0.1612 0.1313

Mercury -91189-07-02 18:56 J -31585175.85 -31585175.71 -31585175.57 0.1911 0.0370

Mercury -91186-03-30 00:27 J -31584175.57 -31584175.48 -31584175.38 0.1627 0.1121

Mercury -91184-03-04 13:11 J -31583470.06 -31583469.95 -31583469.83 0.1614 0.0832

Mercury -91180-11-22 20:23 J -31581745.75 -31581745.65 -31581745.55 0.1906 0.1336

Mercury -91177-08-19 09:35 J -31580745.12 -31580745.10 -31580745.07 0.1630 0.1580

Earth -91176-07-04 00:27 J -31580426.62 -31580426.48 -31580426.34 0.1832 0.1359

Moon -91176-07-04 06:56 J -31580426.37 -31580426.21 -31580426.06 0.1832 0.1106 *

Mercury -91175-07-25 22:03 J -31580039.71 -31580039.58 -31580039.45 0.1617 0.0357

Moon -91169-01-07 23:15 J -31578047.70 -31578047.53 -31578047.36 0.1683 0.0795

Earth -91169-01-08 02:37 J -31578047.55 -31578047.39 -31578047.24 0.1683 0.0827 *

Mercury -91168-03-21 16:32 J -31577608.88 -31577608.81 -31577608.75 0.1919 0.1653

Mercury -91166-12-16 06:42 J -31576609.35 -31576609.22 -31576609.09 0.1620 0.0123

Venus -91165-12-30 01:11 J -31576229.62 -31576229.45 -31576229.27 0.1924 0.0395

Venus -91164-11-29 23:44 J -31575894.64 -31575894.51 -31575894.38 0.1605 0.1023

Mercury -91159-08-11 17:59 J -31574178.87 -31574178.75 -31574178.62 0.1916 0.0706

Mercury -91156-05-07 15:35 J -31573178.97 -31573178.85 -31573178.73 0.1623 0.0593

Mercury -91154-04-13 04:47 J -31572473.37 -31572473.30 -31572473.23 0.1611 0.1381

Mercury -91149-01-01 19:39 J -31570748.82 -31570748.68 -31570748.54 0.1911 0.0261

Mercury -91147-09-28 00:42 J -31569748.57 -31569748.47 -31569748.37 0.1627 0.1056

Mercury -91145-09-02 13:25 J -31569043.05 -31569042.94 -31569042.83 0.1614 0.0898

Mercury -91140-05-23 20:23 J -31567318.76 -31567318.65 -31567318.54 0.1906 0.1264

Mercury -91137-02-18 09:49 J -31566318.14 -31566318.09 -31566318.05 0.1630 0.1519

Mercury -91135-01-23 22:03 J -31565612.71 -31565612.58 -31565612.45 0.1617 0.0419

Venus -91130-09-28 22:47 J -31563538.71 -31563538.55 -31563538.39 0.1609 0.0646

Mercury -91129-09-19 16:32 J -31563181.86 -31563181.81 -31563181.75 0.1920 0.1737

Mercury -91126-06-16 06:56 J -31562182.34 -31562182.21 -31562182.08 0.1620 0.0054

Earth -91122-01-01 20:51 J -31560886.80 -31560886.63 -31560886.47 0.1701 0.0784

Moon -91122-01-01 23:01 J -31560886.70 -31560886.54 -31560886.38 0.1701 0.0948 *

Mercury -91119-02-09 18:27 J -31559751.85 -31559751.73 -31559751.60 0.1916 0.0809

Mercury -91117-11-05 15:49 J -31558751.96 -31558751.84 -31558751.71 0.1623 0.0523

Mercury -91115-10-12 05:01 J -31558046.34 -31558046.29 -31558046.23 0.1611 0.1454

Mercury -91110-07-02 19:54 J -31556321.82 -31556321.67 -31556321.53 0.1911 0.0183

Mercury -91107-03-29 00:42 J -31555321.57 -31555321.47 -31555321.36 0.1627 0.0995

Mercury -91105-03-03 13:39 J -31554616.04 -31554615.93 -31554615.83 0.1614 0.0969

Mercury -91101-11-21 21:06 J -31552891.74 -31552891.62 -31552891.51 0.1906 0.1153

Venus -91099-10-27 01:54 J -31552187.56 -31552187.42 -31552187.27 0.1922 0.1119

Mercury -91098-08-19 09:49 J -31551891.14 -31551891.09 -31551891.03 0.1630 0.1456

Venus -91098-09-27 12:27 J -31551852.13 -31551851.98 -31551851.83 0.1606 0.0839

Moon -91097-07-07 10:18 J -31551568.26 -31551568.07 -31551567.87 0.1839 0.0027

Earth -91097-07-07 16:18 J -31551568.03 -31551567.82 -31551567.61 0.1839 0.0196 *

Mercury -91096-07-24 22:18 J -31551185.70 -31551185.57 -31551185.45 0.1617 0.0488

Earth -91090-01-10 04:32 J -31549190.39 -31549190.31 -31549190.22 0.1679 0.1485

Moon -91090-01-10 09:06 J -31549190.19 -31549190.12 -31549190.04 0.1678 0.1520

Mercury -91089-03-20 17:01 J -31548754.82 -31548754.79 -31548754.75 0.1920 0.1839

Mercury -91087-12-15 07:11 J -31547755.34 -31547755.20 -31547755.07 0.1620 0.0056

Mercury -91080-08-10 18:42 J -31545324.84 -31545324.72 -31545324.60 0.1916 0.0887

Mercury -91077-05-06 15:49 J -31544324.96 -31544324.84 -31544324.71 0.1623 0.0465

Mercury -91075-04-12 05:15 J -31543619.33 -31543619.28 -31543619.24 0.1611 0.1520

Mercury -91071-12-31 20:08 J -31541894.80 -31541894.66 -31541894.52 0.1912 0.0079

Mercury -91068-09-27 00:56 J -31540894.57 -31540894.46 -31540894.35 0.1626 0.0927

Mercury -91066-09-02 13:39 J -31540189.03 -31540188.93 -31540188.82 0.1614 0.1037

Venus -91064-07-26 11:59 J -31539496.14 -31539496.00 -31539495.85 0.1610 0.0829

Mercury -91061-05-22 21:20 J -31538464.72 -31538464.61 -31538464.49 0.1907 0.1056

Mercury -91058-02-17 10:03 J -31537464.14 -31537464.08 -31537464.01 0.1630 0.1390

Mercury -91056-01-22 22:32 J -31536758.69 -31536758.56 -31536758.44 0.1617 0.0559

Mercury -91047-06-15 07:11 J -31533328.33 -31533328.20 -31533328.07 0.1620 0.0081

Earth -91043-01-03 23:30 J -31532029.70 -31532029.52 -31532029.33 0.1697 0.0093

Moon -91043-01-04 05:59 J -31532029.43 -31532029.25 -31532029.07 0.1696 0.0069 *

Mercury -91040-02-08 19:11 J -31530897.82 -31530897.70 -31530897.58 0.1916 0.0987

Mercury -91038-11-05 16:03 J -31529897.96 -31529897.83 -31529897.70 0.1623 0.0395

Mercury -91036-10-11 05:15 J -31529192.29 -31529192.28 -31529192.26 0.1611 0.1591

Venus -91033-08-23 02:37 J -31528145.43 -31528145.39 -31528145.35 0.1920 0.1863

Venus -91032-07-25 01:54 J -31527809.57 -31527809.42 -31527809.26 0.1607 0.0669

Mercury -91031-07-01 20:37 J -31527467.78 -31527467.64 -31527467.50 0.1912 0.0049

Mercury -91028-03-28 01:11 J -31526467.56 -31526467.45 -31526467.34 0.1626 0.0865

Mercury -91026-03-03 13:54 J -31525762.02 -31525761.92 -31525761.82 0.1614 0.1105

Mercury -91022-11-21 21:35 J -31524037.72 -31524037.60 -31524037.48 0.1907 0.0969

Mercury -91019-08-18 10:03 J -31523037.15 -31523037.08 -31523037.00 0.1630 0.1329

Moon -91018-07-11 22:03 J -31522709.62 -31522709.58 -31522709.54 0.1846 0.1815

Earth -91018-07-12 05:59 J -31522709.31 -31522709.25 -31522709.19 0.1847 0.1755

Mercury -91017-07-23 22:32 J -31522331.68 -31522331.56 -31522331.43 0.1616 0.0624

Mercury -91008-12-14 07:25 J -31518901.32 -31518901.19 -31518901.06 0.1620 0.0148

Mercury -91001-08-09 19:25 J -31516470.80 -31516470.69 -31516470.57 0.1917 0.1088

Venus -91001-08-23 10:03 J -31516457.11 -31516457.08 -31516457.06 0.1927 0.1898

91ST MILLENNIUM BCE

This is a list of transits visible from Mars in the 91st millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -90998-05-06 16:18 J | -31515470.95 | -31515470.82 | -31515470.69 | 0.1623 | 0.0327 | | |
| Venus | -90998-05-24 01:11 J | -31515453.58 | -31515453.45 | -31515453.32 | 0.1612 | 0.1009 | | |
| Mercury | -90992-12-30 21:06 J | -31513040.77 | -31513040.62 | -31513040.48 | 0.1912 | 0.0134 | | |
| Mercury | -90989-09-26 01:11 J | -31512040.56 | -31512040.45 | -31512040.33 | 0.1626 | 0.0798 | | |
| Mercury | -90987-09-01 14:08 J | -31511335.00 | -31511334.91 | -31511334.82 | 0.1613 | 0.1177 | | |
| Mercury | -90982-05-22 22:03 J | -31509610.71 | -31509610.58 | -31509610.45 | 0.1907 | 0.0869 | | |
| Mercury | -90979-02-16 10:18 J | -31508610.15 | -31508610.07 | -31508609.99 | 0.1630 | 0.1265 | | |
| Mercury | -90977-01-22 22:47 J | -31507904.67 | -31507904.55 | -31507904.43 | 0.1616 | 0.0692 | | |
| Mercury | -90973-10-11 22:47 J | -31506180.57 | -31506180.55 | -31506180.52 | 0.1901 | 0.1871 | | |
| Mercury | -90968-06-14 07:25 J | -31504474.32 | -31504474.19 | -31504474.05 | 0.1619 | 0.0217 | | |
| Venus | -90966-05-22 14:51 J | -31503767.05 | -31503766.88 | -31503766.72 | 0.1608 | 0.0486 | | |
| Earth | -90964-01-06 03:20 J | -31503172.53 | -31503172.36 | -31503172.19 | 0.1692 | 0.0608 | | |
| Moon | -90964-01-06 05:30 J | -31503172.43 | -31503172.27 | -31503172.11 | 0.1692 | 0.0568 | * | |
| Mercury | -90961-02-08 19:39 J | -31502043.79 | -31502043.68 | -31502043.57 | 0.1916 | 0.1173 | | |
| Mercury | -90959-11-04 16:18 J | -31501043.95 | -31501043.82 | -31501043.68 | 0.1623 | 0.0267 | | |
| Mercury | -90952-06-30 21:06 J | -31498613.76 | -31498613.62 | -31498613.48 | 0.1912 | 0.0207 | | |
| Mercury | -90949-03-27 01:25 J | -31497613.56 | -31497613.44 | -31497613.32 | 0.1626 | 0.0732 | | |
| Mercury | -90947-03-02 14:23 J | -31496907.99 | -31496907.90 | -31496907.82 | 0.1614 | 0.1246 | | |
| Mercury | -90943-11-20 22:32 J | -31495183.69 | -31495183.56 | -31495183.43 | 0.1907 | 0.0764 | | |

Mercury -90940-08-17 10:32 J -31494183.15 -31494183.06 -31494182.98 0.1629 0.1200

Mercury -90938-07-23 23:01 J -31493477.66 -31493477.54 -31493477.43 0.1616 0.0763

Venus -90935-06-20 10:18 J -31492415.21 -31492415.07 -31492414.93 0.1925 0.1142

Mercury -90933-04-11 23:15 J -31491753.58 -31491753.53 -31491753.48 0.1902 0.1777

Venus -90932-03-20 14:08 J -31491411.02 -31491410.91 -31491410.80 0.1613 0.1199

Mercury -90929-12-13 07:39 J -31490047.31 -31490047.18 -31490047.05 0.1619 0.0284

Mercury -90922-08-09 20:08 J -31487616.76 -31487616.66 -31487616.56 0.1917 0.1270

Mercury -90919-05-05 16:32 J -31486616.94 -31486616.81 -31486616.68 0.1622 0.0197

Moon -90918-12-31 16:32 J -31486011.96 -31486011.81 -31486011.67 0.1711 0.0903

Earth -90918-12-31 17:59 J -31486011.89 -31486011.75 -31486011.61 0.1711 0.1071 *

Mercury -90913-12-29 21:35 J -31484186.73 -31484186.60 -31484186.46 0.1912 0.0315

Mercury -90910-09-26 01:25 J -31483186.56 -31483186.44 -31483186.32 0.1626 0.0669

Mercury -90908-08-31 14:23 J -31482480.97 -31482480.90 -31482480.82 0.1613 0.1313

Mercury -90903-05-21 22:32 J -31480756.69 -31480756.56 -31480756.42 0.1907 0.0689

Mercury -90900-02-15 10:32 J -31479756.15 -31479756.06 -31479755.97 0.1630 0.1136

Venus -90900-03-19 04:03 J -31479724.50 -31479724.33 -31479724.16 0.1609 0.0310

Mercury -90898-01-21 23:01 J -31479050.65 -31479050.54 -31479050.42 0.1616 0.0832

Mercury -90894-10-11 23:44 J -31477326.57 -31477326.51 -31477326.44 0.1902 0.1670

Moon -90892-07-03 07:25 J -31476696.36 -31476696.19 -31476696.01 0.1822 0.1219

Earth -90892-07-03 07:39 J -31476696.33 -31476696.18 -31476696.02 0.1822 0.1212 *

Mercury -90891-07-08 19:39 J -31476325.70 -31476325.68 -31476325.65 0.1633 0.1598

Mercury -90889-06-13 07:54 J -31475620.30 -31475620.17 -31475620.04 0.1619 0.0351

Moon -90885-01-09 01:25 J -31474315.55 -31474315.44 -31474315.33 0.1688 0.1291

Earth -90885-01-09 06:13 J -31474315.35 -31474315.24 -31474315.12 0.1688 0.1287 *

Mercury -90882-02-07 20:37 J -31473189.74 -31473189.64 -31473189.55 0.1917 0.1373

Mercury -90880-11-03 16:47 J -31472189.93 -31472189.80 -31472189.67 0.1622 0.0126

Mercury -90873-06-29 21:49 J -31469759.72 -31469759.59 -31469759.45 0.1912 0.0400

Mercury -90870-03-27 01:39 J -31468759.55 -31468759.43 -31468759.31 0.1626 0.0604

Venus -90869-04-16 10:47 J -31468373.22 -31468373.05 -31468372.87 0.1923 0.0403

Mercury -90868-03-01 14:37 J -31468053.95 -31468053.89 -31468053.82 0.1613 0.1386

Venus -90866-01-16 03:35 J -31467368.44 -31467368.35 -31467368.26 0.1614 0.1374
 Mercury -90864-11-19 23:15 J -31466329.66 -31466329.53 -31466329.39 0.1908 0.0573
 Mercury -90861-08-16 10:47 J -31465329.15 -31465329.05 -31465328.96 0.1629 0.1071
 Mercury -90859-07-22 23:15 J -31464623.64 -31464623.53 -31464623.42 0.1616 0.0899
 Mercury -90854-04-11 23:59 J -31462899.58 -31462899.50 -31462899.42 0.1902 0.1582
 Mercury -90851-01-06 19:54 J -31461898.71 -31461898.67 -31461898.63 0.1633 0.1536
 Mercury -90850-12-13 08:08 J -31461193.29 -31461193.16 -31461193.04 0.1619 0.0420
 Mercury -90843-08-08 20:37 J -31458762.73 -31458762.64 -31458762.55 0.1917 0.1452
 Mercury -90840-05-04 16:47 J -31457762.93 -31457762.80 -31457762.67 0.1622 0.0065
 Moon -90838-01-02 16:03 J -31457155.00 -31457154.83 -31457154.65 0.1707 0.0523
 Earth -90838-01-02 22:18 J -31457154.74 -31457154.57 -31457154.39 0.1707 0.0342 *
 Venus -90834-01-14 17:15 J -31455681.95 -31455681.78 -31455681.61 0.1610 0.0134
 Mercury -90834-12-29 22:18 J -31455332.70 -31455332.57 -31455332.43 0.1913 0.0500
 Mercury -90831-09-25 01:54 J -31454332.55 -31454332.42 -31454332.30 0.1626 0.0533
 Mercury -90829-08-30 14:51 J -31453626.94 -31453626.88 -31453626.82 0.1613 0.1456
 Mercury -90824-05-20 23:44 J -31451902.65 -31451902.51 -31451902.38 0.1908 0.0479
 Mercury -90821-02-15 10:47 J -31450902.15 -31450902.05 -31450901.94 0.1629 0.1006
 Mercury -90819-01-20 23:30 J -31450196.63 -31450196.52 -31450196.41 0.1616 0.0972
 Mercury -90815-10-11 00:27 J -31448472.57 -31448472.48 -31448472.39 0.1902 0.1480
 Earth -90813-07-06 20:51 J -31447837.84 -31447837.63 -31447837.43 0.1830 0.0268
 Moon -90813-07-07 06:13 J -31447837.44 -31447837.24 -31447837.03 0.1830 0.0288 *
 Mercury -90812-07-07 19:54 J -31447471.72 -31447471.67 -31447471.62 0.1633 0.1474
 Mercury -90810-06-13 08:08 J -31446766.29 -31446766.16 -31446766.03 0.1619 0.0485
 Mercury -90803-02-06 21:06 J -31444335.70 -31444335.62 -31444335.54 0.1917 0.1557
 Venus -90803-02-11 11:59 J -31444331.18 -31444331.00 -31444330.83 0.1921 0.0325
 Mercury -90801-11-02 17:01 J -31443335.92 -31443335.79 -31443335.66 0.1622 0.0007
 Venus -90801-11-12 16:32 J -31443325.85 -31443325.81 -31443325.77 0.1615 0.1566
 Mercury -90794-06-29 22:47 J -31440905.69 -31440905.55 -31440905.42 0.1913 0.0597
 Mercury -90791-03-26 01:54 J -31439905.54 -31439905.42 -31439905.29 0.1626 0.0470
 Mercury -90789-02-29 15:06 J -31439199.91 -31439199.87 -31439199.83 0.1613 0.1526

Mercury -90785-11-18 23:59 J -31437475.64 -31437475.50 -31437475.37 0.1908 0.0394
 Mercury -90782-08-16 11:01 J -31436475.15 -31436475.04 -31436474.93 0.1629 0.0940
 Mercury -90780-07-21 23:30 J -31435769.62 -31435769.52 -31435769.41 0.1616 0.1040
 Mercury -90775-04-11 00:56 J -31434045.56 -31434045.46 -31434045.36 0.1903 0.1382
 Mercury -90772-01-05 20:08 J -31433044.72 -31433044.66 -31433044.60 0.1633 0.1407
 Mercury -90771-12-12 08:23 J -31432339.27 -31432339.15 -31432339.02 0.1619 0.0556
 Venus -90769-11-11 06:27 J -31431639.40 -31431639.23 -31431639.06 0.1611 0.0047
 Mercury -90764-08-07 21:35 J -31429908.67 -31429908.60 -31429908.53 0.1918 0.1658
 Mercury -90761-05-03 17:15 J -31428908.91 -31428908.78 -31428908.65 0.1622 0.0080
 Moon -90759-01-05 00:13 J -31428297.67 -31428297.49 -31428297.30 0.1702 0.0472
 Earth -90759-01-05 02:23 J -31428297.58 -31428297.40 -31428297.22 0.1702 0.0374 *
 Mercury -90755-12-28 23:01 J -31426478.67 -31426478.54 -31426478.41 0.1913 0.0694
 Mercury -90752-09-24 02:08 J -31425478.54 -31425478.41 -31425478.28 0.1625 0.0402
 Mercury -90750-08-30 15:20 J -31424772.88 -31424772.86 -31424772.85 0.1613 0.1598
 Mercury -90745-05-20 00:13 J -31423048.63 -31423048.49 -31423048.35 0.1908 0.0293
 Mercury -90742-02-14 11:01 J -31422048.15 -31422048.04 -31422047.93 0.1629 0.0877
 Mercury -90740-01-19 23:44 J -31421342.60 -31421342.51 -31421342.41 0.1616 0.1108
 Venus -90738-12-09 12:27 J -31420289.13 -31420288.98 -31420288.84 0.1919 0.1073
 Venus -90737-11-09 20:23 J -31419952.72 -31419952.65 -31419952.58 0.1607 0.1462
 Mercury -90736-10-10 01:11 J -31419618.55 -31419618.45 -31419618.34 0.1903 0.1287
 Earth -90734-07-11 09:35 J -31418979.14 -31418979.10 -31418979.05 0.1837 0.1779
 Moon -90734-07-11 09:49 J -31418979.10 -31418979.09 -31418979.08 0.1837 0.1833 *
 Mercury -90733-07-06 20:08 J -31418617.73 -31418617.66 -31418617.58 0.1633 0.1345
 Mercury -90731-06-12 08:37 J -31417912.27 -31417912.14 -31417912.02 0.1619 0.0625
 Mercury -90724-02-05 21:49 J -31415481.65 -31415481.59 -31415481.54 0.1918 0.1743
 Mercury -90722-11-02 17:15 J -31414481.91 -31414481.78 -31414481.64 0.1622 0.0152
 Mercury -90715-06-28 23:15 J -31412051.66 -31412051.53 -31412051.40 0.1913 0.0784
 Earth -90713-12-29 13:11 J -31411137.06 -31411136.95 -31411136.84 0.1723 0.1369
 Moon -90713-12-29 15:06 J -31411136.95 -31411136.87 -31411136.78 0.1723 0.1547 *
 Mercury -90712-03-25 02:23 J -31411051.53 -31411051.40 -31411051.28 0.1625 0.0338

Mercury -90706-11-19 00:56 J -31408621.60 -31408621.46 -31408621.32 0.1908 0.0186

Mercury -90703-08-15 11:15 J -31407621.14 -31407621.03 -31407620.92 0.1629 0.0808

Venus -90703-09-08 19:39 J -31407596.85 -31407596.68 -31407596.51 0.1612 0.0233

Mercury -90701-07-20 23:59 J -31406915.59 -31406915.50 -31406915.41 0.1615 0.1183

Mercury -90696-04-10 01:39 J -31405191.54 -31405191.43 -31405191.32 0.1903 0.1188

Mercury -90693-01-05 20:23 J -31404190.73 -31404190.65 -31404190.57 0.1633 0.1279

Mercury -90692-12-11 08:37 J -31403485.26 -31403485.14 -31403485.02 0.1618 0.0697

Mercury -90685-08-06 22:03 J -31401054.61 -31401054.58 -31401054.54 0.1918 0.1842

Mercury -90682-05-03 17:30 J -31400054.90 -31400054.77 -31400054.64 0.1622 0.0210

Earth -90680-01-07 05:44 J -31399440.40 -31399440.26 -31399440.12 0.1697 0.1062

Moon -90680-01-07 11:01 J -31399440.20 -31399440.04 -31399439.89 0.1697 0.1024 *

Mercury -90676-12-27 23:44 J -31397624.63 -31397624.51 -31397624.38 0.1913 0.0889

Mercury -90673-09-23 02:23 J -31396624.53 -31396624.40 -31396624.27 0.1625 0.0268

Venus -90672-10-05 13:25 J -31396247.00 -31396246.94 -31396246.88 0.1917 0.1790

Venus -90671-09-07 09:20 J -31395910.21 -31395910.11 -31395910.01 0.1608 0.1279

Mercury -90666-05-20 00:56 J -31394194.60 -31394194.46 -31394194.32 0.1909 0.0101

Mercury -90663-02-13 11:30 J -31393194.14 -31393194.02 -31393193.91 0.1629 0.0741

Mercury -90661-01-20 00:13 J -31392488.57 -31392488.49 -31392488.41 0.1615 0.1251

Mercury -90657-10-09 02:08 J -31390764.52 -31390764.41 -31390764.29 0.1904 0.1081

Mercury -90654-07-06 20:37 J -31389763.73 -31389763.64 -31389763.56 0.1632 0.1212

Mercury -90652-06-11 08:51 J -31389058.25 -31389058.13 -31389058.01 0.1618 0.0765

Mercury -90643-11-01 17:44 J -31385627.89 -31385627.76 -31385627.63 0.1621 0.0282

Venus -90637-07-06 08:37 J -31383554.30 -31383554.14 -31383553.97 0.1613 0.0416

Mercury -90636-06-27 23:59 J -31383197.62 -31383197.50 -31383197.38 0.1914 0.0979

Earth -90633-01-01 18:42 J -31382279.89 -31382279.72 -31382279.55 0.1717 0.0630

Moon -90633-01-02 01:11 J -31382279.62 -31382279.45 -31382279.27 0.1717 0.0384 *

Mercury -90633-03-24 02:37 J -31382197.52 -31382197.39 -31382197.26 0.1625 0.0202

Mercury -90627-11-18 01:39 J -31379767.57 -31379767.43 -31379767.29 0.1909 0.0032

Mercury -90624-08-14 11:30 J -31378767.14 -31378767.02 -31378766.90 0.1628 0.0677

Mercury -90622-07-21 00:27 J -31378061.56 -31378061.48 -31378061.41 0.1615 0.1321

Mercury -90617-04-09 02:23 J -31376337.52 -31376337.40 -31376337.28 0.1903 0.0996

Mercury -90614-01-04 20:37 J -31375336.73 -31375336.64 -31375336.55 0.1632 0.1148

Mercury -90613-12-10 09:06 J -31374631.24 -31374631.12 -31374631.01 0.1618 0.0833

Moon -90608-07-02 10:18 J -31372966.21 -31372966.07 -31372965.93 0.1812 0.1222

Earth -90608-07-02 17:59 J -31372965.92 -31372965.75 -31372965.58 0.1813 0.1028

Mercury -90605-05-27 05:44 J -31371906.27 -31371906.26 -31371906.24 0.1636 0.1617

Venus -90605-07-04 22:47 J -31371867.67 -31371867.55 -31371867.43 0.1609 0.1107

Mercury -90603-05-02 17:44 J -31371200.89 -31371200.76 -31371200.63 0.1621 0.0352

Mercury -90597-12-27 00:27 J -31368770.59 -31368770.48 -31368770.36 0.1914 0.1086

Mercury -90594-09-23 02:51 J -31367770.51 -31367770.38 -31367770.25 0.1625 0.0132

Mercury -90587-05-19 01:54 J -31365340.56 -31365340.42 -31365340.28 0.1909 0.0108

Mercury -90584-02-12 11:44 J -31364340.13 -31364340.01 -31364339.89 0.1628 0.0608

Mercury -90582-01-19 00:42 J -31363634.54 -31363634.47 -31363634.41 0.1615 0.1395

Mercury -90578-10-09 02:51 J -31361910.50 -31361910.38 -31361910.25 0.1904 0.0890

Mercury -90575-07-05 20:51 J -31360909.73 -31360909.63 -31360909.54 0.1632 0.1084

Venus -90574-08-02 21:06 J -31360516.75 -31360516.62 -31360516.48 0.1923 0.1239

Mercury -90573-06-10 09:06 J -31360204.22 -31360204.12 -31360204.00 0.1618 0.0905

Venus -90571-05-03 21:49 J -31359511.75 -31359511.59 -31359511.43 0.1614 0.0598

Mercury -90566-11-26 05:59 J -31357479.29 -31357479.25 -31357479.21 0.1636 0.1551

Mercury -90564-10-31 17:59 J -31356773.88 -31356773.75 -31356773.62 0.1621 0.0419

Mercury -90557-06-27 00:42 J -31354343.58 -31354343.47 -31354343.36 0.1914 0.1177

Earth -90554-01-03 23:59 J -31353422.68 -31353422.50 -31353422.32 0.1713 0.0114

Moon -90554-01-04 02:23 J -31353422.57 -31353422.40 -31353422.23 0.1712 0.0021 *

Mercury -90554-03-24 02:51 J -31353343.51 -31353343.38 -31353343.25 0.1625 0.0067

Mercury -90548-11-17 02:08 J -31350913.55 -31350913.41 -31350913.27 0.1909 0.0200

Mercury -90545-08-13 11:59 J -31349913.13 -31349913.00 -31349912.88 0.1628 0.0543

Mercury -90543-07-20 00:42 J -31349207.52 -31349207.47 -31349207.41 0.1615 0.1464

Venus -90539-05-02 11:44 J -31347825.15 -31347825.01 -31347824.87 0.1610 0.0923

Mercury -90538-04-09 03:20 J -31347483.49 -31347483.36 -31347483.23 0.1904 0.0786

Mercury -90535-01-03 21:06 J -31346482.72 -31346482.62 -31346482.52 0.1632 0.1014

Mercury -90534-12-10 09:35 J -31345777.21 -31345777.10 -31345777.00 0.1618 0.0978
 Moon -90529-07-05 22:18 J -31344107.78 -31344107.57 -31344107.36 0.1820 0.0508
 Earth -90529-07-06 05:30 J -31344107.47 -31344107.27 -31344107.06 0.1820 0.0404 *
 Mercury -90529-08-29 04:03 J -31344053.37 -31344053.33 -31344053.28 0.1898 0.1799
 Mercury -90526-05-27 05:59 J -31343052.30 -31343052.25 -31343052.19 0.1636 0.1488
 Mercury -90524-05-01 18:13 J -31342346.87 -31342346.74 -31342346.61 0.1621 0.0489
 Mercury -90518-12-27 01:11 J -31339916.55 -31339916.45 -31339916.34 0.1914 0.1277
 Mercury -90515-09-22 03:06 J -31338916.50 -31338916.37 -31338916.24 0.1624 0.0026
 Mercury -90508-05-18 02:37 J -31336486.53 -31336486.39 -31336486.25 0.1909 0.0305
 Venus -90508-05-29 22:03 J -31336474.75 -31336474.58 -31336474.41 0.1920 0.0498
 Moon -90508-12-28 05:01 J -31336262.37 -31336262.29 -31336262.21 0.1734 0.1520
 Earth -90508-12-28 06:56 J -31336262.23 -31336262.21 -31336262.18 0.1734 0.1717 *
 Mercury -90505-02-12 11:59 J -31335486.12 -31335486.00 -31335485.87 0.1628 0.0475
 Venus -90505-02-29 11:01 J -31335469.19 -31335469.04 -31335468.89 0.1616 0.0786
 Mercury -90503-01-18 00:56 J -31334780.50 -31334780.46 -31334780.42 0.1615 0.1536
 Mercury -90499-10-08 03:49 J -31333056.48 -31333056.34 -31333056.21 0.1904 0.0692
 Mercury -90496-07-04 21:06 J -31332055.72 -31332055.62 -31332055.51 0.1632 0.0948
 Mercury -90494-06-10 09:35 J -31331350.20 -31331350.10 -31331350.00 0.1618 0.1046
 Mercury -90489-02-28 04:18 J -31329626.38 -31329626.32 -31329626.25 0.1899 0.1707
 Mercury -90487-11-25 06:13 J -31328625.30 -31328625.24 -31328625.17 0.1636 0.1420
 Mercury -90485-10-30 18:27 J -31327919.86 -31327919.73 -31327919.61 0.1621 0.0560
 Mercury -90478-06-27 01:25 J -31325489.53 -31325489.44 -31325489.34 0.1915 0.1373
 Moon -90475-01-06 00:42 J -31324565.62 -31324565.47 -31324565.32 0.1708 0.0876
 Earth -90475-01-06 05:01 J -31324565.45 -31324565.29 -31324565.13 0.1708 0.0836 *
 Mercury -90475-03-23 03:20 J -31324489.49 -31324489.36 -31324489.23 0.1624 0.0083
 Venus -90473-02-28 01:11 J -31323782.61 -31323782.45 -31323782.30 0.1611 0.0750
 Mercury -90469-11-16 03:06 J -31322059.50 -31322059.37 -31322059.23 0.1909 0.0414
 Mercury -90466-08-13 12:13 J -31321059.12 -31321058.99 -31321058.86 0.1628 0.0404
 Mercury -90464-07-19 01:11 J -31320353.45 -31320353.45 -31320353.44 0.1614 0.1611
 Mercury -90459-04-08 04:03 J -31318629.46 -31318629.33 -31318629.19 0.1904 0.0593

Mercury -90456-01-02 21:20 J -31317628.72 -31317628.61 -31317628.51 0.1632 0.0884

Mercury -90455-12-09 09:49 J -31316923.19 -31316923.09 -31316922.99 0.1618 0.1117

Moon -90450-07-10 23:44 J -31315248.56 -31315248.51 -31315248.46 0.1828 0.1776

Mercury -90450-08-29 05:01 J -31315199.37 -31315199.29 -31315199.22 0.1899 0.1598

Mercury -90447-05-26 06:27 J -31314198.30 -31314198.23 -31314198.16 0.1636 0.1358

Mercury -90445-04-30 18:27 J -31313492.85 -31313492.73 -31313492.61 0.1621 0.0627

Venus -90442-03-26 22:47 J -31312432.73 -31312432.55 -31312432.37 0.1918 0.0240

Venus -90440-12-27 00:27 J -31311426.62 -31311426.48 -31311426.35 0.1617 0.0963

Mercury -90439-12-26 01:54 J -31311062.50 -31311062.42 -31311062.33 0.1914 0.1476

Mercury -90436-09-21 03:20 J -31310062.49 -31310062.36 -31310062.22 0.1624 0.0154

Mercury -90429-05-17 03:20 J -31307632.50 -31307632.36 -31307632.23 0.1910 0.0494

Moon -90429-12-30 07:11 J -31307405.33 -31307405.20 -31307405.06 0.1729 0.1177

Earth -90429-12-30 14:08 J -31307405.06 -31307404.91 -31307404.75 0.1729 0.0920 *

Mercury -90426-02-11 12:27 J -31306632.11 -31306631.98 -31306631.85 0.1628 0.0337

Mercury -90420-10-07 04:47 J -31304202.44 -31304202.30 -31304202.16 0.1905 0.0482

Mercury -90417-07-03 21:20 J -31303201.72 -31303201.61 -31303201.49 0.1631 0.0815

Mercury -90415-06-09 10:03 J -31302496.17 -31302496.08 -31302495.99 0.1618 0.1189

Mercury -90410-02-27 05:15 J -31300772.36 -31300772.28 -31300772.19 0.1899 0.1502

Mercury -90408-11-24 06:27 J -31299771.30 -31299771.23 -31299771.15 0.1636 0.1290

Venus -90408-12-25 14:23 J -31299740.06 -31299739.90 -31299739.74 0.1612 0.0571

Mercury -90406-10-30 18:42 J -31299065.84 -31299065.72 -31299065.60 0.1621 0.0703

Mercury -90399-06-26 02:08 J -31296635.48 -31296635.41 -31296635.33 0.1915 0.1569

Moon -90396-01-08 03:20 J -31295708.44 -31295708.36 -31295708.28 0.1703 0.1515

Earth -90396-01-08 09:06 J -31295708.19 -31295708.12 -31295708.04 0.1703 0.1533

Mercury -90396-03-22 03:35 J -31295635.48 -31295635.35 -31295635.22 0.1624 0.0213

Mercury -90390-11-16 03:49 J -31293205.47 -31293205.34 -31293205.20 0.1910 0.0611

Mercury -90387-08-12 12:27 J -31292205.11 -31292204.98 -31292204.85 0.1628 0.0271

Mercury -90380-04-07 04:47 J -31289775.44 -31289775.30 -31289775.16 0.1905 0.0400

Mercury -90377-01-02 21:35 J -31288774.72 -31288774.60 -31288774.49 0.1631 0.0747

Venus -90376-01-21 00:13 J -31288390.65 -31288390.49 -31288390.34 0.1916 0.0962

Mercury -90376-12-08 10:18 J -31288069.16 -31288069.07 -31288068.99 0.1617 0.1261
 Venus -90374-10-24 13:11 J -31287384.07 -31287383.95 -31287383.83 0.1619 0.1157
 Mercury -90371-08-28 05:44 J -31286345.35 -31286345.26 -31286345.16 0.1899 0.1401
 Mercury -90368-05-25 06:42 J -31285344.30 -31285344.22 -31285344.13 0.1635 0.1221
 Mercury -90366-04-30 18:56 J -31284638.83 -31284638.71 -31284638.59 0.1621 0.0771
 Mercury -90360-12-25 02:51 J -31282208.45 -31282208.38 -31282208.32 0.1915 0.1676
 Mercury -90357-09-20 03:49 J -31281208.47 -31281208.34 -31281208.21 0.1624 0.0286
 Mercury -90350-05-17 04:18 J -31278778.45 -31278778.32 -31278778.19 0.1910 0.0702
 Moon -90349-01-02 16:03 J -31278548.02 -31278547.83 -31278547.63 0.1724 0.0062
 Earth -90349-01-02 19:39 J -31278547.87 -31278547.68 -31278547.50 0.1724 0.0181 *
 Mercury -90347-02-10 12:42 J -31277778.10 -31277777.97 -31277777.84 0.1627 0.0200
 Venus -90342-10-23 03:20 J -31275697.52 -31275697.36 -31275697.19 0.1614 0.0390
 Mercury -90341-10-06 05:30 J -31275348.41 -31275348.27 -31275348.13 0.1905 0.0286
 Mercury -90338-07-03 21:49 J -31274347.71 -31274347.59 -31274347.48 0.1631 0.0681
 Mercury -90336-06-08 10:18 J -31273642.14 -31273642.07 -31273641.99 0.1617 0.1332
 Mercury -90331-02-26 06:13 J -31271918.34 -31271918.24 -31271918.13 0.1899 0.1296
 Mercury -90329-11-23 06:56 J -31270917.30 -31270917.21 -31270917.12 0.1635 0.1157
 Mercury -90327-10-29 19:11 J -31270211.82 -31270211.70 -31270211.59 0.1620 0.0842
 Earth -90324-07-02 07:54 J -31269235.36 -31269235.17 -31269234.99 0.1804 0.0790
 Moon -90324-07-02 17:15 J -31269234.95 -31269234.78 -31269234.61 0.1805 0.0973
 Mercury -90320-06-25 02:51 J -31267781.43 -31267781.38 -31267781.32 0.1915 0.1764
 Mercury -90319-04-15 16:03 J -31267486.84 -31267486.83 -31267486.82 0.1640 0.1631
 Mercury -90317-03-21 03:49 J -31266781.47 -31266781.34 -31266781.21 0.1624 0.0356
 Mercury -90311-11-15 04:32 J -31264351.44 -31264351.31 -31264351.18 0.1911 0.0797
 Venus -90311-11-18 00:42 J -31264348.55 -31264348.47 -31264348.39 0.1913 0.1705
 Mercury -90308-08-11 12:56 J -31263351.09 -31263350.96 -31263350.83 0.1627 0.0132
 Venus -90308-08-21 02:23 J -31263341.49 -31263341.40 -31263341.30 0.1620 0.1344
 Mercury -90301-04-06 05:59 J -31260921.39 -31260921.25 -31260921.11 0.1905 0.0182
 Mercury -90298-01-01 21:49 J -31259920.71 -31259920.59 -31259920.46 0.1631 0.0611
 Mercury -90297-12-07 10:32 J -31259215.12 -31259215.06 -31259214.99 0.1617 0.1408

Mercury -90292-08-27 06:42 J -31257491.33 -31257491.22 -31257491.11 0.1900 0.1197

Mercury -90289-05-24 06:56 J -31256490.30 -31256490.21 -31256490.11 0.1635 0.1091

Mercury -90287-04-29 19:11 J -31255784.80 -31255784.70 -31255784.59 0.1620 0.0914

Mercury -90281-12-24 03:20 J -31253354.38 -31253354.36 -31253354.33 0.1915 0.1869

Mercury -90280-10-14 16:03 J -31253059.86 -31253059.83 -31253059.79 0.1639 0.1565

Mercury -90278-09-20 04:03 J -31252354.46 -31252354.33 -31252354.20 0.1624 0.0424

Venus -90276-08-19 16:47 J -31251654.97 -31251654.80 -31251654.63 0.1615 0.0208

Mercury -90271-05-16 05:01 J -31249924.41 -31249924.29 -31249924.17 0.1911 0.0904

Earth -90270-01-05 01:39 J -31249690.61 -31249690.43 -31249690.26 0.1719 0.0570

Moon -90270-01-05 06:27 J -31249690.42 -31249690.23 -31249690.05 0.1718 0.0471 *

Mercury -90268-02-09 12:56 J -31248924.09 -31248923.96 -31248923.82 0.1627 0.0076

Mercury -90262-10-06 06:13 J -31246494.38 -31246494.24 -31246494.10 0.1905 0.0093

Mercury -90259-07-02 22:03 J -31245493.70 -31245493.58 -31245493.46 0.1631 0.0543

Mercury -90257-06-07 10:47 J -31244788.10 -31244788.05 -31244788.00 0.1617 0.1476

Mercury -90252-02-25 06:56 J -31243064.32 -31243064.21 -31243064.09 0.1900 0.1100

Mercury -90250-11-23 07:11 J -31242063.30 -31242063.20 -31242063.10 0.1635 0.1021

Mercury -90248-10-28 19:25 J -31241357.79 -31241357.69 -31241357.58 0.1620 0.0986

Moon -90245-07-05 16:32 J -31240376.98 -31240376.81 -31240376.64 0.1811 0.0802

Earth -90245-07-05 17:30 J -31240376.97 -31240376.77 -31240376.58 0.1811 0.0573 *

Venus -90242-06-18 15:35 J -31239298.90 -31239298.85 -31239298.80 0.1622 0.1538

Mercury -90240-04-14 16:18 J -31238632.87 -31238632.82 -31238632.77 0.1639 0.1497

Mercury -90238-03-21 04:18 J -31237927.44 -31237927.32 -31237927.19 0.1623 0.0498

Mercury -90232-11-14 05:30 J -31235497.39 -31235497.27 -31235497.15 0.1911 0.1007

Mercury -90229-08-10 13:11 J -31234497.08 -31234496.95 -31234496.82 0.1627 0.0014

Earth -90224-12-29 05:59 J -31232530.37 -31232530.25 -31232530.12 0.1741 0.1286

Moon -90224-12-29 12:42 J -31232530.12 -31232529.97 -31232529.82 0.1740 0.1021 *

Mercury -90222-04-06 06:42 J -31232067.37 -31232067.22 -31232067.08 0.1906 0.0046

Mercury -90220-12-31 22:03 J -31231066.70 -31231066.58 -31231066.45 0.1631 0.0479

Mercury -90218-12-07 11:01 J -31230361.08 -31230361.04 -31230361.01 0.1617 0.1550

Mercury -90213-08-26 07:39 J -31228637.31 -31228637.18 -31228637.06 0.1900 0.0992

Venus -90213-09-14 08:37 J -31228618.26 -31228618.14 -31228618.01 0.1919 0.1344

Mercury -90210-05-24 07:11 J -31227636.30 -31227636.20 -31227636.09 0.1635 0.0957

Venus -90210-06-17 05:44 J -31227612.43 -31227612.26 -31227612.09 0.1616 0.0038

Mercury -90208-04-28 19:39 J -31226930.78 -31226930.68 -31226930.58 0.1620 0.1055

Mercury -90201-10-13 16:32 J -31224205.87 -31224205.81 -31224205.75 0.1639 0.1430

Mercury -90199-09-19 04:32 J -31223500.44 -31223500.31 -31223500.19 0.1623 0.0567

Mercury -90192-05-15 05:44 J -31221070.38 -31221070.26 -31221070.15 0.1911 0.1094

Earth -90191-01-07 07:25 J -31220833.31 -31220833.19 -31220833.07 0.1714 0.1303

Moon -90191-01-07 12:42 J -31220833.07 -31220832.97 -31220832.87 0.1713 0.1418 *

Mercury -90189-02-09 13:25 J -31220070.07 -31220069.94 -31220069.81 0.1627 0.0081

Mercury -90183-10-05 07:11 J -31217640.34 -31217640.20 -31217640.06 0.1906 0.0128

Mercury -90180-07-01 22:18 J -31216639.69 -31216639.57 -31216639.44 0.1630 0.0407

Venus -90178-06-15 19:54 J -31215925.70 -31215925.67 -31215925.63 0.1611 0.1566

Mercury -90173-02-25 07:54 J -31214210.29 -31214210.17 -31214210.04 0.1900 0.0893

Mercury -90171-11-22 07:25 J -31213209.30 -31213209.19 -31213209.08 0.1635 0.0886

Mercury -90169-10-27 19:54 J -31212503.76 -31212503.67 -31212503.58 0.1620 0.1131

Moon -90166-07-09 18:42 J -31211518.80 -31211518.72 -31211518.64 0.1818 0.1655

Mercury -90161-04-13 16:32 J -31209778.88 -31209778.81 -31209778.74 0.1639 0.1366

Mercury -90159-03-20 04:32 J -31209073.43 -31209073.31 -31209073.18 0.1623 0.0637

Mercury -90153-11-13 06:13 J -31206643.35 -31206643.24 -31206643.13 0.1911 0.1208

Mercury -90150-08-10 13:25 J -31205643.07 -31205642.94 -31205642.81 0.1627 0.0154

Venus -90147-07-12 09:49 J -31204576.26 -31204576.09 -31204575.92 0.1917 0.0619

Earth -90145-12-31 14:23 J -31203673.07 -31203672.90 -31203672.72 0.1735 0.0475

Moon -90145-12-31 17:15 J -31203672.94 -31203672.78 -31203672.62 0.1735 0.0627 *

Venus -90144-04-13 18:56 J -31203569.88 -31203569.71 -31203569.54 0.1618 0.0165

Mercury -90143-04-05 07:25 J -31203213.33 -31203213.19 -31203213.05 0.1906 0.0213

Mercury -90141-12-30 22:32 J -31202212.69 -31202212.56 -31202212.43 0.1631 0.0335

Mercury -90134-08-26 08:23 J -31199783.28 -31199783.15 -31199783.02 0.1901 0.0789

Mercury -90131-05-23 07:39 J -31198782.29 -31198782.18 -31198782.07 0.1634 0.0817

Mercury -90129-04-27 20:08 J -31198076.75 -31198076.66 -31198076.58 0.1620 0.1202

Mercury -90124-01-15 09:06 J -31196353.16 -31196353.12 -31196353.08 0.1894 0.1805

Mercury -90122-10-13 16:47 J -31195351.88 -31195351.80 -31195351.72 0.1639 0.1297

Mercury -90120-09-18 04:47 J -31194646.42 -31194646.30 -31194646.18 0.1623 0.0711

Moon -90119-06-28 11:59 J -31194363.09 -31194363.00 -31194362.90 0.1787 0.1554

Earth -90119-06-28 19:54 J -31194362.68 -31194362.67 -31194362.65 0.1787 0.1777

Mercury -90113-05-14 06:27 J -31192216.33 -31192216.23 -31192216.12 0.1911 0.1301

Venus -90112-04-12 08:51 J -31191883.21 -31191883.13 -31191883.04 0.1613 0.1382

Mercury -90110-02-08 13:39 J -31191216.06 -31191215.93 -31191215.80 0.1627 0.0221

Mercury -90104-10-04 07:54 J -31188786.31 -31188786.17 -31188786.03 0.1906 0.0324

Mercury -90101-06-30 22:47 J -31187785.68 -31187785.55 -31187785.42 0.1630 0.0271

Mercury -90094-02-24 08:51 J -31185356.26 -31185356.13 -31185356.00 0.1901 0.0687

Mercury -90092-11-21 07:39 J -31184355.29 -31184355.18 -31184355.06 0.1634 0.0752

Mercury -90090-10-27 20:08 J -31183649.74 -31183649.66 -31183649.58 0.1619 0.1273

Mercury -90085-07-16 09:20 J -31181926.17 -31181926.11 -31181926.05 0.1895 0.1722

Mercury -90082-04-13 16:47 J -31180924.88 -31180924.80 -31180924.71 0.1639 0.1232

Venus -90081-05-08 10:47 J -31180534.23 -31180534.05 -31180533.87 0.1915 0.0119

Mercury -90080-03-19 05:01 J -31180219.41 -31180219.29 -31180219.17 0.1623 0.0780

Venus -90078-02-09 08:08 J -31179527.33 -31179527.16 -31179526.99 0.1619 0.0353

Mercury -90074-11-13 06:56 J -31177789.30 -31177789.21 -31177789.12 0.1912 0.1401

Mercury -90071-08-09 13:54 J -31176789.05 -31176788.92 -31176788.79 0.1626 0.0292

Moon -90065-01-03 15:35 J -31174816.02 -31174815.85 -31174815.68 0.1730 0.0414

Earth -90065-01-03 20:37 J -31174815.82 -31174815.64 -31174815.46 0.1730 0.0283 *

Mercury -90064-04-04 08:23 J -31174359.29 -31174359.15 -31174359.01 0.1907 0.0426

Mercury -90062-12-30 22:47 J -31173358.68 -31173358.55 -31173358.42 0.1630 0.0204

Mercury -90055-08-25 09:20 J -31170929.25 -31170929.11 -31170928.98 0.1901 0.0590

Mercury -90052-05-22 07:54 J -31169928.29 -31169928.17 -31169928.05 0.1634 0.0684

Mercury -90050-04-27 20:23 J -31169222.72 -31169222.65 -31169222.58 0.1619 0.1346

Venus -90046-02-07 22:18 J -31167840.68 -31167840.57 -31167840.45 0.1614 0.1208

Mercury -90045-01-15 10:03 J -31167499.16 -31167499.08 -31167499.01 0.1895 0.1601

Mercury -90043-10-12 17:01 J -31166497.88 -31166497.79 -31166497.70 0.1638 0.1163

Mercury -90041-09-17 05:15 J -31165792.40 -31165792.28 -31165792.17 0.1623 0.0852

Moon -90040-07-01 22:18 J -31165504.77 -31165504.57 -31165504.37 0.1795 0.0808

Earth -90040-07-02 01:54 J -31165504.62 -31165504.42 -31165504.23 0.1795 0.0512 *

Mercury -90034-05-14 07:25 J -31163362.28 -31163362.19 -31163362.11 0.1912 0.1505

Mercury -90031-02-07 14:08 J -31162362.04 -31162361.91 -31162361.79 0.1626 0.0363

Mercury -90025-10-03 08:37 J -31159932.28 -31159932.14 -31159932.00 0.1907 0.0515

Mercury -90022-06-30 23:01 J -31158931.67 -31158931.54 -31158931.41 0.1630 0.0128

Earth -90019-12-27 20:37 J -31157655.70 -31157655.64 -31157655.59 0.1753 0.1662

Mercury -90015-02-23 09:35 J -31156502.24 -31156502.10 -31156501.96 0.1901 0.0486

Venus -90015-03-05 11:59 J -31156492.16 -31156492.00 -31156491.84 0.1912 0.0847

Mercury -90013-11-20 08:08 J -31155501.28 -31155501.16 -31155501.04 0.1634 0.0611

Venus -90013-12-06 21:35 J -31155484.76 -31155484.60 -31155484.44 0.1621 0.0537

Mercury -90011-10-26 20:37 J -31154795.70 -31154795.64 -31154795.58 0.1619 0.1421

Mercury -90006-07-16 10:32 J -31153072.15 -31153072.06 -31153071.98 0.1895 0.1501

Mercury -90003-04-12 17:15 J -31152070.88 -31152070.78 -31152070.69 0.1638 0.1097

Mercury -90001-03-18 05:30 J -31151365.38 -31151365.27 -31151365.16 0.1623 0.0926

90TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 90th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|--------|-------------------------|---|-------|-----|-----|--------|-------|---|
|--------|-------------------------|---|-------|-----|-----|--------|-------|---|

Mercury -89995-11-12 07:39 J -31148935.25 -31148935.18 -31148935.10 0.1912 0.1606

Mercury -89994-09-03 02:23 J -31148640.43 -31148640.40 -31148640.37 0.1642 0.1576

Mercury -89992-08-08 14:08 J -31147935.03 -31147934.91 -31147934.78 0.1626 0.0431

Moon -89986-01-05 20:23 J -31145958.81 -31145958.65 -31145958.49 0.1725 0.0905
 Earth -89986-01-06 02:37 J -31145958.54 -31145958.39 -31145958.25 0.1725 0.1028 *
 Mercury -89985-04-03 09:06 J -31145505.26 -31145505.12 -31145504.99 0.1907 0.0622
 Mercury -89983-12-29 23:15 J -31144504.67 -31144504.53 -31144504.40 0.1630 0.0075
 Venus -89981-12-05 11:30 J -31143798.15 -31143798.02 -31143797.89 0.1615 0.1023
 Mercury -89976-08-24 10:03 J -31142075.22 -31142075.08 -31142074.94 0.1901 0.0383
 Mercury -89973-05-21 08:08 J -31141074.28 -31141074.16 -31141074.04 0.1634 0.0546
 Mercury -89971-04-26 20:51 J -31140368.68 -31140368.63 -31140368.58 0.1619 0.1491
 Mercury -89966-01-14 10:47 J -31138645.15 -31138645.05 -31138644.96 0.1895 0.1409
 Mercury -89964-10-11 17:15 J -31137643.88 -31137643.78 -31137643.68 0.1638 0.1028
 Mercury -89962-09-17 05:30 J -31136938.37 -31136938.27 -31136938.16 0.1622 0.0996
 Earth -89961-07-05 08:08 J -31136646.35 -31136646.16 -31136645.98 0.1802 0.0785
 Moon -89961-07-05 17:01 J -31136645.95 -31136645.79 -31136645.63 0.1802 0.1161
 Mercury -89955-05-13 07:54 J -31134508.23 -31134508.17 -31134508.11 0.1912 0.1695
 Mercury -89954-03-04 02:37 J -31134213.44 -31134213.39 -31134213.35 0.1642 0.1508
 Mercury -89952-02-06 14:23 J -31133508.02 -31133507.90 -31133507.77 0.1626 0.0504
 Venus -89950-12-31 13:25 J -31132450.05 -31132449.94 -31132449.84 0.1910 0.1565
 Venus -89947-10-04 10:03 J -31131442.23 -31131442.08 -31131441.92 0.1622 0.0737
 Mercury -89946-10-03 09:35 J -31131078.23 -31131078.10 -31131077.97 0.1907 0.0736
 Mercury -89943-06-29 23:30 J -31130077.66 -31130077.52 -31130077.39 0.1630 0.0054
 Moon -89940-12-30 01:54 J -31128798.60 -31128798.42 -31128798.24 0.1748 0.0666
 Earth -89940-12-30 05:01 J -31128798.45 -31128798.29 -31128798.13 0.1748 0.0851 *
 Mercury -89936-02-22 10:32 J -31127648.20 -31127648.06 -31127647.92 0.1902 0.0281
 Mercury -89934-11-20 08:23 J -31126647.28 -31126647.15 -31126647.03 0.1634 0.0475
 Mercury -89932-10-25 21:06 J -31125941.65 -31125941.62 -31125941.59 0.1619 0.1566
 Mercury -89927-07-15 11:15 J -31124218.14 -31124218.03 -31124217.93 0.1896 0.1300
 Mercury -89924-04-11 17:30 J -31123216.88 -31123216.77 -31123216.67 0.1638 0.0964
 Mercury -89922-03-18 05:44 J -31122511.36 -31122511.26 -31122511.16 0.1622 0.1066
 Mercury -89916-11-11 08:37 J -31120081.19 -31120081.14 -31120081.10 0.1912 0.1809
 Mercury -89915-09-02 02:37 J -31119786.45 -31119786.39 -31119786.33 0.1642 0.1442

Venus -89915-10-03 00:27 J -31119755.62 -31119755.48 -31119755.33 0.1617 0.0836

Mercury -89913-08-07 14:37 J -31119081.02 -31119080.89 -31119080.77 0.1626 0.0574

Mercury -89906-04-03 09:49 J -31116651.22 -31116651.09 -31116650.97 0.1907 0.0817

Mercury -89904-12-28 23:30 J -31115650.65 -31115650.52 -31115650.39 0.1630 0.0084

Mercury -89897-08-23 11:01 J -31113221.19 -31113221.04 -31113220.90 0.1902 0.0180

Mercury -89894-05-21 08:37 J -31112220.27 -31112220.14 -31112220.02 0.1634 0.0408

Mercury -89887-01-13 11:44 J -31109791.12 -31109791.01 -31109790.90 0.1896 0.1192

Mercury -89885-10-10 17:30 J -31108789.87 -31108789.77 -31108789.66 0.1638 0.0893

Mercury -89883-09-16 05:59 J -31108084.34 -31108084.25 -31108084.16 0.1622 0.1142

Venus -89881-07-31 23:15 J -31107399.67 -31107399.53 -31107399.39 0.1624 0.0928

Mercury -89876-05-12 08:51 J -31105654.14 -31105654.13 -31105654.12 0.1913 0.1901

Mercury -89875-03-03 02:51 J -31105359.45 -31105359.38 -31105359.32 0.1642 0.1376

Mercury -89873-02-06 14:37 J -31104654.01 -31104653.89 -31104653.76 0.1626 0.0648

Mercury -89867-10-02 10:18 J -31102224.19 -31102224.07 -31102223.95 0.1908 0.0930

Mercury -89864-06-28 23:44 J -31101223.64 -31101223.51 -31101223.38 0.1629 0.0159

Earth -89860-01-01 13:11 J -31099941.14 -31099940.95 -31099940.77 0.1742 0.0045

Moon -89860-01-01 18:13 J -31099940.93 -31099940.74 -31099940.55 0.1742 0.0198 *

Mercury -89857-02-22 11:15 J -31098794.17 -31098794.03 -31098793.88 0.1902 0.0086

Mercury -89855-11-19 08:37 J -31097793.27 -31097793.14 -31097793.01 0.1633 0.0338

Venus -89852-10-27 20:37 J -31096719.76 -31096719.64 -31096719.53 0.1916 0.1475

Venus -89849-07-30 13:39 J -31095713.08 -31095712.93 -31095712.77 0.1618 0.0651

Mercury -89848-07-14 11:59 J -31095364.12 -31095364.00 -31095363.89 0.1896 0.1106

Mercury -89845-04-10 17:44 J -31094362.87 -31094362.76 -31094362.65 0.1638 0.0823

Mercury -89843-03-17 05:59 J -31093657.33 -31093657.25 -31093657.16 0.1622 0.1214

Mercury -89836-09-01 02:51 J -31090932.45 -31090932.38 -31090932.30 0.1642 0.1306

Earth -89835-06-28 15:20 J -31090631.97 -31090631.86 -31090631.74 0.1778 0.1458

Moon -89835-06-28 21:49 J -31090631.74 -31090631.59 -31090631.44 0.1779 0.1124 *

Mercury -89834-08-07 14:51 J -31090227.00 -31090226.88 -31090226.76 0.1626 0.0719

Mercury -89827-04-02 10:47 J -31087797.17 -31087797.05 -31087796.93 0.1908 0.1032

Mercury -89825-12-27 23:44 J -31086796.64 -31086796.51 -31086796.38 0.1629 0.0230

Mercury -89818-08-23 11:44 J -31084367.15 -31084367.01 -31084366.87 0.1902 0.0027
 Mercury -89815-05-20 08:51 J -31083366.26 -31083366.13 -31083366.00 0.1633 0.0271
 Venus -89815-05-29 12:13 J -31083357.11 -31083356.99 -31083356.87 0.1626 0.1129
 Mercury -89808-01-12 12:42 J -31080937.10 -31080936.97 -31080936.85 0.1896 0.0986
 Mercury -89806-10-10 17:59 J -31079935.87 -31079935.75 -31079935.64 0.1637 0.0756
 Mercury -89804-09-15 06:13 J -31079230.32 -31079230.24 -31079230.16 0.1622 0.1285
 Mercury -89796-03-02 03:06 J -31076505.46 -31076505.37 -31076505.29 0.1642 0.1243
 Mercury -89794-02-05 15:06 J -31075799.99 -31075799.87 -31075799.76 0.1625 0.0788
 Mercury -89788-10-01 11:01 J -31073370.16 -31073370.04 -31073369.93 0.1908 0.1122
 Venus -89786-08-24 21:20 J -31072677.78 -31072677.61 -31072677.45 0.1914 0.0723
 Mercury -89785-06-27 23:59 J -31072369.63 -31072369.50 -31072369.37 0.1629 0.0295
 Venus -89783-05-28 02:37 J -31071670.55 -31071670.39 -31071670.22 0.1620 0.0459
 Earth -89781-01-04 20:08 J -31071083.83 -31071083.66 -31071083.50 0.1737 0.0732
 Moon -89781-01-05 02:37 J -31071083.55 -31071083.39 -31071083.24 0.1736 0.0874 *
 Mercury -89778-02-21 12:13 J -31069940.13 -31069939.99 -31069939.85 0.1903 0.0132
 Mercury -89776-11-18 09:06 J -31068939.25 -31068939.12 -31068938.99 0.1633 0.0199
 Mercury -89769-07-13 12:56 J -31066510.09 -31066509.96 -31066509.83 0.1896 0.0889
 Mercury -89766-04-10 17:59 J -31065508.87 -31065508.75 -31065508.63 0.1637 0.0688
 Mercury -89764-03-16 06:27 J -31064803.30 -31064803.23 -31064803.16 0.1622 0.1360
 Mercury -89757-08-31 03:06 J -31062078.46 -31062078.37 -31062078.28 0.1642 0.1174
 Moon -89756-07-01 16:32 J -31061773.99 -31061773.81 -31061773.63 0.1785 0.0553
 Earth -89756-07-01 20:23 J -31061773.85 -31061773.65 -31061773.44 0.1786 0.0235 *
 Mercury -89755-08-06 15:06 J -31061372.98 -31061372.87 -31061372.75 0.1625 0.0861
 Venus -89749-03-26 01:11 J -31059314.55 -31059314.45 -31059314.36 0.1627 0.1328
 Mercury -89748-04-01 11:30 J -31058943.13 -31058943.02 -31058942.92 0.1908 0.1231
 Mercury -89746-12-28 00:13 J -31057942.62 -31057942.49 -31057942.37 0.1629 0.0368
 Mercury -89739-08-22 12:27 J -31055513.12 -31055512.98 -31055512.83 0.1902 0.0235
 Mercury -89736-05-19 09:06 J -31054512.25 -31054512.12 -31054511.99 0.1633 0.0129
 Earth -89735-12-28 17:15 J -31053923.91 -31053923.78 -31053923.65 0.1760 0.1245
 Moon -89735-12-28 20:51 J -31053923.72 -31053923.63 -31053923.53 0.1760 0.1461 *

Mercury -89729-01-12 13:11 J -31052083.08 -31052082.95 -31052082.82 0.1897 0.0795
 Mercury -89727-10-09 18:13 J -31051081.86 -31051081.74 -31051081.62 0.1637 0.0618
 Mercury -89725-09-14 06:42 J -31050376.28 -31050376.22 -31050376.16 0.1622 0.1432
 Mercury -89720-06-03 13:54 J -31048652.96 -31048652.92 -31048652.88 0.1891 0.1814
 Venus -89720-06-20 22:32 J -31048635.74 -31048635.56 -31048635.38 0.1911 0.0031
 Mercury -89717-03-01 03:20 J -31047651.45 -31047651.36 -31047651.27 0.1641 0.1104
 Venus -89717-03-24 15:49 J -31047628.01 -31047627.84 -31047627.67 0.1621 0.0269
 Mercury -89715-02-04 15:20 J -31046945.96 -31046945.86 -31046945.75 0.1625 0.0937
 Mercury -89709-09-30 11:59 J -31044516.10 -31044516.00 -31044515.90 0.1908 0.1339
 Mercury -89708-07-22 12:27 J -31044221.01 -31044220.98 -31044220.95 0.1646 0.1590
 Mercury -89706-06-28 00:13 J -31043515.61 -31043515.49 -31043515.36 0.1629 0.0441
 Moon -89702-01-07 02:23 J -31042226.49 -31042226.40 -31042226.31 0.1732 0.1454
 Earth -89702-01-07 02:37 J -31042226.48 -31042226.39 -31042226.30 0.1731 0.1484 *
 Mercury -89699-02-20 12:56 J -31041086.10 -31041085.96 -31041085.82 0.1903 0.0330
 Mercury -89697-11-17 09:20 J -31040085.25 -31040085.11 -31040084.98 0.1633 0.0082
 Mercury -89690-07-13 13:39 J -31037656.06 -31037655.93 -31037655.79 0.1897 0.0687
 Mercury -89687-04-09 18:13 J -31036654.86 -31036654.74 -31036654.62 0.1637 0.0551
 Mercury -89685-03-15 06:42 J -31035949.26 -31035949.22 -31035949.17 0.1621 0.1504
 Venus -89683-01-21 14:08 J -31035271.97 -31035271.91 -31035271.86 0.1629 0.1527
 Mercury -89681-12-02 14:23 J -31034225.96 -31034225.90 -31034225.84 0.1890 0.1718
 Mercury -89678-08-31 03:20 J -31033224.45 -31033224.36 -31033224.26 0.1641 0.1038
 Moon -89677-07-04 16:03 J -31032915.98 -31032915.83 -31032915.67 0.1792 0.1198
 Earth -89677-07-05 01:11 J -31032915.62 -31032915.45 -31032915.28 0.1793 0.1021
 Mercury -89676-08-05 15:35 J -31032518.95 -31032518.85 -31032518.75 0.1625 0.1004
 Mercury -89669-03-31 11:59 J -31030089.09 -31030089.00 -31030088.91 0.1909 0.1420
 Mercury -89668-01-20 12:42 J -31029794.02 -31029793.97 -31029793.92 0.1646 0.1521
 Mercury -89667-12-27 00:27 J -31029088.61 -31029088.48 -31029088.36 0.1629 0.0508
 Mercury -89660-08-21 13:25 J -31026659.08 -31026658.94 -31026658.80 0.1903 0.0437
 Mercury -89657-05-18 09:20 J -31025658.24 -31025658.11 -31025657.98 0.1633 0.0033
 Moon -89656-12-30 22:03 J -31025066.75 -31025066.58 -31025066.40 0.1755 0.0286

Earth -89656-12-31 01:39 J -31025066.60 -31025066.43 -31025066.25 0.1755 0.0431 *
 Venus -89654-04-17 23:30 J -31024593.69 -31024593.52 -31024593.36 0.1908 0.0739
 Venus -89651-01-20 04:47 J -31023585.47 -31023585.30 -31023585.13 0.1623 0.0079
 Mercury -89650-01-11 14:23 J -31023229.04 -31023228.90 -31023228.77 0.1897 0.0580
 Mercury -89648-10-08 18:27 J -31022227.85 -31022227.73 -31022227.61 0.1637 0.0479
 Mercury -89646-09-14 06:56 J -31021522.23 -31021522.21 -31021522.18 0.1621 0.1580
 Mercury -89641-06-02 14:37 J -31019798.96 -31019798.89 -31019798.81 0.1891 0.1616
 Mercury -89638-03-01 03:35 J -31018797.45 -31018797.35 -31018797.25 0.1641 0.0970
 Mercury -89636-02-03 15:49 J -31018091.94 -31018091.84 -31018091.75 0.1625 0.1078
 Mercury -89630-09-30 12:27 J -31015662.06 -31015661.98 -31015661.89 0.1909 0.1535
 Mercury -89629-07-21 12:42 J -31015367.03 -31015366.97 -31015366.91 0.1646 0.1457
 Mercury -89627-06-27 00:27 J -31014661.60 -31014661.48 -31014661.35 0.1629 0.0580
 Mercury -89620-02-19 13:39 J -31012232.07 -31012231.93 -31012231.79 0.1903 0.0533
 Mercury -89618-11-17 09:35 J -31011231.23 -31011231.10 -31011230.97 0.1633 0.0085
 Mercury -89611-07-12 14:23 J -31008802.04 -31008801.90 -31008801.76 0.1897 0.0491
 Mercury -89608-04-08 18:27 J -31007800.85 -31007800.73 -31007800.60 0.1637 0.0414
 Mercury -89602-12-02 15:20 J -31005371.95 -31005371.86 -31005371.77 0.1891 0.1500
 Mercury -89599-08-30 03:49 J -31004370.45 -31004370.34 -31004370.24 0.1641 0.0901
 Mercury -89597-08-04 15:49 J -31003664.93 -31003664.84 -31003664.74 0.1625 0.1151
 Mercury -89590-03-31 12:56 J -31001235.03 -31001234.96 -31001234.89 0.1909 0.1636
 Mercury -89589-01-20 12:56 J -31000940.03 -31000939.96 -31000939.90 0.1646 0.1391
 Venus -89588-02-12 00:42 J -31000551.58 -31000551.47 -31000551.35 0.1905 0.1464
 Mercury -89588-12-26 00:42 J -31000234.59 -31000234.47 -31000234.35 0.1628 0.0653
 Venus -89586-11-17 17:59 J -30999542.92 -30999542.75 -30999542.58 0.1625 0.0115
 Mercury -89581-08-20 14:08 J -30997805.05 -30997804.91 -30997804.78 0.1903 0.0636
 Mercury -89578-05-18 09:35 J -30996804.23 -30996804.10 -30996803.97 0.1632 0.0156
 Moon -89576-01-02 04:03 J -30996209.51 -30996209.33 -30996209.14 0.1749 0.0253
 Earth -89576-01-02 10:32 J -30996209.23 -30996209.06 -30996208.88 0.1749 0.0391 *
 Mercury -89571-01-10 15:06 J -30994375.01 -30994374.87 -30994374.73 0.1898 0.0373
 Mercury -89569-10-07 18:42 J -30993373.85 -30993373.72 -30993373.59 0.1637 0.0341

Mercury -89562-06-02 15:20 J -30990944.95 -30990944.86 -30990944.76 0.1891 0.1419
 Mercury -89559-02-28 03:49 J -30989943.45 -30989943.34 -30989943.23 0.1641 0.0834
 Mercury -89557-02-03 16:03 J -30989237.92 -30989237.83 -30989237.74 0.1625 0.1221
 Venus -89554-11-16 08:08 J -30987856.23 -30987856.16 -30987856.09 0.1619 0.1468
 Moon -89551-06-28 11:30 J -30986901.21 -30986901.02 -30986900.83 0.1769 0.0924
 Earth -89551-06-28 12:27 J -30986901.14 -30986900.98 -30986900.83 0.1769 0.1136 *
 Mercury -89551-09-29 13:11 J -30986808.01 -30986807.95 -30986807.89 0.1909 0.1725
 Mercury -89550-07-21 12:56 J -30986513.03 -30986512.96 -30986512.88 0.1645 0.1320
 Mercury -89548-06-26 00:56 J -30985807.58 -30985807.46 -30985807.34 0.1628 0.0724
 Mercury -89541-02-19 14:37 J -30983378.02 -30983377.89 -30983377.76 0.1904 0.0744
 Mercury -89539-11-16 09:49 J -30982377.22 -30982377.09 -30982376.96 0.1632 0.0229
 Mercury -89532-07-11 15:20 J -30979948.00 -30979947.86 -30979947.72 0.1898 0.0279
 Moon -89530-12-26 20:08 J -30979049.75 -30979049.66 -30979049.56 0.1774 0.1538
 Earth -89530-12-27 01:39 J -30979049.47 -30979049.43 -30979049.39 0.1773 0.1725
 Mercury -89529-04-07 18:42 J -30978946.84 -30978946.72 -30978946.59 0.1636 0.0278
 Mercury -89523-12-01 16:03 J -30976517.93 -30976517.83 -30976517.73 0.1892 0.1301
 Mercury -89520-08-29 03:49 J -30975516.45 -30975516.34 -30975516.22 0.1641 0.0767
 Venus -89520-09-14 06:27 J -30975500.39 -30975500.23 -30975500.06 0.1626 0.0324
 Mercury -89518-08-04 16:18 J -30974810.90 -30974810.82 -30974810.75 0.1624 0.1295
 Mercury -89511-03-30 13:39 J -30972380.97 -30972380.93 -30972380.90 0.1909 0.1834
 Mercury -89510-01-19 13:11 J -30972086.03 -30972085.95 -30972085.87 0.1645 0.1255
 Mercury -89509-12-25 00:56 J -30971380.57 -30971380.46 -30971380.34 0.1628 0.0796
 Mercury -89502-08-20 14:51 J -30968951.01 -30968950.88 -30968950.76 0.1904 0.0837
 Mercury -89499-05-17 09:49 J -30967950.21 -30967950.09 -30967949.96 0.1632 0.0298
 Earth -89497-01-05 17:44 J -30967351.89 -30967351.76 -30967351.62 0.1743 0.1170
 Moon -89497-01-05 18:27 J -30967351.87 -30967351.73 -30967351.60 0.1743 0.1254 *
 Mercury -89492-01-09 15:35 J -30965520.99 -30965520.85 -30965520.70 0.1898 0.0186
 Venus -89491-12-10 06:56 J -30964821.31 -30964821.21 -30964821.10 0.1912 0.1541
 Mercury -89490-10-07 18:56 J -30964519.84 -30964519.71 -30964519.58 0.1636 0.0202
 Venus -89488-09-12 21:06 J -30963813.73 -30963813.62 -30963813.52 0.1620 0.1276

Mercury -89483-06-01 16:32 J -30962090.92 -30962090.81 -30962090.70 0.1892 0.1196

Mercury -89480-02-27 04:03 J -30961089.45 -30961089.33 -30961089.21 0.1640 0.0694

Mercury -89478-02-02 16:32 J -30960383.88 -30960383.81 -30960383.75 0.1624 0.1371

Earth -89472-07-01 15:35 J -30958043.06 -30958042.85 -30958042.65 0.1776 0.0053

Moon -89472-07-02 00:13 J -30958042.70 -30958042.49 -30958042.29 0.1777 0.0119 *

Mercury -89471-07-20 13:11 J -30957659.04 -30957658.95 -30957658.86 0.1645 0.1188

Mercury -89469-06-25 01:11 J -30956953.56 -30956953.45 -30956953.34 0.1628 0.0866

Mercury -89462-02-18 15:06 J -30954523.99 -30954523.87 -30954523.74 0.1904 0.0939

Mercury -89460-11-15 10:03 J -30953523.21 -30953523.08 -30953522.95 0.1632 0.0365

Venus -89454-07-12 19:39 J -30951457.85 -30951457.68 -30951457.52 0.1628 0.0522

Mercury -89453-07-10 16:03 J -30951093.97 -30951093.83 -30951093.68 0.1898 0.0086

Earth -89451-12-29 11:59 J -30950192.16 -30950192.00 -30950191.83 0.1768 0.0851

Moon -89451-12-29 15:35 J -30950192.01 -30950191.85 -30950191.69 0.1767 0.1008 *

Mercury -89450-04-07 19:11 J -30950092.83 -30950092.70 -30950092.57 0.1636 0.0138

Mercury -89444-11-30 16:47 J -30947663.92 -30947663.80 -30947663.68 0.1892 0.1103

Mercury -89441-08-28 04:03 J -30946662.44 -30946662.33 -30946662.21 0.1641 0.0629

Mercury -89439-08-03 16:32 J -30945956.87 -30945956.81 -30945956.75 0.1624 0.1440

Mercury -89431-01-18 13:25 J -30943232.03 -30943231.94 -30943231.85 0.1645 0.1117

Mercury -89430-12-25 01:25 J -30942526.55 -30942526.44 -30942526.34 0.1628 0.0939

Venus -89425-10-06 08:37 J -30940779.30 -30940779.14 -30940778.98 0.1909 0.0829

Mercury -89423-08-19 15:35 J -30940096.97 -30940096.85 -30940096.73 0.1905 0.1047

Mercury -89422-06-10 22:32 J -30939801.58 -30939801.56 -30939801.53 0.1650 0.1607

Venus -89422-07-11 10:03 J -30939771.20 -30939771.08 -30939770.95 0.1622 0.1084

Mercury -89420-05-16 10:18 J -30939096.20 -30939096.07 -30939095.94 0.1632 0.0439

Mercury -89413-01-09 16:32 J -30936666.95 -30936666.81 -30936666.66 0.1898 0.0058

Mercury -89411-10-06 19:11 J -30935665.83 -30935665.70 -30935665.57 0.1636 0.0068

Mercury -89404-05-31 17:15 J -30933236.91 -30933236.78 -30933236.66 0.1892 0.1000

Mercury -89401-02-27 04:18 J -30932235.44 -30932235.32 -30932235.20 0.1640 0.0559

Mercury -89399-02-01 16:47 J -30931529.85 -30931529.80 -30931529.76 0.1624 0.1513

Earth -89393-07-04 18:13 J -30929184.89 -30929184.74 -30929184.60 0.1783 0.1246

Moon -89393-07-04 19:54 J -30929184.77 -30929184.67 -30929184.57 0.1783 0.1491 *
 Mercury -89392-07-19 13:25 J -30928805.04 -30928804.94 -30928804.84 0.1645 0.1051
 Mercury -89390-06-25 01:25 J -30928099.54 -30928099.44 -30928099.33 0.1628 0.1011
 Venus -89388-05-09 07:54 J -30927415.32 -30927415.17 -30927415.01 0.1630 0.0734
 Mercury -89383-02-17 15:49 J -30925669.95 -30925669.84 -30925669.72 0.1904 0.1142
 Mercury -89383-12-09 22:47 J -30925374.59 -30925374.55 -30925374.51 0.1650 0.1540
 Mercury -89381-11-14 10:18 J -30924669.19 -30924669.07 -30924668.94 0.1632 0.0512
 Mercury -89374-07-10 16:47 J -30922239.94 -30922239.80 -30922239.66 0.1899 0.0124
 Earth -89372-12-31 20:51 J -30921334.81 -30921334.63 -30921334.45 0.1762 0.0019
 Moon -89371-01-01 03:06 J -30921334.55 -30921334.37 -30921334.19 0.1762 0.0197 *
 Mercury -89371-04-06 19:25 J -30921238.82 -30921238.69 -30921238.56 0.1636 0.0019
 Mercury -89365-11-29 17:44 J -30918809.88 -30918809.76 -30918809.63 0.1892 0.0885
 Mercury -89362-08-28 04:32 J -30917808.44 -30917808.31 -30917808.19 0.1640 0.0489
 Mercury -89360-08-02 16:47 J -30917102.82 -30917102.80 -30917102.77 0.1624 0.1590
 Venus -89359-08-03 09:06 J -30916737.30 -30916737.12 -30916736.94 0.1906 0.0073
 Venus -89356-05-07 22:47 J -30915728.69 -30915728.55 -30915728.41 0.1624 0.0882
 Mercury -89352-01-17 13:39 J -30914378.04 -30914377.93 -30914377.83 0.1645 0.0983
 Mercury -89351-12-24 01:39 J -30913672.53 -30913672.43 -30913672.33 0.1627 0.1084
 Mercury -89344-08-18 16:18 J -30911242.93 -30911242.82 -30911242.72 0.1905 0.1243
 Mercury -89343-06-09 22:47 J -30910947.60 -30910947.55 -30910947.49 0.1649 0.1474
 Mercury -89341-05-15 10:32 J -30910242.18 -30910242.06 -30910241.94 0.1632 0.0579
 Mercury -89334-01-08 17:15 J -30907812.92 -30907812.78 -30907812.63 0.1899 0.0245
 Mercury -89332-10-05 19:25 J -30906811.82 -30906811.69 -30906811.56 0.1636 0.0088
 Mercury -89325-05-30 17:59 J -30904382.89 -30904382.75 -30904382.62 0.1892 0.0804
 Mercury -89322-02-26 04:32 J -30903381.43 -30903381.31 -30903381.18 0.1640 0.0418
 Venus -89322-03-06 20:51 J -30903372.77 -30903372.63 -30903372.49 0.1632 0.0939
 Mercury -89316-10-20 18:27 J -30900952.76 -30900952.73 -30900952.69 0.1886 0.1827
 Mercury -89313-07-18 13:39 J -30899951.03 -30899950.93 -30899950.82 0.1644 0.0912
 Mercury -89311-06-24 01:54 J -30899245.51 -30899245.42 -30899245.33 0.1628 0.1157
 Mercury -89304-02-16 16:47 J -30896815.90 -30896815.80 -30896815.70 0.1905 0.1351

Mercury -89304-12-08 23:01 J -30896520.61 -30896520.54 -30896520.48 0.1649 0.1407

Mercury -89302-11-14 10:47 J -30895815.17 -30895815.05 -30895814.93 0.1631 0.0655

Mercury -89295-07-09 17:44 J -30893385.91 -30893385.76 -30893385.62 0.1899 0.0339

Venus -89293-05-30 11:01 J -30892695.21 -30892695.04 -30892694.87 0.1904 0.0638

Earth -89292-01-03 05:59 J -30892477.41 -30892477.25 -30892477.08 0.1756 0.0801

Moon -89292-01-03 06:13 J -30892477.40 -30892477.24 -30892477.08 0.1756 0.0697 *

Mercury -89292-04-05 19:39 J -30892384.81 -30892384.68 -30892384.55 0.1636 0.0151

Venus -89290-03-05 11:59 J -30891686.16 -30891686.00 -30891685.85 0.1625 0.0690

Mercury -89286-11-29 18:27 J -30889955.86 -30889955.73 -30889955.59 0.1893 0.0684

Mercury -89283-08-27 04:47 J -30888954.43 -30888954.30 -30888954.18 0.1640 0.0352

Mercury -89276-04-20 18:56 J -30886525.77 -30886525.71 -30886525.66 0.1886 0.1729

Mercury -89273-01-17 13:54 J -30885524.03 -30885523.92 -30885523.81 0.1644 0.0847

Mercury -89272-12-23 01:54 J -30884818.50 -30884818.42 -30884818.33 0.1627 0.1228

Moon -89267-06-28 03:20 J -30883170.54 -30883170.36 -30883170.18 0.1760 0.0711

Earth -89267-06-28 10:32 J -30883170.24 -30883170.06 -30883169.88 0.1760 0.0814 *

Mercury -89265-08-17 17:01 J -30882388.89 -30882388.79 -30882388.70 0.1905 0.1442

Mercury -89264-06-08 23:01 J -30882093.61 -30882093.54 -30882093.47 0.1649 0.1338

Mercury -89262-05-15 10:47 J -30881388.17 -30881388.05 -30881387.93 0.1631 0.0723

Venus -89256-01-01 09:49 J -30879330.21 -30879330.09 -30879329.97 0.1634 0.1144

Mercury -89255-01-07 17:59 J -30878958.89 -30878958.75 -30878958.61 0.1899 0.0438

Mercury -89253-10-04 19:54 J -30877957.80 -30877957.67 -30877957.54 0.1635 0.0227

Mercury -89246-05-30 18:56 J -30875528.85 -30875528.71 -30875528.57 0.1893 0.0580

Moon -89246-12-27 14:51 J -30875318.00 -30875317.88 -30875317.75 0.1782 0.1188

Earth -89246-12-27 17:59 J -30875317.87 -30875317.75 -30875317.64 0.1781 0.1357 *

Mercury -89243-02-25 04:47 J -30874527.43 -30874527.30 -30874527.17 0.1640 0.0278

Mercury -89237-10-19 19:25 J -30872098.76 -30872098.69 -30872098.62 0.1886 0.1623

Mercury -89234-07-18 13:54 J -30871097.03 -30871096.92 -30871096.81 0.1644 0.0777

Mercury -89232-06-23 02:08 J -30870391.49 -30870391.41 -30870391.33 0.1627 0.1301

Venus -89227-03-27 11:44 J -30868653.13 -30868653.01 -30868652.89 0.1900 0.1375

Mercury -89225-02-16 17:15 J -30867961.86 -30867961.78 -30867961.70 0.1905 0.1549

Mercury -89225-12-07 23:01 J -30867666.61 -30867666.54 -30867666.45 0.1649 0.1272

Venus -89225-12-31 00:42 J -30867643.63 -30867643.47 -30867643.30 0.1627 0.0490

Mercury -89223-11-13 11:01 J -30866961.16 -30866961.04 -30866960.93 0.1631 0.0797

Mercury -89216-07-08 18:27 J -30864531.87 -30864531.73 -30864531.59 0.1899 0.0542

Moon -89213-01-06 08:23 J -30863620.22 -30863620.15 -30863620.07 0.1751 0.1584

Earth -89213-01-06 14:37 J -30863619.96 -30863619.89 -30863619.82 0.1751 0.1602

Mercury -89213-04-04 19:54 J -30863530.80 -30863530.67 -30863530.54 0.1635 0.0292

Mercury -89207-11-28 19:11 J -30861101.84 -30861101.70 -30861101.56 0.1893 0.0487

Mercury -89204-08-26 05:01 J -30860100.42 -30860100.29 -30860100.17 0.1640 0.0213

Mercury -89197-04-19 19:39 J -30857671.76 -30857671.68 -30857671.59 0.1887 0.1521

Mercury -89194-01-16 14:08 J -30856670.03 -30856669.91 -30856669.80 0.1644 0.0705

Mercury -89193-12-22 02:23 J -30855964.47 -30855964.40 -30855964.33 0.1627 0.1377

Venus -89191-10-29 22:18 J -30855287.66 -30855287.57 -30855287.47 0.1636 0.1359

Moon -89188-07-01 06:13 J -30854312.45 -30854312.24 -30854312.02 0.1767 0.0162

Earth -89188-07-01 12:27 J -30854312.18 -30854311.98 -30854311.78 0.1767 0.0339 *

Mercury -89186-08-17 17:44 J -30853534.82 -30853534.76 -30853534.69 0.1906 0.1657

Mercury -89185-06-07 23:15 J -30853239.62 -30853239.53 -30853239.44 0.1649 0.1202

Mercury -89183-05-14 11:01 J -30852534.15 -30852534.04 -30852533.92 0.1631 0.0873

Mercury -89176-01-06 18:56 J -30850104.85 -30850104.71 -30850104.58 0.1899 0.0647

Mercury -89174-10-04 20:08 J -30849103.79 -30849103.66 -30849103.54 0.1635 0.0368

Mercury -89167-05-29 19:39 J -30846674.82 -30846674.68 -30846674.54 0.1893 0.0380

Moon -89167-12-29 21:35 J -30846460.77 -30846460.60 -30846460.43 0.1776 0.0690

Earth -89167-12-30 04:47 J -30846460.48 -30846460.30 -30846460.12 0.1776 0.0469 *

Mercury -89164-02-24 05:01 J -30845673.42 -30845673.29 -30845673.16 0.1639 0.0139

Venus -89159-10-28 13:39 J -30843601.10 -30843600.93 -30843600.76 0.1629 0.0291

Mercury -89158-10-19 20:08 J -30843244.75 -30843244.66 -30843244.56 0.1887 0.1414

Mercury -89155-07-17 14:08 J -30842243.03 -30842242.91 -30842242.79 0.1644 0.0637

Mercury -89153-06-22 02:23 J -30841537.46 -30841537.40 -30841537.34 0.1627 0.1449

Mercury -89146-02-15 17:59 J -30839107.80 -30839107.75 -30839107.70 0.1906 0.1747

Mercury -89146-12-07 23:30 J -30838812.62 -30838812.52 -30838812.43 0.1649 0.1134

Mercury -89144-11-12 11:15 J -30838107.14 -30838107.03 -30838106.92 0.1631 0.0942

Mercury -89137-07-07 18:56 J -30835677.84 -30835677.71 -30835677.57 0.1900 0.0740

Mercury -89136-04-29 08:37 J -30835382.16 -30835382.14 -30835382.12 0.1654 0.1629

Mercury -89134-04-04 20:08 J -30834676.78 -30834676.66 -30834676.53 0.1635 0.0438

Venus -89129-01-22 17:59 J -30832922.84 -30832922.75 -30832922.66 0.1908 0.1638

Mercury -89128-11-27 20:08 J -30832247.80 -30832247.66 -30832247.51 0.1894 0.0269

Mercury -89125-08-25 05:15 J -30831246.41 -30831246.28 -30831246.15 0.1639 0.0066

Venus -89125-08-26 11:15 J -30831245.08 -30831245.03 -30831244.99 0.1638 0.1571

Mercury -89118-04-19 20:37 J -30828817.75 -30828817.64 -30828817.54 0.1887 0.1314

Mercury -89115-01-15 14:23 J -30827816.03 -30827815.90 -30827815.78 0.1644 0.0570

Mercury -89114-12-22 02:37 J -30827110.43 -30827110.39 -30827110.35 0.1627 0.1523

Earth -89109-07-04 13:11 J -30825454.06 -30825453.95 -30825453.85 0.1774 0.1494

Moon -89109-07-04 18:13 J -30825453.82 -30825453.74 -30825453.65 0.1774 0.1625

Mercury -89107-08-16 18:27 J -30824680.76 -30824680.73 -30824680.70 0.1906 0.1851

Mercury -89106-06-07 23:30 J -30824385.62 -30824385.52 -30824385.42 0.1648 0.1066

Mercury -89104-05-13 11:15 J -30823680.13 -30823680.03 -30823679.92 0.1631 0.1014

Mercury -89097-01-06 19:39 J -30821250.81 -30821250.68 -30821250.55 0.1900 0.0854

Mercury -89097-10-28 08:37 J -30820955.18 -30820955.14 -30820955.10 0.1654 0.1562

Mercury -89095-10-03 20:23 J -30820249.78 -30820249.65 -30820249.53 0.1635 0.0509

Venus -89093-08-25 02:23 J -30819558.57 -30819558.40 -30819558.23 0.1631 0.0090

Mercury -89088-05-28 20:23 J -30817820.80 -30817820.65 -30817820.51 0.1894 0.0186

Moon -89087-01-01 13:25 J -30817603.13 -30817602.94 -30817602.75 0.1770 0.0469

Earth -89087-01-01 15:20 J -30817603.04 -30817602.86 -30817602.68 0.1770 0.0390 *

Mercury -89085-02-24 05:15 J -30816819.41 -30816819.28 -30816819.15 0.1639 0.0034

Mercury -89079-10-18 21:06 J -30814390.73 -30814390.62 -30814390.51 0.1887 0.1202

Mercury -89076-07-16 14:23 J -30813389.02 -30813388.90 -30813388.77 0.1644 0.0497

Mercury -89074-06-22 02:51 J -30812683.41 -30812683.38 -30812683.36 0.1627 0.1598

Mercury -89067-12-06 23:30 J -30809958.62 -30809958.52 -30809958.42 0.1648 0.0997

Mercury -89065-11-11 11:30 J -30809253.11 -30809253.02 -30809252.92 0.1630 0.1092

Venus -89064-11-18 18:56 J -30808880.87 -30808880.71 -30808880.55 0.1905 0.0890

| | | | | | | |
|---------|----------------------|--------------|--------------|--------------|--------|----------|
| Earth | -89062-06-25 13:54 J | -30808297.02 | -30808296.92 | -30808296.82 | 0.1745 | 0.1512 |
| Moon | -89062-06-25 19:39 J | -30808296.77 | -30808296.68 | -30808296.60 | 0.1746 | 0.1591 |
| Mercury | -89058-07-07 19:54 J | -30806823.79 | -30806823.67 | -30806823.55 | 0.1900 | 0.0949 |
| Mercury | -89057-04-28 08:51 J | -30806528.18 | -30806528.13 | -30806528.08 | 0.1653 | 0.1494 |
| Mercury | -89055-04-03 20:23 J | -30805822.77 | -30805822.65 | -30805822.52 | 0.1635 | 0.0582 |
| Mercury | -89049-11-26 20:51 J | -30803393.77 | -30803393.63 | -30803393.48 | 0.1894 | 0.0077 |
| Mercury | -89046-08-25 05:30 J | -30802392.40 | -30802392.27 | -30802392.14 | 0.1639 | 0.0080 |
| Mercury | -89039-04-18 21:20 J | -30799963.73 | -30799963.61 | -30799963.49 | 0.1887 | 0.1108 |
| Mercury | -89036-01-14 14:37 J | -30798962.02 | -30798961.89 | -30798961.77 | 0.1644 | 0.0431 |
| Mercury | -89027-06-06 23:44 J | -30795531.62 | -30795531.51 | -30795531.40 | 0.1648 | 0.0925 |
| Venus | -89027-06-22 15:06 J | -30795516.04 | -30795515.87 | -30795515.70 | 0.1633 | 0.0127 |
| Mercury | -89025-05-12 11:44 J | -30794826.10 | -30794826.01 | -30794825.92 | 0.1631 | 0.1161 |
| Mercury | -89018-01-05 20:23 J | -30792396.77 | -30792396.65 | -30792396.53 | 0.1901 | 0.1057 |
| Mercury | -89018-10-28 08:51 J | -30792101.19 | -30792101.13 | -30792101.06 | 0.1653 | 0.1423 |
| Mercury | -89016-10-02 20:37 J | -30791395.76 | -30791395.64 | -30791395.52 | 0.1635 | 0.0657 |
| Mercury | -89009-05-27 21:20 J | -30788966.76 | -30788966.61 | -30788966.47 | 0.1894 | 0.0043 |
| Earth | -89008-01-04 00:27 J | -30788745.62 | -30788745.48 | -30788745.35 | 0.1764 | 0.1212 |
| Moon | -89008-01-04 06:13 J | -30788745.37 | -30788745.24 | -30788745.10 | 0.1763 | 0.1191 * |
| Mercury | -89006-02-23 05:30 J | -30787965.40 | -30787965.27 | -30787965.14 | 0.1639 | 0.0156 |

89TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 89th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|--------|-------------------------|---|-------|-----|-----|--------|-------|---|
|--------|-------------------------|---|-------|-----|-----|--------|-------|---|

Mercury -89000-10-17 21:49 J -30785536.71 -30785536.59 -30785536.46 0.1888 0.0997

Venus -88998-09-15 20:51 J -30784838.81 -30784838.63 -30784838.45 0.1902 0.0185

Mercury -88997-07-15 14:37 J -30784535.02 -30784534.89 -30784534.76 0.1643 0.0356

Venus -88995-06-21 05:59 J -30783829.31 -30783829.25 -30783829.19 0.1626 0.1510

Mercury -88988-12-05 23:44 J -30781104.62 -30781104.51 -30781104.40 0.1648 0.0858

Mercury -88986-11-11 11:44 J -30780399.09 -30780399.01 -30780398.92 0.1630 0.1238

Earth -88983-06-28 10:47 J -30779439.24 -30779439.05 -30779438.85 0.1752 0.0472

Moon -88983-06-28 18:56 J -30779438.90 -30779438.71 -30779438.51 0.1752 0.0363 *

Mercury -88979-07-06 20:37 J -30777969.75 -30777969.64 -30777969.53 0.1900 0.1158

Mercury -88978-04-28 09:06 J -30777674.20 -30777674.12 -30777674.05 0.1653 0.1359

Mercury -88976-04-02 20:37 J -30776968.75 -30776968.64 -30776968.52 0.1634 0.0728

Mercury -88970-11-26 21:35 J -30774539.74 -30774539.60 -30774539.46 0.1894 0.0136

Mercury -88967-08-24 05:44 J -30773538.39 -30773538.26 -30773538.13 0.1639 0.0221

Earth -88962-12-28 08:51 J -30771586.28 -30771586.13 -30771585.97 0.1790 0.0997

Moon -88962-12-28 16:32 J -30771585.98 -30771585.81 -30771585.65 0.1789 0.0769 *

Venus -88961-04-19 03:35 J -30771473.52 -30771473.35 -30771473.19 0.1635 0.0339

Mercury -88960-04-17 22:18 J -30771109.70 -30771109.57 -30771109.44 0.1888 0.0890

Mercury -88957-01-14 14:51 J -30770108.01 -30770107.88 -30770107.75 0.1643 0.0281

Mercury -88948-06-05 23:59 J -30766677.61 -30766677.50 -30766677.39 0.1648 0.0788

Mercury -88946-05-12 11:59 J -30765972.07 -30765972.00 -30765971.92 0.1630 0.1311

Mercury -88939-01-04 21:06 J -30763542.72 -30763542.62 -30763542.51 0.1901 0.1264

Mercury -88939-10-27 09:06 J -30763247.20 -30763247.12 -30763247.04 0.1653 0.1288

Mercury -88937-10-01 20:51 J -30762541.74 -30762541.63 -30762541.52 0.1634 0.0799

Venus -88932-07-12 21:35 J -30760796.77 -30760796.60 -30760796.43 0.1898 0.0562

Mercury -88930-05-27 22:03 J -30760112.72 -30760112.58 -30760112.44 0.1895 0.0247

Venus -88929-04-17 18:42 J -30759786.82 -30759786.72 -30759786.62 0.1628 0.1309

Mercury -88927-02-22 05:59 J -30759111.38 -30759111.25 -30759111.13 0.1639 0.0297

Mercury -88921-10-16 22:47 J -30756682.68 -30756682.55 -30756682.42 0.1888 0.0787

Mercury -88918-07-15 14:51 J -30755681.01 -30755680.88 -30755680.75 0.1643 0.0216

Mercury -88911-03-08 23:01 J -30753252.57 -30753252.54 -30753252.52 0.1881 0.1841

Mercury -88909-12-04 23:59 J -30752250.61 -30752250.50 -30752250.38 0.1648 0.0717
 Mercury -88907-11-10 12:13 J -30751545.06 -30751544.99 -30751544.92 0.1630 0.1384
 Moon -88904-07-01 09:49 J -30750581.26 -30750581.09 -30750580.91 0.1758 0.0626
 Earth -88904-07-01 11:01 J -30750581.23 -30750581.04 -30750580.85 0.1758 0.0635 *
 Mercury -88900-07-05 21:20 J -30749115.71 -30749115.61 -30749115.51 0.1901 0.1362
 Mercury -88899-04-27 09:20 J -30748820.20 -30748820.11 -30748820.03 0.1653 0.1218
 Mercury -88897-04-01 21:06 J -30748114.73 -30748114.62 -30748114.51 0.1634 0.0875
 Venus -88895-02-14 16:32 J -30747430.97 -30747430.81 -30747430.65 0.1637 0.0546
 Mercury -88891-11-25 22:32 J -30745685.70 -30745685.56 -30745685.41 0.1895 0.0367
 Mercury -88888-08-23 05:59 J -30744684.37 -30744684.25 -30744684.12 0.1638 0.0367
 Earth -88883-12-30 21:06 J -30742728.81 -30742728.62 -30742728.44 0.1783 0.0096
 Moon -88883-12-30 23:30 J -30742728.69 -30742728.52 -30742728.34 0.1783 0.0166 *
 Mercury -88881-04-16 23:01 J -30742255.67 -30742255.54 -30742255.40 0.1888 0.0685
 Mercury -88878-01-13 15:06 J -30741254.00 -30741253.87 -30741253.74 0.1643 0.0144
 Mercury -88872-09-06 23:30 J -30738825.57 -30738825.52 -30738825.46 0.1881 0.1724
 Mercury -88869-06-05 00:13 J -30737823.61 -30737823.49 -30737823.37 0.1648 0.0648
 Mercury -88867-05-11 12:13 J -30737118.04 -30737117.99 -30737117.93 0.1630 0.1458
 Venus -88866-05-09 23:44 J -30736754.64 -30736754.51 -30736754.37 0.1895 0.1250
 Venus -88863-02-13 07:54 J -30735744.30 -30735744.17 -30735744.05 0.1630 0.1116
 Mercury -88860-01-03 21:49 J -30734688.67 -30734688.59 -30734688.50 0.1901 0.1477
 Mercury -88860-10-26 09:20 J -30734393.20 -30734393.11 -30734393.02 0.1653 0.1148
 Mercury -88858-10-01 21:06 J -30733687.72 -30733687.62 -30733687.51 0.1634 0.0950
 Mercury -88851-05-26 22:47 J -30731258.69 -30731258.55 -30731258.41 0.1895 0.0448
 Mercury -88850-03-18 18:42 J -30730962.73 -30730962.72 -30730962.71 0.1658 0.1648
 Mercury -88848-02-21 06:13 J -30730257.37 -30730257.24 -30730257.12 0.1638 0.0440
 Mercury -88842-10-16 23:44 J -30727828.65 -30727828.51 -30727828.37 0.1889 0.0569
 Mercury -88839-07-14 15:20 J -30726826.99 -30726826.86 -30726826.73 0.1643 0.0086
 Mercury -88832-03-07 23:59 J -30724398.57 -30724398.50 -30724398.43 0.1881 0.1620
 Mercury -88830-12-05 00:13 J -30723396.61 -30723396.49 -30723396.37 0.1647 0.0577
 Venus -88830-12-13 05:15 J -30723388.43 -30723388.28 -30723388.13 0.1639 0.0759

Mercury -88828-11-09 12:27 J -30722691.02 -30722690.98 -30722690.93 0.1630 0.1537

Moon -88825-07-04 03:06 J -30721723.41 -30721723.37 -30721723.32 0.1764 0.1705

Mercury -88821-07-04 22:03 J -30720261.65 -30720261.58 -30720261.50 0.1901 0.1573

Mercury -88820-04-26 09:20 J -30719966.20 -30719966.11 -30719966.01 0.1652 0.1081

Mercury -88818-04-01 21:20 J -30719260.71 -30719260.61 -30719260.51 0.1634 0.1021

Mercury -88812-11-24 23:15 J -30716831.66 -30716831.53 -30716831.39 0.1895 0.0570

Mercury -88811-09-16 18:42 J -30716535.75 -30716535.72 -30716535.68 0.1657 0.1581

Mercury -88809-08-22 06:13 J -30715830.36 -30715830.24 -30715830.11 0.1638 0.0511

Moon -88803-01-02 03:06 J -30713871.52 -30713871.37 -30713871.21 0.1778 0.0839

Earth -88803-01-02 08:51 J -30713871.30 -30713871.13 -30713870.97 0.1778 0.0796 *

Mercury -88802-04-16 23:59 J -30713401.64 -30713401.50 -30713401.36 0.1888 0.0477

Mercury -88799-01-12 15:20 J -30712399.99 -30712399.86 -30712399.73 0.1643 0.0004

Venus -88798-12-11 20:37 J -30711701.78 -30711701.64 -30711701.50 0.1632 0.0909

Mercury -88793-09-06 00:27 J -30709971.57 -30709971.48 -30709971.40 0.1882 0.1517

Mercury -88790-06-05 00:27 J -30708969.60 -30708969.48 -30708969.36 0.1647 0.0501

Mercury -88788-05-10 12:42 J -30708263.99 -30708263.97 -30708263.95 0.1630 0.1609

Mercury -88781-01-03 22:32 J -30705834.62 -30705834.56 -30705834.49 0.1902 0.1683

Mercury -88781-10-25 09:35 J -30705539.20 -30705539.10 -30705539.00 0.1652 0.1007

Mercury -88779-09-30 21:35 J -30704833.70 -30704833.60 -30704833.50 0.1634 0.1098

Moon -88778-06-25 09:49 J -30704566.24 -30704566.09 -30704565.94 0.1736 0.1129

Earth -88778-06-25 17:59 J -30704565.90 -30704565.75 -30704565.60 0.1737 0.1128

Mercury -88772-05-25 23:44 J -30702404.64 -30702404.51 -30702404.38 0.1895 0.0670

Mercury -88771-03-17 18:42 J -30702108.76 -30702108.72 -30702108.67 0.1657 0.1514

Mercury -88769-02-21 06:27 J -30701403.35 -30701403.23 -30701403.11 0.1638 0.0585

Venus -88768-03-06 05:01 J -30701024.36 -30701024.29 -30701024.22 0.1903 0.1735

Venus -88764-10-09 17:44 J -30699345.90 -30699345.76 -30699345.62 0.1641 0.0977

Mercury -88763-10-16 00:27 J -30698974.62 -30698974.48 -30698974.34 0.1889 0.0360

Mercury -88760-07-13 15:35 J -30697972.98 -30697972.85 -30697972.72 0.1642 0.0090

Moon -88757-12-25 04:18 J -30696712.36 -30696712.32 -30696712.28 0.1804 0.1747

Earth -88757-12-25 11:01 J -30696712.13 -30696712.04 -30696711.95 0.1804 0.1561

Mercury -88753-03-07 00:56 J -30695544.56 -30695544.46 -30695544.36 0.1882 0.1404

Mercury -88751-12-04 00:27 J -30694542.60 -30694542.48 -30694542.35 0.1647 0.0436

Mercury -88742-07-04 23:01 J -30691407.59 -30691407.54 -30691407.50 0.1902 0.1781

Mercury -88741-04-25 09:35 J -30691112.20 -30691112.10 -30691111.99 0.1652 0.0942

Mercury -88739-03-31 21:35 J -30690406.69 -30690406.60 -30690406.51 0.1634 0.1170

Mercury -88733-11-23 23:59 J -30687977.63 -30687977.50 -30687977.37 0.1896 0.0769

Mercury -88732-09-15 18:56 J -30687681.77 -30687681.71 -30687681.64 0.1657 0.1439

Venus -88732-10-08 09:20 J -30687659.26 -30687659.11 -30687658.95 0.1634 0.0709

Mercury -88730-08-22 06:42 J -30686976.34 -30686976.22 -30686976.10 0.1638 0.0661

Moon -88724-01-04 13:39 J -30685014.01 -30685013.93 -30685013.84 0.1772 0.1587

Earth -88724-01-04 19:11 J -30685013.77 -30685013.70 -30685013.63 0.1772 0.1636

Mercury -88723-04-16 00:56 J -30684547.60 -30684547.46 -30684547.31 0.1889 0.0251

Mercury -88720-01-11 15:35 J -30683545.98 -30683545.85 -30683545.72 0.1642 0.0160

Mercury -88714-09-06 01:25 J -30681117.55 -30681117.44 -30681117.34 0.1882 0.1299

Mercury -88711-06-04 00:42 J -30680115.60 -30680115.47 -30680115.35 0.1647 0.0362

Venus -88702-01-01 06:56 J -30676982.36 -30676982.21 -30676982.06 0.1900 0.1027

Mercury -88702-01-02 23:30 J -30676980.53 -30676980.52 -30676980.51 0.1902 0.1891

Mercury -88702-10-25 09:49 J -30676685.20 -30676685.09 -30676684.98 0.1652 0.0867

Mercury -88700-09-29 21:49 J -30675979.67 -30675979.59 -30675979.51 0.1633 0.1246

Moon -88699-06-28 13:25 J -30675708.16 -30675707.94 -30675707.72 0.1743 0.0154

Earth -88699-06-28 14:37 J -30675708.09 -30675707.89 -30675707.69 0.1743 0.0110 *

Venus -88698-08-07 06:27 J -30675303.34 -30675303.23 -30675303.11 0.1643 0.1193

Mercury -88693-05-25 00:27 J -30673550.60 -30673550.48 -30673550.35 0.1896 0.0884

Mercury -88692-03-16 19:11 J -30673254.77 -30673254.70 -30673254.63 0.1657 0.1373

Mercury -88690-02-20 06:42 J -30672549.33 -30672549.22 -30672549.10 0.1638 0.0734

Mercury -88684-10-15 01:11 J -30670120.59 -30670120.45 -30670120.30 0.1889 0.0159

Mercury -88681-07-12 15:49 J -30669118.97 -30669118.84 -30669118.71 0.1642 0.0224

Moon -88678-12-28 20:23 J -30667854.84 -30667854.65 -30667854.46 0.1798 0.0555

Earth -88678-12-28 23:44 J -30667854.68 -30667854.51 -30667854.34 0.1798 0.0629 *

Mercury -88674-03-07 01:39 J -30666690.54 -30666690.43 -30666690.32 0.1883 0.1199

Mercury -88672-12-03 00:56 J -30665688.59 -30665688.46 -30665688.34 0.1647 0.0288
 Venus -88666-08-05 22:03 J -30663616.74 -30663616.58 -30663616.42 0.1636 0.0496
 Mercury -88662-04-25 10:03 J -30662258.19 -30662258.08 -30662257.97 0.1652 0.0795
 Mercury -88660-03-30 22:03 J -30661552.66 -30661552.58 -30661552.51 0.1633 0.1324
 Mercury -88654-11-24 01:11 J -30659123.58 -30659123.45 -30659123.33 0.1896 0.0995
 Mercury -88653-09-14 19:11 J -30658827.78 -30658827.70 -30658827.62 0.1657 0.1301
 Mercury -88651-08-21 06:56 J -30658122.32 -30658122.21 -30658122.10 0.1637 0.0808
 Mercury -88644-04-15 01:39 J -30655693.57 -30655693.43 -30655693.28 0.1890 0.0050
 Mercury -88641-01-11 15:49 J -30654691.96 -30654691.84 -30654691.71 0.1642 0.0297
 Venus -88637-10-28 08:08 J -30652940.33 -30652940.16 -30652939.98 0.1896 0.0299
 Mercury -88635-09-05 02:23 J -30652263.52 -30652263.40 -30652263.28 0.1883 0.1080
 Mercury -88632-06-03 00:56 J -30651261.59 -30651261.46 -30651261.33 0.1647 0.0216
 Venus -88632-06-03 18:56 J -30651260.79 -30651260.71 -30651260.62 0.1646 0.1419
 Mercury -88623-10-24 10:03 J -30647831.19 -30647831.08 -30647830.96 0.1652 0.0724
 Mercury -88621-09-28 22:03 J -30647125.64 -30647125.58 -30647125.51 0.1633 0.1398
 Earth -88620-07-01 12:42 J -30646850.14 -30646849.97 -30646849.80 0.1749 0.0961
 Moon -88620-07-01 21:20 J -30646849.77 -30646849.61 -30646849.44 0.1750 0.1049
 Mercury -88614-05-25 01:11 J -30644696.57 -30644696.45 -30644696.33 0.1896 0.1081
 Mercury -88613-03-15 19:25 J -30644400.78 -30644400.69 -30644400.61 0.1657 0.1230
 Mercury -88611-02-19 07:11 J -30643695.31 -30643695.20 -30643695.09 0.1637 0.0885
 Mercury -88605-10-14 02:23 J -30641266.55 -30641266.40 -30641266.26 0.1890 0.0079
 Mercury -88602-07-12 16:03 J -30640264.95 -30640264.83 -30640264.70 0.1642 0.0374
 Venus -88600-06-02 10:47 J -30639574.21 -30639574.05 -30639573.88 0.1638 0.0292
 Earth -88599-12-31 12:56 J -30638997.14 -30638996.96 -30638996.78 0.1792 0.0300
 Moon -88599-12-31 18:56 J -30638996.90 -30638996.71 -30638996.52 0.1791 0.0228 *
 Mercury -88595-03-06 02:51 J -30637836.51 -30637836.38 -30637836.26 0.1883 0.0978
 Mercury -88593-12-02 01:11 J -30636834.58 -30636834.45 -30636834.32 0.1647 0.0146
 Mercury -88583-04-24 10:18 J -30633404.19 -30633404.07 -30633403.96 0.1651 0.0654
 Mercury -88581-03-29 22:18 J -30632698.62 -30632698.57 -30632698.52 0.1633 0.1471
 Mercury -88575-11-23 01:54 J -30630269.53 -30630269.42 -30630269.31 0.1897 0.1206

Mercury -88574-09-14 19:25 J -30629973.78 -30629973.69 -30629973.60 0.1657 0.1161

Earth -88573-06-22 05:44 J -30629692.29 -30629692.26 -30629692.22 0.1723 0.1693

Moon -88573-06-22 13:39 J -30629691.98 -30629691.93 -30629691.88 0.1723 0.1662

Mercury -88572-08-20 07:11 J -30629268.30 -30629268.20 -30629268.09 0.1637 0.0957

Venus -88571-08-25 10:32 J -30628898.23 -30628898.06 -30628897.88 0.1893 0.0395

Venus -88566-04-01 07:39 J -30627218.19 -30627218.18 -30627218.16 0.1648 0.1637

Mercury -88565-04-14 02:37 J -30626839.54 -30626839.39 -30626839.25 0.1890 0.0174

Mercury -88562-01-10 16:18 J -30625837.95 -30625837.82 -30625837.70 0.1642 0.0446

Mercury -88556-09-04 03:06 J -30623409.50 -30623409.37 -30623409.24 0.1883 0.0871

Mercury -88553-06-02 01:11 J -30622407.57 -30622407.45 -30622407.32 0.1646 0.0088

Mercury -88544-10-23 10:18 J -30618977.19 -30618977.07 -30618976.95 0.1651 0.0582

Mercury -88542-09-28 22:32 J -30618271.60 -30618271.56 -30618271.52 0.1633 0.1551

Mercury -88535-05-24 02:08 J -30615842.51 -30615842.41 -30615842.30 0.1897 0.1308

Mercury -88534-03-15 19:39 J -30615546.78 -30615546.68 -30615546.59 0.1656 0.1091

Venus -88534-03-30 23:15 J -30615531.70 -30615531.53 -30615531.36 0.1640 0.0084

Mercury -88532-02-18 07:25 J -30614841.29 -30614841.19 -30614841.09 0.1637 0.1034

Mercury -88526-10-14 03:06 J -30612412.51 -30612412.37 -30612412.23 0.1890 0.0285

Mercury -88525-08-05 04:47 J -30612116.33 -30612116.30 -30612116.27 0.1662 0.1596

Mercury -88523-07-11 16:18 J -30611410.94 -30611410.82 -30611410.69 0.1641 0.0520

Earth -88519-01-03 02:08 J -30610139.54 -30610139.41 -30610139.27 0.1785 0.1211

Moon -88519-01-03 08:23 J -30610139.27 -30610139.15 -30610139.02 0.1785 0.1266 *

Mercury -88516-03-05 03:35 J -30608982.48 -30608982.35 -30608982.21 0.1883 0.0760

Mercury -88514-12-02 01:25 J -30607980.57 -30607980.44 -30607980.31 0.1646 0.0014

Mercury -88507-07-26 03:49 J -30605552.37 -30605552.34 -30605552.31 0.1876 0.1824

Venus -88505-06-21 11:59 J -30604856.15 -30604856.00 -30604855.86 0.1889 0.1120

Mercury -88504-04-23 10:32 J -30604550.18 -30604550.06 -30604549.94 0.1651 0.0508

Mercury -88502-03-29 22:47 J -30603844.56 -30603844.55 -30603844.55 0.1633 0.1626

Mercury -88496-11-22 02:37 J -30601415.49 -30601415.39 -30601415.30 0.1897 0.1410

Mercury -88495-09-13 19:54 J -30601119.77 -30601119.67 -30601119.57 0.1656 0.1015

Earth -88494-06-26 01:11 J -30600834.63 -30600834.45 -30600834.26 0.1729 0.0723

Moon -88494-06-26 04:03 J -30600834.50 -30600834.33 -30600834.15 0.1729 0.0651 *
 Mercury -88493-08-19 07:39 J -30600414.28 -30600414.18 -30600414.09 0.1637 0.1111
 Mercury -88486-04-14 03:35 J -30597985.49 -30597985.35 -30597985.21 0.1891 0.0395
 Mercury -88485-02-04 05:01 J -30597689.34 -30597689.29 -30597689.25 0.1661 0.1527
 Mercury -88483-01-09 16:32 J -30596983.93 -30596983.81 -30596983.69 0.1641 0.0595
 Mercury -88477-09-03 04:03 J -30594555.46 -30594555.33 -30594555.19 0.1884 0.0653
 Mercury -88474-06-02 01:25 J -30593553.57 -30593553.44 -30593553.31 0.1646 0.0089
 Earth -88473-12-26 00:13 J -30592980.63 -30592980.49 -30592980.36 0.1812 0.1221
 Moon -88473-12-26 04:03 J -30592980.45 -30592980.33 -30592980.21 0.1812 0.1335 *
 Venus -88468-01-25 12:13 J -30591489.16 -30591488.99 -30591488.82 0.1643 0.0135
 Mercury -88467-01-24 04:32 J -30591125.37 -30591125.31 -30591125.25 0.1877 0.1699
 Mercury -88465-10-22 10:47 J -30590123.18 -30590123.05 -30590122.93 0.1651 0.0435
 Mercury -88456-05-23 03:06 J -30586988.46 -30586988.37 -30586988.29 0.1897 0.1522
 Mercury -88455-03-14 19:54 J -30586692.78 -30586692.67 -30586692.57 0.1656 0.0948
 Mercury -88453-02-18 07:39 J -30585987.27 -30585987.18 -30585987.09 0.1637 0.1184
 Mercury -88447-10-13 03:49 J -30583558.48 -30583558.34 -30583558.20 0.1891 0.0494
 Mercury -88446-08-05 05:01 J -30583262.35 -30583262.29 -30583262.23 0.1661 0.1455
 Mercury -88444-07-10 16:32 J -30582556.92 -30582556.81 -30582556.69 0.1641 0.0670
 Venus -88439-04-18 14:23 J -30580813.95 -30580813.90 -30580813.84 0.1886 0.1788
 Mercury -88437-03-04 04:32 J -30580128.45 -30580128.31 -30580128.17 0.1884 0.0546
 Venus -88436-01-24 04:03 J -30579802.38 -30579802.33 -30579802.29 0.1635 0.1560
 Mercury -88435-12-01 01:39 J -30579126.55 -30579126.43 -30579126.30 0.1646 0.0166
 Mercury -88428-07-25 05:01 J -30576698.37 -30576698.29 -30576698.21 0.1877 0.1589
 Mercury -88425-04-22 10:47 J -30575696.17 -30575696.05 -30575695.92 0.1651 0.0361
 Mercury -88417-11-21 03:35 J -30572561.42 -30572561.35 -30572561.28 0.1897 0.1632
 Mercury -88416-09-12 19:54 J -30572265.78 -30572265.67 -30572265.56 0.1656 0.0875
 Moon -88415-06-28 14:37 J -30571977.08 -30571976.89 -30571976.70 0.1735 0.0094
 Earth -88415-06-28 20:51 J -30571976.83 -30571976.63 -30571976.43 0.1735 0.0274 *
 Mercury -88414-08-19 07:54 J -30571560.25 -30571560.17 -30571560.09 0.1636 0.1260
 Mercury -88407-04-13 04:18 J -30569131.45 -30569131.32 -30569131.18 0.1891 0.0606

Mercury -88406-02-03 05:15 J -30568835.35 -30568835.28 -30568835.21 0.1661 0.1385

Mercury -88404-01-08 16:47 J -30568129.91 -30568129.80 -30568129.68 0.1641 0.0745

Venus -88403-11-23 00:56 J -30567446.63 -30567446.46 -30567446.29 0.1645 0.0353

Mercury -88398-09-03 05:01 J -30565701.43 -30565701.29 -30565701.14 0.1884 0.0431

Mercury -88395-06-01 01:54 J -30564699.55 -30564699.42 -30564699.29 0.1646 0.0229

Moon -88394-12-29 10:18 J -30564123.24 -30564123.07 -30564122.89 0.1806 0.0234

Earth -88394-12-29 14:37 J -30564123.08 -30564122.89 -30564122.71 0.1806 0.0255 *

Mercury -88388-01-23 05:15 J -30562271.37 -30562271.28 -30562271.19 0.1877 0.1494

Mercury -88386-10-22 11:01 J -30561269.17 -30561269.04 -30561268.92 0.1651 0.0289

Mercury -88377-05-22 03:35 J -30558134.40 -30558134.35 -30558134.29 0.1898 0.1725

Mercury -88376-03-13 20:08 J -30557838.77 -30557838.66 -30557838.55 0.1656 0.0800

Mercury -88374-02-17 08:08 J -30557133.24 -30557133.16 -30557133.09 0.1636 0.1339

Venus -88371-11-21 16:47 J -30555759.90 -30555759.80 -30555759.71 0.1637 0.1351

Mercury -88368-10-12 05:01 J -30554704.42 -30554704.29 -30554704.16 0.1891 0.0726

Mercury -88367-08-04 05:15 J -30554408.35 -30554408.28 -30554408.20 0.1661 0.1313

Mercury -88365-07-09 17:01 J -30553702.90 -30553702.79 -30553702.68 0.1641 0.0822

Mercury -88358-03-04 05:30 J -30551274.42 -30551274.27 -30551274.13 0.1884 0.0327

Mercury -88356-11-30 01:54 J -30550272.54 -30550272.42 -30550272.29 0.1646 0.0304

Mercury -88349-07-24 05:44 J -30547844.35 -30547844.26 -30547844.16 0.1877 0.1378

Mercury -88346-04-22 11:01 J -30546842.17 -30546842.04 -30546841.91 0.1650 0.0217

Venus -88341-02-13 19:25 J -30545083.83 -30545083.69 -30545083.55 0.1895 0.1175

Mercury -88338-11-21 04:18 J -30543707.35 -30543707.32 -30543707.29 0.1898 0.1849

Mercury -88337-09-11 20:08 J -30543411.77 -30543411.66 -30543411.54 0.1656 0.0731

Venus -88337-09-19 13:25 J -30543404.10 -30543403.94 -30543403.78 0.1647 0.0576

Moon -88336-07-01 10:32 J -30543119.17 -30543119.06 -30543118.94 0.1741 0.1448

Earth -88336-07-01 17:59 J -30543118.88 -30543118.75 -30543118.62 0.1741 0.1309

Mercury -88335-08-18 08:08 J -30542706.22 -30542706.16 -30542706.09 0.1636 0.1415

Mercury -88328-04-12 05:01 J -30540277.41 -30540277.29 -30540277.16 0.1891 0.0818

Mercury -88327-02-02 05:30 J -30539981.35 -30539981.27 -30539981.19 0.1661 0.1240

Mercury -88325-01-08 17:15 J -30539275.89 -30539275.78 -30539275.68 0.1641 0.0897

Mercury -88319-09-02 05:59 J -30536847.40 -30536847.25 -30536847.11 0.1885 0.0222

Mercury -88316-05-31 02:08 J -30535845.53 -30535845.41 -30535845.28 0.1645 0.0378

Moon -88315-12-31 20:51 J -30535265.80 -30535265.63 -30535265.46 0.1800 0.0685

Earth -88314-01-01 04:03 J -30535265.50 -30535265.33 -30535265.16 0.1800 0.0684 *

Mercury -88309-01-23 06:27 J -30533417.34 -30533417.23 -30533417.12 0.1877 0.1259

Mercury -88307-10-21 11:15 J -30532415.16 -30532415.03 -30532414.90 0.1650 0.0139

Venus -88305-09-18 05:30 J -30531717.39 -30531717.27 -30531717.15 0.1639 0.1146

Mercury -88297-03-12 20:23 J -30528984.77 -30528984.65 -30528984.53 0.1655 0.0657

Mercury -88295-02-16 08:23 J -30528279.20 -30528279.15 -30528279.10 0.1636 0.1490

Moon -88289-06-22 09:49 J -30525961.20 -30525961.09 -30525960.97 0.1715 0.1419

Earth -88289-06-22 15:49 J -30525960.97 -30525960.84 -30525960.71 0.1715 0.1262 *

Mercury -88289-10-11 05:44 J -30525850.39 -30525850.26 -30525850.14 0.1892 0.0934

Mercury -88288-08-03 05:30 J -30525554.36 -30525554.27 -30525554.18 0.1661 0.1171

Mercury -88286-07-09 17:15 J -30524848.88 -30524848.78 -30524848.67 0.1640 0.0970

Mercury -88279-03-03 06:27 J -30522420.38 -30522420.23 -30522420.09 0.1885 0.0111

Mercury -88277-11-29 02:23 J -30521418.53 -30521418.40 -30521418.28 0.1645 0.0454

Venus -88276-12-10 21:20 J -30521041.78 -30521041.61 -30521041.43 0.1891 0.0480

Venus -88271-07-18 02:08 J -30519361.56 -30519361.41 -30519361.26 0.1649 0.0796

Mercury -88270-07-24 06:42 J -30518990.34 -30518990.22 -30518990.11 0.1878 0.1169

Mercury -88267-04-21 11:15 J -30517988.15 -30517988.03 -30517987.90 0.1650 0.0088

Mercury -88258-09-11 20:37 J -30514557.76 -30514557.64 -30514557.52 0.1655 0.0581

Mercury -88256-08-17 08:37 J -30513852.17 -30513852.14 -30513852.11 0.1636 0.1569

Mercury -88249-04-11 06:13 J -30511423.36 -30511423.24 -30511423.12 0.1892 0.1046

Mercury -88248-02-01 05:44 J -30511127.36 -30511127.26 -30511127.17 0.1660 0.1099

Mercury -88246-01-07 17:30 J -30510421.87 -30510421.77 -30510421.67 0.1640 0.1048

Mercury -88240-09-01 06:56 J -30507993.36 -30507993.21 -30507993.07 0.1885 0.0053

Mercury -88239-06-24 14:51 J -30507696.90 -30507696.88 -30507696.85 0.1666 0.1611

Venus -88239-07-16 17:59 J -30507674.89 -30507674.75 -30507674.61 0.1641 0.0931

Mercury -88237-05-30 02:23 J -30506991.52 -30506991.40 -30506991.28 0.1645 0.0526

Earth -88235-01-03 18:56 J -30506407.79 -30506407.71 -30506407.63 0.1793 0.1618

Moon -88235-01-03 19:54 J -30506407.76 -30506407.67 -30506407.58 0.1793 0.1586 *
 Mercury -88230-01-22 07:25 J -30504563.31 -30504563.19 -30504563.07 0.1878 0.1043
 Mercury -88228-10-20 11:30 J -30503561.15 -30503561.02 -30503560.89 0.1650 0.0014
 Mercury -88218-03-12 20:37 J -30500130.76 -30500130.64 -30500130.52 0.1655 0.0512
 Earth -88210-06-26 10:03 J -30497103.28 -30497103.08 -30497102.89 0.1721 0.0320
 Moon -88210-06-26 14:08 J -30497103.12 -30497102.91 -30497102.69 0.1721 0.0135 *
 Venus -88210-10-07 23:15 J -30496999.71 -30496999.53 -30496999.35 0.1887 0.0235
 Mercury -88210-10-11 06:27 J -30496996.34 -30496996.23 -30496996.12 0.1892 0.1143
 Mercury -88209-08-02 05:44 J -30496700.35 -30496700.26 -30496700.16 0.1660 0.1025
 Mercury -88207-07-08 17:44 J -30495994.86 -30495994.76 -30495994.67 0.1640 0.1125
 Venus -88205-05-14 14:23 J -30495319.03 -30495318.90 -30495318.77 0.1652 0.1031
 Mercury -88200-03-02 07:11 J -30493566.34 -30493566.20 -30493566.05 0.1886 0.0124
 Mercury -88200-12-23 15:06 J -30493269.91 -30493269.87 -30493269.82 0.1666 0.1537
 Mercury -88198-11-29 02:37 J -30492564.51 -30492564.39 -30492564.27 0.1645 0.0606
 Mercury -88191-07-23 07:39 J -30490136.30 -30490136.18 -30490136.05 0.1878 0.0938
 Earth -88189-12-26 11:59 J -30489249.16 -30489249.00 -30489248.84 0.1820 0.0891
 Moon -88189-12-26 14:37 J -30489249.06 -30489248.89 -30489248.72 0.1820 0.0897 *
 Mercury -88188-04-20 11:44 J -30489134.14 -30489134.01 -30489133.89 0.1650 0.0098
 Mercury -88179-09-10 20:37 J -30485703.76 -30485703.64 -30485703.51 0.1655 0.0441
 Venus -88173-05-13 06:42 J -30483632.37 -30483632.22 -30483632.07 0.1644 0.0717
 Mercury -88170-04-11 06:56 J -30482569.31 -30482569.21 -30482569.10 0.1892 0.1257
 Mercury -88169-02-01 05:59 J -30482273.35 -30482273.25 -30482273.15 0.1660 0.0953
 Mercury -88167-01-06 17:44 J -30481567.85 -30481567.76 -30481567.67 0.1640 0.1200
 Mercury -88161-08-31 07:39 J -30479139.32 -30479139.18 -30479139.03 0.1885 0.0226
 Mercury -88160-06-23 15:06 J -30478842.92 -30478842.87 -30478842.81 0.1666 0.1469
 Mercury -88158-05-30 02:37 J -30478137.50 -30478137.39 -30478137.27 0.1645 0.0678
 Mercury -88151-01-21 08:08 J -30475709.29 -30475709.16 -30475709.03 0.1878 0.0837
 Mercury -88149-10-19 11:44 J -30474707.14 -30474707.01 -30474706.88 0.1650 0.0160
 Venus -88144-08-04 01:25 J -30472957.59 -30472957.44 -30472957.28 0.1884 0.0919
 Mercury -88139-03-11 20:51 J -30471276.75 -30471276.63 -30471276.50 0.1655 0.0363

Venus -88139-03-12 03:06 J -30471276.48 -30471276.37 -30471276.26 0.1654 0.1254

Earth -88131-06-29 05:15 J -30468245.47 -30468245.28 -30468245.10 0.1727 0.0665

Moon -88131-06-29 12:27 J -30468245.17 -30468244.98 -30468244.80 0.1728 0.0544 *

Mercury -88131-10-10 07:39 J -30468142.28 -30468142.18 -30468142.09 0.1893 0.1376

Mercury -88130-08-02 05:59 J -30467846.35 -30467846.25 -30467846.14 0.1660 0.0882

Mercury -88128-07-07 17:59 J -30467140.83 -30467140.75 -30467140.67 0.1640 0.1278

Mercury -88121-03-01 08:08 J -30464712.30 -30464712.16 -30464712.02 0.1886 0.0328

Mercury -88121-12-22 15:20 J -30464415.93 -30464415.86 -30464415.79 0.1665 0.1397

Mercury -88119-11-28 02:51 J -30463710.49 -30463710.38 -30463710.26 0.1645 0.0752

Mercury -88112-07-22 08:37 J -30461282.27 -30461282.14 -30461282.00 0.1879 0.0718

Earth -88110-12-30 03:35 J -30460391.53 -30460391.35 -30460391.16 0.1814 0.0113

Moon -88110-12-30 10:32 J -30460391.24 -30460391.06 -30460390.87 0.1814 0.0167 *

Mercury -88109-04-19 11:59 J -30460280.13 -30460280.00 -30460279.87 0.1650 0.0233

Venus -88107-03-10 19:11 J -30459589.86 -30459589.70 -30459589.54 0.1646 0.0494

Mercury -88103-12-12 08:51 J -30457852.17 -30457852.13 -30457852.08 0.1871 0.1778

Mercury -88100-09-09 21:06 J -30456849.75 -30456849.62 -30456849.50 0.1655 0.0291

Mercury -88091-04-10 07:39 J -30453715.27 -30453715.18 -30453715.09 0.1893 0.1463

Mercury -88090-01-31 06:13 J -30453419.35 -30453419.24 -30453419.13 0.1660 0.0806

Mercury -88088-01-05 17:59 J -30452713.82 -30452713.75 -30452713.67 0.1640 0.1354

Moon -88084-06-20 18:42 J -30451086.80 -30451086.72 -30451086.64 0.1703 0.1546

Mercury -88082-08-31 08:37 J -30450285.28 -30450285.14 -30450285.00 0.1886 0.0441

Mercury -88081-06-22 15:35 J -30449988.93 -30449988.85 -30449988.78 0.1665 0.1324

Mercury -88079-05-29 03:06 J -30449283.48 -30449283.37 -30449283.26 0.1644 0.0831

Venus -88078-06-01 03:35 J -30448915.44 -30448915.35 -30448915.27 0.1880 0.1619

Venus -88073-01-07 15:20 J -30447233.93 -30447233.86 -30447233.78 0.1657 0.1490

Mercury -88072-01-20 09:20 J -30446855.25 -30446855.11 -30446854.97 0.1879 0.0603

Mercury -88070-10-19 11:59 J -30445853.12 -30445853.00 -30445852.87 0.1649 0.0313

Mercury -88063-06-12 09:20 J -30443425.17 -30443425.11 -30443425.05 0.1871 0.1671

Mercury -88060-03-10 21:06 J -30442422.75 -30442422.62 -30442422.49 0.1654 0.0216

Earth -88052-07-02 00:13 J -30439387.54 -30439387.49 -30439387.43 0.1733 0.1659

Mercury -88052-10-09 08:23 J -30439288.23 -30439288.15 -30439288.08 0.1893 0.1585

Mercury -88051-08-01 06:13 J -30438992.35 -30438992.24 -30438992.12 0.1660 0.0737

Mercury -88049-07-06 18:13 J -30438286.80 -30438286.74 -30438286.68 0.1640 0.1429

Mercury -88042-03-01 09:06 J -30435858.26 -30435858.12 -30435857.98 0.1886 0.0550

Mercury -88042-12-22 15:35 J -30435561.93 -30435561.85 -30435561.77 0.1665 0.1252

Venus -88041-01-06 07:54 J -30435547.34 -30435547.17 -30435547.00 0.1648 0.0279

Mercury -88040-11-27 03:06 J -30434856.47 -30434856.37 -30434856.26 0.1644 0.0908

Mercury -88033-07-21 09:20 J -30432428.25 -30432428.11 -30432427.97 0.1879 0.0511

Earth -88030-01-01 17:59 J -30431533.89 -30431533.75 -30431533.60 0.1808 0.1067

Moon -88030-01-01 18:13 J -30431533.88 -30431533.74 -30431533.61 0.1808 0.1111 *

Mercury -88030-04-19 12:13 J -30431426.12 -30431425.99 -30431425.87 0.1649 0.0382

Mercury -88024-12-11 10:03 J -30428998.16 -30428998.08 -30428998.00 0.1872 0.1549

Mercury -88021-09-08 21:20 J -30427995.74 -30427995.61 -30427995.48 0.1654 0.0138

Mercury -88012-04-09 08:37 J -30424861.20 -30424861.14 -30424861.07 0.1893 0.1697

Mercury -88011-01-30 06:27 J -30424565.35 -30424565.23 -30424565.11 0.1660 0.0662

Mercury -88009-01-05 18:27 J -30423859.78 -30423859.73 -30423859.68 0.1639 0.1508

Moon -88005-06-23 01:25 J -30422229.58 -30422229.44 -30422229.29 0.1707 0.1007

Earth -88005-06-23 03:35 J -30422229.52 -30422229.35 -30422229.17 0.1708 0.0829 *

Mercury -88003-08-30 09:35 J -30421431.24 -30421431.10 -30421430.97 0.1886 0.0660

Mercury -88002-06-22 15:35 J -30421134.93 -30421134.85 -30421134.76 0.1665 0.1181

88TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 88th millennium BCE.

| PLANET | MAX- TRANSIT | C | START | MAX | END | SUNRAD | DEPTH | S |
|--------|-----------------|---|-------|-----|-----|--------|-------|---|
|--------|-----------------|---|-------|-----|-----|--------|-------|---|

TIME

Mercury -88000-05-28 03:20 J -30420429.46 -30420429.36 -30420429.26 0.1644 0.0981
Mercury -87993-01-20 10:03 J -30418001.22 -30418001.08 -30418000.94 0.1879 0.0385
Mercury -87991-10-18 12:27 J -30416999.11 -30416998.98 -30416998.86 0.1649 0.0460
Mercury -87984-06-11 10:03 J -30414571.17 -30414571.08 -30414570.98 0.1872 0.1458
Moon -87984-12-24 02:08 J -30414375.48 -30414375.41 -30414375.34 0.1836 0.1668
Earth -87984-12-24 03:06 J -30414375.45 -30414375.37 -30414375.29 0.1836 0.1653 *
Mercury -87981-03-09 21:20 J -30413568.74 -30413568.61 -30413568.48 0.1654 0.0070
Venus -87980-03-28 08:23 J -30413185.27 -30413185.15 -30413185.02 0.1889 0.1367
Venus -87976-11-02 20:08 J -30411504.83 -30411504.66 -30411504.49 0.1651 0.0062
Mercury -87973-10-08 08:51 J -30410434.17 -30410434.13 -30410434.08 0.1893 0.1793
Mercury -87972-07-31 06:42 J -30410138.34 -30410138.22 -30410138.10 0.1659 0.0586
Mercury -87970-07-06 18:27 J -30409432.75 -30409432.73 -30409432.70 0.1639 0.1586
Mercury -87963-02-28 09:49 J -30407004.22 -30407004.09 -30407003.95 0.1887 0.0769
Mercury -87963-12-21 15:49 J -30406707.93 -30406707.84 -30406707.75 0.1665 0.1107
Mercury -87961-11-26 03:35 J -30406002.45 -30406002.35 -30406002.25 0.1644 0.1061
Mercury -87954-07-21 10:32 J -30403574.21 -30403574.06 -30403573.92 0.1879 0.0282
Mercury -87953-05-13 00:56 J -30403277.48 -30403277.46 -30403277.43 0.1670 0.1631
Mercury -87951-04-18 12:27 J -30402572.10 -30402571.98 -30402571.86 0.1649 0.0531
Mercury -87945-12-10 10:47 J -30400144.15 -30400144.05 -30400143.94 0.1872 0.1334
Mercury -87942-09-08 21:35 J -30399141.73 -30399141.60 -30399141.47 0.1654 0.0016
Mercury -87932-01-29 06:42 J -30395711.34 -30395711.22 -30395711.10 0.1659 0.0515
Moon -87926-06-26 11:30 J -30393372.22 -30393372.02 -30393371.82 0.1713 0.0226
Earth -87926-06-26 19:25 J -30393371.89 -30393371.69 -30393371.49 0.1713 0.0086 *
Mercury -87924-08-29 10:18 J -30392577.20 -30392577.07 -30392576.94 0.1887 0.0874
Mercury -87923-06-21 15:49 J -30392280.94 -30392280.84 -30392280.74 0.1665 0.1037
Mercury -87921-05-27 03:35 J -30391575.44 -30391575.35 -30391575.26 0.1644 0.1132
Mercury -87914-01-19 10:47 J -30389147.19 -30389147.05 -30389146.90 0.1880 0.0177
Venus -87914-01-23 10:18 J -30389143.24 -30389143.07 -30389142.90 0.1885 0.0643
Mercury -87914-11-12 01:11 J -30388850.49 -30388850.45 -30388850.41 0.1670 0.1554

Mercury -87912-10-17 12:42 J -30388145.09 -30388144.97 -30388144.85 0.1649 0.0611
 Venus -87910-08-31 08:37 J -30387462.31 -30387462.14 -30387461.97 0.1653 0.0179
 Mercury -87905-06-10 11:15 J -30385717.14 -30385717.03 -30385716.92 0.1872 0.1223
 Moon -87905-12-26 14:23 J -30385518.07 -30385517.90 -30385517.72 0.1830 0.0622
 Earth -87905-12-26 22:03 J -30385517.76 -30385517.58 -30385517.41 0.1829 0.0583 *
 Mercury -87902-03-09 21:49 J -30384714.72 -30384714.59 -30384714.47 0.1654 0.0102
 Mercury -87893-07-30 06:42 J -30381284.34 -30381284.22 -30381284.09 0.1659 0.0445
 Mercury -87884-02-27 10:47 J -30378150.18 -30378150.05 -30378149.93 0.1887 0.0983
 Mercury -87884-12-20 16:03 J -30377853.94 -30377853.83 -30377853.73 0.1664 0.0965
 Mercury -87882-11-26 03:49 J -30377148.43 -30377148.34 -30377148.26 0.1644 0.1211
 Venus -87878-08-30 01:11 J -30375775.50 -30375775.45 -30375775.41 0.1645 0.1579
 Mercury -87875-07-20 11:15 J -30374720.17 -30374720.03 -30374719.88 0.1880 0.0078
 Mercury -87874-05-13 01:11 J -30374423.50 -30374423.45 -30374423.39 0.1670 0.1487
 Mercury -87872-04-17 12:42 J -30373718.09 -30373717.97 -30373717.85 0.1649 0.0683
 Mercury -87866-12-10 11:44 J -30371290.13 -30371290.01 -30371289.90 0.1872 0.1122
 Mercury -87863-09-07 21:49 J -30370287.72 -30370287.59 -30370287.46 0.1654 0.0158
 Mercury -87853-01-29 06:56 J -30366857.33 -30366857.21 -30366857.08 0.1659 0.0366
 Venus -87849-11-19 12:27 J -30365101.16 -30365100.98 -30365100.80 0.1881 0.0050
 Moon -87847-06-29 13:11 J -30364514.14 -30364513.95 -30364513.76 0.1719 0.0804
 Earth -87847-06-29 13:54 J -30364514.07 -30364513.92 -30364513.76 0.1719 0.1045 *
 Mercury -87845-08-28 11:15 J -30363723.15 -30363723.03 -30363722.92 0.1888 0.1097
 Mercury -87844-06-20 16:03 J -30363426.93 -30363426.83 -30363426.72 0.1664 0.0890
 Venus -87844-06-27 21:20 J -30363419.78 -30363419.61 -30363419.45 0.1656 0.0407
 Mercury -87842-05-27 04:03 J -30362721.41 -30362721.33 -30362721.25 0.1644 0.1290
 Mercury -87835-01-18 11:59 J -30360293.15 -30360293.00 -30360292.86 0.1880 0.0075
 Mercury -87835-11-11 01:25 J -30359996.51 -30359996.44 -30359996.38 0.1670 0.1415
 Mercury -87833-10-16 12:56 J -30359291.08 -30359290.96 -30359290.85 0.1648 0.0760
 Mercury -87826-06-10 11:59 J -30356863.12 -30356863.00 -30356862.87 0.1873 0.1013
 Moon -87826-12-30 11:59 J -30356660.20 -30356660.00 -30356659.80 0.1823 0.0335
 Earth -87826-12-30 14:23 J -30356660.08 -30356659.90 -30356659.72 0.1823 0.0443 *

Mercury -87823-03-08 21:49 J -30355860.71 -30355860.59 -30355860.46 0.1654 0.0233

Mercury -87814-07-30 06:56 J -30352430.33 -30352430.21 -30352430.08 0.1659 0.0299

Venus -87812-06-26 13:25 J -30351733.03 -30351732.94 -30351732.84 0.1647 0.1357

Mercury -87805-02-27 11:30 J -30349296.13 -30349296.02 -30349295.91 0.1887 0.1201

Mercury -87805-12-19 16:18 J -30348999.93 -30348999.82 -30348999.71 0.1664 0.0818

Mercury -87803-11-25 04:03 J -30348294.40 -30348294.33 -30348294.26 0.1643 0.1364

Earth -87800-06-21 01:11 J -30347355.58 -30347355.45 -30347355.32 0.1695 0.1279

Moon -87800-06-21 02:37 J -30347355.55 -30347355.39 -30347355.23 0.1695 0.1119 *

Mercury -87796-07-19 11:59 J -30345866.14 -30345866.00 -30345865.85 0.1880 0.0147

Mercury -87795-05-12 01:25 J -30345569.51 -30345569.44 -30345569.36 0.1670 0.1342

Mercury -87793-04-16 12:56 J -30344864.07 -30344863.96 -30344863.85 0.1648 0.0836

Mercury -87787-12-09 12:42 J -30342436.10 -30342435.97 -30342435.84 0.1873 0.0889

Mercury -87784-09-06 22:03 J -30341433.71 -30341433.58 -30341433.45 0.1653 0.0310

Venus -87783-09-16 14:23 J -30341059.06 -30341058.90 -30341058.74 0.1877 0.0751

Venus -87778-04-25 09:06 J -30339377.28 -30339377.12 -30339376.96 0.1659 0.0653

Mercury -87774-01-28 07:11 J -30338003.33 -30338003.20 -30338003.07 0.1659 0.0220

Mercury -87766-08-28 11:59 J -30334869.10 -30334869.00 -30334868.90 0.1888 0.1309

Mercury -87765-06-19 16:18 J -30334572.93 -30334572.82 -30334572.71 0.1664 0.0745

Mercury -87763-05-26 04:03 J -30333867.39 -30333867.33 -30333867.27 0.1643 0.1440

Mercury -87756-01-17 12:42 J -30331439.11 -30331438.97 -30331438.83 0.1880 0.0271

Mercury -87756-11-10 01:25 J -30331142.52 -30331142.44 -30331142.35 0.1670 0.1273

Mercury -87754-10-16 13:11 J -30330437.06 -30330436.95 -30330436.84 0.1648 0.0911

Mercury -87747-06-09 12:56 J -30328009.10 -30328008.96 -30328008.83 0.1873 0.0798

Earth -87746-01-02 05:59 J -30327802.36 -30327802.25 -30327802.13 0.1817 0.1428

Moon -87746-01-02 12:13 J -30327802.08 -30327801.99 -30327801.90 0.1816 0.1597

Venus -87746-04-24 01:39 J -30327690.55 -30327690.43 -30327690.30 0.1650 0.1132

Mercury -87744-03-07 22:03 J -30327006.70 -30327006.58 -30327006.45 0.1653 0.0387

Mercury -87738-10-30 13:11 J -30324578.96 -30324578.95 -30324578.93 0.1866 0.1851

Mercury -87735-07-29 07:25 J -30323576.32 -30323576.19 -30323576.07 0.1658 0.0151

Mercury -87726-02-26 12:27 J -30320442.08 -30320441.98 -30320441.89 0.1888 0.1421

Mercury -87726-12-19 16:32 J -30320145.93 -30320145.81 -30320145.70 0.1664 0.0673

Mercury -87724-11-24 04:18 J -30319440.36 -30319440.32 -30319440.27 0.1643 0.1521

Earth -87721-06-23 15:20 J -30318498.05 -30318497.86 -30318497.67 0.1700 0.0413

Moon -87721-06-23 23:30 J -30318497.70 -30318497.52 -30318497.33 0.1701 0.0562 *

Venus -87717-07-13 16:47 J -30317016.91 -30317016.80 -30317016.68 0.1873 0.1427

Mercury -87717-07-18 12:56 J -30317012.10 -30317011.96 -30317011.81 0.1881 0.0378

Mercury -87716-05-11 01:39 J -30316715.52 -30316715.43 -30316715.35 0.1670 0.1199

Mercury -87714-04-16 13:11 J -30316010.05 -30316009.95 -30316009.84 0.1648 0.0987

Venus -87712-02-19 21:35 J -30315334.74 -30315334.60 -30315334.45 0.1661 0.0886

Mercury -87708-12-08 13:39 J -30313582.07 -30313581.93 -30313581.80 0.1873 0.0674

Mercury -87705-09-05 22:18 J -30312579.69 -30312579.57 -30312579.45 0.1653 0.0458

Earth -87700-12-24 09:49 J -30310644.22 -30310644.09 -30310643.97 0.1845 0.1387

Moon -87700-12-24 17:44 J -30310643.89 -30310643.76 -30310643.64 0.1844 0.1364

Mercury -87698-04-30 13:39 J -30310151.98 -30310151.93 -30310151.88 0.1866 0.1744

Mercury -87695-01-27 07:25 J -30309149.32 -30309149.19 -30309149.06 0.1658 0.0075

Mercury -87687-08-27 12:42 J -30306015.05 -30306014.97 -30306014.89 0.1888 0.1523

Mercury -87686-06-19 16:32 J -30305718.93 -30305718.81 -30305718.69 0.1664 0.0598

Mercury -87684-05-25 04:32 J -30305013.34 -30305013.31 -30305013.29 0.1643 0.1594

Venus -87680-02-18 14:08 J -30303648.05 -30303647.91 -30303647.77 0.1652 0.0903

Mercury -87677-01-17 13:25 J -30302585.08 -30302584.94 -30302584.80 0.1881 0.0482

Mercury -87677-11-09 01:54 J -30302288.52 -30302288.42 -30302288.33 0.1669 0.1123

Mercury -87675-10-15 13:25 J -30301583.04 -30301582.94 -30301582.84 0.1648 0.1067

Mercury -87668-06-08 13:54 J -30299155.06 -30299154.92 -30299154.78 0.1874 0.0567

Mercury -87667-04-01 11:01 J -30298858.06 -30298858.04 -30298858.03 0.1675 0.1654

Mercury -87665-03-06 22:32 J -30298152.69 -30298152.56 -30298152.44 0.1653 0.0537

Mercury -87659-10-29 14:08 J -30295724.98 -30295724.91 -30295724.84 0.1866 0.1632

Mercury -87656-07-28 07:25 J -30294722.32 -30294722.19 -30294722.06 0.1658 0.0026

Mercury -87647-02-25 13:11 J -30291588.02 -30291587.95 -30291587.88 0.1888 0.1634

Venus -87647-12-18 09:49 J -30291292.22 -30291292.09 -30291291.97 0.1664 0.1134

Mercury -87647-12-18 16:47 J -30291291.93 -30291291.80 -30291291.68 0.1664 0.0528

Earth -87642-06-27 05:44 J -30289640.45 -30289640.26 -30289640.07 0.1705 0.0475
 Moon -87642-06-27 09:06 J -30289640.28 -30289640.12 -30289639.95 0.1706 0.0740 *
 Mercury -87638-07-18 13:54 J -30288158.06 -30288157.92 -30288157.78 0.1881 0.0594
 Mercury -87637-05-10 01:54 J -30287861.52 -30287861.42 -30287861.33 0.1669 0.1056
 Mercury -87635-04-15 13:25 J -30287156.03 -30287155.94 -30287155.84 0.1648 0.1140
 Mercury -87629-12-07 14:23 J -30284728.05 -30284727.90 -30284727.76 0.1874 0.0468
 Mercury -87628-09-30 11:01 J -30284431.07 -30284431.04 -30284431.00 0.1675 0.1581
 Mercury -87626-09-05 22:32 J -30283725.68 -30283725.56 -30283725.44 0.1653 0.0609
 Earth -87621-12-27 04:18 J -30281786.50 -30281786.32 -30281786.13 0.1838 0.0310
 Moon -87621-12-27 08:51 J -30281786.30 -30281786.13 -30281785.95 0.1838 0.0141 *
 Mercury -87619-04-29 14:37 J -30281297.98 -30281297.89 -30281297.81 0.1866 0.1526
 Venus -87619-05-10 21:06 J -30281286.73 -30281286.62 -30281286.52 0.1883 0.1523
 Mercury -87616-01-26 07:39 J -30280295.31 -30280295.18 -30280295.05 0.1658 0.0082
 Venus -87615-12-17 02:37 J -30279605.55 -30279605.39 -30279605.24 0.1655 0.0675
 Mercury -87608-08-26 13:39 J -30277160.98 -30277160.93 -30277160.88 0.1889 0.1748
 Mercury -87607-06-18 16:47 J -30276864.92 -30276864.80 -30276864.68 0.1663 0.0450
 Mercury -87598-01-16 14:23 J -30273731.04 -30273730.90 -30273730.77 0.1881 0.0705
 Mercury -87598-11-09 01:54 J -30273434.52 -30273434.42 -30273434.32 0.1669 0.0981
 Mercury -87596-10-14 13:39 J -30272729.02 -30272728.93 -30272728.84 0.1647 0.1216
 Earth -87595-06-19 00:13 J -30272481.49 -30272481.49 -30272481.48 0.1683 0.1682
 Mercury -87589-06-07 14:51 J -30270301.03 -30270300.88 -30270300.74 0.1874 0.0356
 Mercury -87588-03-31 11:01 J -30270004.09 -30270004.04 -30270003.98 0.1675 0.1513
 Mercury -87586-03-06 22:32 J -30269298.67 -30269298.56 -30269298.44 0.1653 0.0686
 Venus -87581-10-14 21:49 J -30267249.68 -30267249.59 -30267249.50 0.1667 0.1379
 Mercury -87580-10-28 15:06 J -30266870.97 -30266870.87 -30266870.77 0.1866 0.1408
 Mercury -87577-07-27 07:39 J -30265868.30 -30265868.18 -30265868.05 0.1658 0.0159
 Mercury -87568-02-24 13:54 J -30262733.95 -30262733.92 -30262733.90 0.1889 0.1847
 Mercury -87568-12-17 16:47 J -30262437.92 -30262437.80 -30262437.67 0.1663 0.0379
 Moon -87563-06-29 17:01 J -30260782.93 -30260782.79 -30260782.65 0.1711 0.1140
 Earth -87563-06-29 22:47 J -30260782.66 -30260782.55 -30260782.44 0.1711 0.1413 *

Mercury -87559-07-17 14:37 J -30259304.03 -30259303.89 -30259303.76 0.1882 0.0803
 Mercury -87558-05-10 02:08 J -30259007.52 -30259007.41 -30259007.31 0.1669 0.0907
 Mercury -87556-04-14 13:54 J -30258302.00 -30258301.92 -30258301.85 0.1647 0.1296
 Venus -87553-03-06 23:15 J -30257244.69 -30257244.53 -30257244.37 0.1879 0.0826
 Mercury -87550-12-07 15:20 J -30255874.00 -30255873.86 -30255873.71 0.1874 0.0231
 Mercury -87549-09-29 11:15 J -30255577.09 -30255577.03 -30255576.97 0.1675 0.1437
 Venus -87549-10-13 14:37 J -30255563.06 -30255562.89 -30255562.73 0.1657 0.0436
 Mercury -87547-09-04 22:47 J -30254871.66 -30254871.55 -30254871.43 0.1652 0.0764
 Moon -87542-12-30 18:13 J -30252928.91 -30252928.74 -30252928.58 0.1832 0.0576
 Earth -87542-12-30 23:01 J -30252928.71 -30252928.54 -30252928.37 0.1832 0.0757 *
 Mercury -87540-04-28 15:20 J -30252443.96 -30252443.86 -30252443.75 0.1866 0.1306
 Mercury -87537-01-26 07:54 J -30251441.30 -30251441.17 -30251441.05 0.1658 0.0232
 Mercury -87528-06-17 17:01 J -30248010.92 -30248010.79 -30248010.67 0.1663 0.0305
 Mercury -87519-01-15 15:06 J -30244876.99 -30244876.87 -30244876.74 0.1882 0.0927
 Mercury -87519-11-08 02:08 J -30244580.52 -30244580.41 -30244580.30 0.1669 0.0834
 Mercury -87517-10-13 13:54 J -30243874.99 -30243874.92 -30243874.85 0.1647 0.1372
 Moon -87516-06-21 07:25 J -30243624.36 -30243624.19 -30243624.01 0.1688 0.0664
 Earth -87516-06-21 14:37 J -30243624.06 -30243623.89 -30243623.72 0.1688 0.0853 *
 Venus -87515-08-12 09:35 J -30243207.13 -30243207.10 -30243207.07 0.1670 0.1639
 Mercury -87510-06-07 15:35 J -30241447.00 -30241446.85 -30241446.71 0.1874 0.0149
 Mercury -87509-03-30 11:15 J -30241150.10 -30241150.03 -30241149.95 0.1675 0.1366
 Mercury -87507-03-05 22:47 J -30240444.66 -30240444.55 -30240444.43 0.1652 0.0839
 Mercury -87501-10-27 16:03 J -30238016.95 -30238016.83 -30238016.72 0.1867 0.1190
 Mercury -87498-07-27 07:54 J -30237014.29 -30237014.17 -30237014.04 0.1657 0.0310
 Mercury -87489-12-16 17:01 J -30233583.91 -30233583.79 -30233583.66 0.1663 0.0229
 Venus -87487-01-02 00:56 J -30233202.64 -30233202.46 -30233202.28 0.1875 0.0115
 Venus -87483-08-11 02:51 J -30231520.55 -30231520.38 -30231520.21 0.1660 0.0197
 Mercury -87480-07-16 15:35 J -30230449.97 -30230449.85 -30230449.73 0.1882 0.1029
 Mercury -87479-05-09 02:08 J -30230153.52 -30230153.41 -30230153.29 0.1669 0.0763
 Mercury -87477-04-13 14:08 J -30229447.97 -30229447.91 -30229447.86 0.1647 0.1448

Mercury -87471-12-06 16:03 J -30227019.97 -30227019.83 -30227019.68 0.1875 0.0044
 Mercury -87470-09-29 11:30 J -30226723.10 -30226723.02 -30226722.94 0.1674 0.1294
 Mercury -87468-09-03 23:01 J -30226017.65 -30226017.54 -30226017.43 0.1652 0.0913
 Earth -87462-01-02 15:20 J -30224070.90 -30224070.86 -30224070.81 0.1825 0.1767
 Mercury -87461-04-27 16:18 J -30223589.94 -30223589.82 -30223589.70 0.1867 0.1085
 Mercury -87458-01-25 08:08 J -30222587.29 -30222587.16 -30222587.04 0.1657 0.0382
 Mercury -87449-06-16 17:15 J -30219156.91 -30219156.78 -30219156.65 0.1663 0.0154
 Mercury -87440-01-14 15:49 J -30216022.95 -30216022.84 -30216022.72 0.1882 0.1137
 Mercury -87440-11-07 02:23 J -30215726.51 -30215726.40 -30215726.28 0.1668 0.0684
 Mercury -87438-10-13 14:08 J -30215020.95 -30215020.91 -30215020.86 0.1647 0.1529
 Moon -87437-06-23 22:32 J -30214766.77 -30214766.56 -30214766.35 0.1693 0.0264
 Earth -87437-06-24 03:35 J -30214766.54 -30214766.35 -30214766.15 0.1693 0.0027 *
 Mercury -87431-06-06 16:32 J -30212592.96 -30212592.81 -30212592.66 0.1875 0.0093
 Mercury -87430-03-30 11:30 J -30212296.10 -30212296.02 -30212295.94 0.1674 0.1223
 Mercury -87428-03-04 23:15 J -30211590.64 -30211590.53 -30211590.43 0.1652 0.0992
 Mercury -87422-10-27 16:47 J -30209162.92 -30209162.80 -30209162.67 0.1867 0.0970
 Venus -87422-10-30 03:35 J -30209160.52 -30209160.35 -30209160.18 0.1871 0.0563
 Mercury -87419-07-26 08:08 J -30208160.28 -30208160.16 -30208160.04 0.1657 0.0456
 Venus -87417-06-07 15:06 J -30207478.04 -30207477.87 -30207477.70 0.1663 0.0042
 Moon -87416-12-24 07:39 J -30206913.31 -30206913.18 -30206913.05 0.1854 0.1403
 Earth -87416-12-24 14:23 J -30206913.05 -30206912.90 -30206912.76 0.1854 0.1150 *
 Mercury -87410-12-16 17:15 J -30204729.91 -30204729.78 -30204729.65 0.1663 0.0079
 Mercury -87401-07-15 16:18 J -30201595.93 -30201595.82 -30201595.71 0.1882 0.1247
 Mercury -87400-05-08 02:23 J -30201299.52 -30201299.40 -30201299.28 0.1668 0.0615
 Mercury -87398-04-13 14:23 J -30200593.93 -30200593.90 -30200593.88 0.1647 0.1602
 Mercury -87392-12-05 16:47 J -30198165.94 -30198165.80 -30198165.65 0.1875 0.0196
 Mercury -87391-09-28 11:44 J -30197869.10 -30197869.01 -30197868.92 0.1674 0.1145
 Mercury -87389-09-02 23:15 J -30197163.63 -30197163.53 -30197163.43 0.1652 0.1068
 Mercury -87382-04-27 17:15 J -30194735.91 -30194735.78 -30194735.65 0.1868 0.0860
 Mercury -87381-02-18 20:51 J -30194438.63 -30194438.63 -30194438.63 0.1680 0.1679

Mercury -87379-01-24 08:23 J -30193733.27 -30193733.15 -30193733.03 0.1657 0.0535

Mercury -87370-06-16 17:30 J -30190302.90 -30190302.77 -30190302.65 0.1662 0.0062

Mercury -87361-01-14 16:47 J -30187168.90 -30187168.80 -30187168.70 0.1883 0.1359

Mercury -87361-11-06 02:37 J -30186872.51 -30186872.39 -30186872.27 0.1668 0.0541

Earth -87358-06-27 17:01 J -30185908.96 -30185908.79 -30185908.62 0.1698 0.0863

Moon -87358-06-27 22:47 J -30185908.70 -30185908.55 -30185908.39 0.1698 0.1120 *

Venus -87356-08-26 05:44 J -30185118.39 -30185118.26 -30185118.13 0.1867 0.1254

Mercury -87352-06-05 17:15 J -30183738.92 -30183738.78 -30183738.63 0.1875 0.0313

Mercury -87351-03-29 11:44 J -30183442.11 -30183442.01 -30183441.92 0.1674 0.1076

Venus -87351-04-05 02:51 J -30183435.54 -30183435.38 -30183435.21 0.1666 0.0298

Mercury -87349-03-03 23:30 J -30182736.62 -30182736.52 -30182736.43 0.1652 0.1146

Mercury -87343-10-26 17:44 J -30180308.90 -30180308.76 -30180308.62 0.1867 0.0748

Mercury -87342-08-19 21:06 J -30180011.66 -30180011.62 -30180011.59 0.1680 0.1608

Mercury -87340-07-25 08:23 J -30179306.27 -30179306.15 -30179306.03 0.1657 0.0607

Earth -87337-12-27 09:20 J -30178055.30 -30178055.11 -30178054.92 0.1847 0.0052

Moon -87337-12-27 13:39 J -30178055.14 -30178054.93 -30178054.73 0.1847 0.0139 *

Mercury -87333-03-17 17:44 J -30176878.79 -30176878.76 -30176878.74 0.1860 0.1828

Mercury -87331-12-15 17:30 J -30175875.90 -30175875.77 -30175875.64 0.1662 0.0073

Mercury -87322-07-15 17:01 J -30172741.88 -30172741.79 -30172741.70 0.1883 0.1460

Mercury -87321-05-07 02:37 J -30172445.51 -30172445.39 -30172445.27 0.1668 0.0464

Venus -87319-04-03 20:08 J -30171748.72 -30171748.66 -30171748.60 0.1656 0.1530

Mercury -87313-12-04 17:59 J -30169311.89 -30169311.75 -30169311.61 0.1876 0.0432

Mercury -87312-09-27 11:44 J -30169015.11 -30169015.01 -30169014.91 0.1674 0.1001

Earth -87311-06-19 16:18 J -30168749.95 -30168749.82 -30168749.69 0.1676 0.1240

Moon -87311-06-19 22:32 J -30168749.67 -30168749.56 -30168749.45 0.1677 0.1405

Mercury -87310-09-02 23:30 J -30168309.60 -30168309.52 -30168309.43 0.1651 0.1224

Mercury -87303-04-26 17:59 J -30165881.88 -30165881.75 -30165881.61 0.1868 0.0646

Mercury -87302-02-17 21:06 J -30165584.67 -30165584.62 -30165584.57 0.1680 0.1537

Mercury -87300-01-23 08:23 J -30164879.26 -30164879.15 -30164879.03 0.1657 0.0686

Mercury -87294-09-16 18:27 J -30162451.79 -30162451.73 -30162451.67 0.1860 0.1701

Mercury -87291-06-15 17:30 J -30161448.89 -30161448.77 -30161448.64 0.1662 0.0156

Venus -87285-01-31 15:20 J -30159393.02 -30159392.86 -30159392.70 0.1668 0.0533

Mercury -87282-01-13 17:30 J -30158314.84 -30158314.77 -30158314.69 0.1883 0.1583

Mercury -87282-11-06 02:51 J -30158018.51 -30158018.38 -30158018.26 0.1668 0.0393

Moon -87279-06-30 15:49 J -30157050.91 -30157050.84 -30157050.76 0.1704 0.1572

Mercury -87273-06-04 17:59 J -30154884.89 -30154884.75 -30154884.61 0.1876 0.0519

Mercury -87272-03-28 11:59 J -30154588.11 -30154588.00 -30154587.90 0.1674 0.0926

Mercury -87270-03-03 23:44 J -30153882.59 -30153882.51 -30153882.44 0.1652 0.1300

Mercury -87264-10-25 18:42 J -30151454.86 -30151454.72 -30151454.58 0.1868 0.0523

Mercury -87263-08-18 21:06 J -30151157.68 -30151157.62 -30151157.56 0.1679 0.1463

Mercury -87261-07-24 08:37 J -30150452.25 -30150452.14 -30150452.02 0.1656 0.0764

Venus -87258-06-23 09:35 J -30149388.17 -30149388.10 -30149388.02 0.1877 0.1687

Earth -87258-12-31 04:47 J -30149197.45 -30149197.30 -30149197.14 0.1841 0.1045

Moon -87258-12-31 12:27 J -30149197.14 -30149196.98 -30149196.82 0.1840 0.0889 *

Mercury -87254-03-17 18:42 J -30148024.79 -30148024.72 -30148024.64 0.1860 0.1594

Venus -87253-01-30 08:23 J -30147706.26 -30147706.15 -30147706.05 0.1659 0.1297

Mercury -87252-12-14 17:44 J -30147021.89 -30147021.76 -30147021.63 0.1662 0.0224

Mercury -87243-07-14 17:44 J -30143887.82 -30143887.76 -30143887.69 0.1883 0.1682

Mercury -87242-05-07 02:51 J -30143591.51 -30143591.38 -30143591.26 0.1668 0.0316

Mercury -87234-12-04 18:42 J -30140457.86 -30140457.72 -30140457.58 0.1876 0.0647

Mercury -87233-09-26 11:59 J -30140161.11 -30140161.00 -30140160.89 0.1673 0.0854

Earth -87232-06-22 04:32 J -30139892.50 -30139892.31 -30139892.12 0.1681 0.0434

Moon -87232-06-22 09:20 J -30139892.30 -30139892.11 -30139891.93 0.1681 0.0194 *

Mercury -87231-09-01 23:44 J -30139455.58 -30139455.51 -30139455.44 0.1651 0.1377

Mercury -87224-04-25 18:56 J -30137027.85 -30137027.71 -30137027.56 0.1868 0.0420

Mercury -87223-02-16 21:20 J -30136730.68 -30136730.61 -30136730.55 0.1680 0.1391

Mercury -87221-01-23 08:51 J -30136025.24 -30136025.13 -30136025.02 0.1657 0.0839

Venus -87220-11-28 03:06 J -30135350.52 -30135350.37 -30135350.22 0.1671 0.0794

Mercury -87215-09-15 19:11 J -30133597.79 -30133597.70 -30133597.61 0.1861 0.1488

Mercury -87212-06-14 17:44 J -30132594.88 -30132594.76 -30132594.63 0.1662 0.0308

Mercury -87203-01-12 18:13 J -30129460.78 -30129460.74 -30129460.70 0.1884 0.1795

Mercury -87203-11-05 03:06 J -30129164.50 -30129164.37 -30129164.25 0.1667 0.0244

Mercury -87194-06-04 19:11 J -30126030.84 -30126030.70 -30126030.57 0.1876 0.0758

Mercury -87193-03-27 11:59 J -30125734.11 -30125734.00 -30125733.89 0.1673 0.0782

Venus -87192-04-19 11:44 J -30125346.16 -30125346.01 -30125345.85 0.1873 0.0992

Mercury -87191-03-02 23:59 J -30125028.56 -30125028.50 -30125028.44 0.1651 0.1456

Venus -87188-11-26 20:37 J -30123663.77 -30123663.64 -30123663.51 0.1662 0.1061

Mercury -87185-10-24 19:39 J -30122600.83 -30122600.68 -30122600.54 0.1869 0.0308

Mercury -87184-08-17 21:20 J -30122303.68 -30122303.61 -30122303.53 0.1679 0.1316

Mercury -87182-07-24 08:51 J -30121598.24 -30121598.13 -30121598.02 0.1656 0.0916

Mercury -87175-03-16 19:39 J -30119170.78 -30119170.68 -30119170.58 0.1861 0.1369

Mercury -87173-12-13 17:59 J -30118167.88 -30118167.75 -30118167.63 0.1662 0.0376

Mercury -87163-05-06 03:06 J -30114737.50 -30114737.37 -30114737.25 0.1668 0.0171

Mercury -87155-12-03 19:25 J -30111603.82 -30111603.69 -30111603.56 0.1876 0.0859

Venus -87154-09-25 15:06 J -30111308.00 -30111307.87 -30111307.74 0.1674 0.1047

Mercury -87154-09-26 12:13 J -30111307.10 -30111306.99 -30111306.87 0.1673 0.0701

Moon -87153-06-24 13:39 J -30111035.12 -30111034.93 -30111034.75 0.1686 0.0145

Earth -87153-06-24 17:44 J -30111034.95 -30111034.76 -30111034.57 0.1686 0.0408 *

Mercury -87152-08-31 23:59 J -30110601.54 -30110601.50 -30110601.45 0.1651 0.1536

Mercury -87145-04-24 19:54 J -30108173.81 -30108173.67 -30108173.52 0.1869 0.0194

Mercury -87144-02-15 21:20 J -30107876.69 -30107876.61 -30107876.52 0.1679 0.1244

Mercury -87142-01-22 09:06 J -30107171.22 -30107171.12 -30107171.02 0.1656 0.0996

Mercury -87136-09-14 20:08 J -30104743.77 -30104743.66 -30104743.55 0.1861 0.1257

Mercury -87133-06-13 17:59 J -30103740.87 -30103740.75 -30103740.62 0.1662 0.0453

Moon -87132-12-24 14:51 J -30103182.02 -30103181.88 -30103181.75 0.1863 0.1196

Earth -87132-12-24 16:18 J -30103181.99 -30103181.82 -30103181.66 0.1863 0.0946 *

Venus -87126-02-14 14:37 J -30101304.07 -30101303.89 -30101303.71 0.1869 0.0318

Mercury -87124-11-04 03:06 J -30100310.49 -30100310.37 -30100310.24 0.1667 0.0097

Venus -87122-09-24 08:23 J -30099621.29 -30099621.15 -30099621.00 0.1664 0.0816

Mercury -87115-06-03 19:54 J -30097176.79 -30097176.67 -30097176.55 0.1877 0.0976

Mercury -87114-03-27 12:13 J -30096880.10 -30096879.99 -30096879.87 0.1673 0.0631

Mercury -87112-03-02 00:13 J -30096174.52 -30096174.49 -30096174.47 0.1651 0.1612

Moon -87106-06-17 17:15 J -30093875.87 -30093875.78 -30093875.68 0.1665 0.1430

Earth -87106-06-17 23:01 J -30093875.60 -30093875.54 -30093875.48 0.1665 0.1578

Mercury -87106-10-24 20:23 J -30093746.80 -30093746.65 -30093746.50 0.1869 0.0083

Mercury -87105-08-16 21:35 J -30093449.69 -30093449.60 -30093449.51 0.1679 0.1169

Mercury -87103-07-23 09:06 J -30092744.22 -30092744.12 -30092744.02 0.1656 0.1070

Mercury -87096-03-15 20:23 J -30090316.76 -30090316.65 -30090316.53 0.1861 0.1156

Mercury -87094-12-13 18:13 J -30089313.86 -30089313.74 -30089313.62 0.1662 0.0532

Venus -87088-07-23 02:51 J -30087265.48 -30087265.38 -30087265.28 0.1677 0.1314

Mercury -87084-05-05 03:20 J -30085883.49 -30085883.36 -30085883.23 0.1667 0.0017

Mercury -87076-12-02 20:23 J -30082749.77 -30082749.65 -30082749.53 0.1877 0.1095

Mercury -87075-09-25 12:27 J -30082453.10 -30082452.98 -30082452.86 0.1673 0.0555

Moon -87074-06-27 22:18 J -30082177.67 -30082177.57 -30082177.47 0.1691 0.1452

Earth -87074-06-28 06:13 J -30082177.37 -30082177.24 -30082177.11 0.1691 0.1255

Mercury -87066-04-24 20:51 J -30079319.78 -30079319.63 -30079319.49 0.1869 0.0050

Mercury -87065-02-15 21:35 J -30079022.69 -30079022.60 -30079022.50 0.1679 0.1096

Mercury -87063-01-21 09:20 J -30078317.21 -30078317.11 -30078317.02 0.1656 0.1150

Venus -87061-12-11 16:47 J -30077261.98 -30077261.80 -30077261.63 0.1864 0.0381

Mercury -87057-09-13 21:06 J -30075889.74 -30075889.62 -30075889.49 0.1861 0.1029

Mercury -87056-07-08 06:56 J -30075592.24 -30075592.21 -30075592.19 0.1685 0.1635

Venus -87056-07-21 20:37 J -30075578.80 -30075578.64 -30075578.48 0.1667 0.0569

Mercury -87054-06-13 18:13 J -30074886.86 -30074886.74 -30074886.62 0.1661 0.0610

Moon -87053-12-27 05:44 J -30074324.44 -30074324.26 -30074324.08 0.1857 0.0430

Earth -87053-12-27 13:39 J -30074324.11 -30074323.93 -30074323.74 0.1856 0.0207 *

Mercury -87045-11-03 03:20 J -30071456.49 -30071456.36 -30071456.23 0.1667 0.0069

Mercury -87036-06-02 20:37 J -30068322.76 -30068322.64 -30068322.53 0.1877 0.1186

Mercury -87035-03-26 12:27 J -30068026.10 -30068025.98 -30068025.86 0.1673 0.0479

Moon -87027-06-20 03:49 J -30065018.50 -30065018.34 -30065018.18 0.1670 0.1059

Earth -87027-06-20 09:49 J -30065018.26 -30065018.09 -30065017.92 0.1670 0.0799 *

Mercury -87027-10-23 21:20 J -30064892.75 -30064892.61 -30064892.46 0.1870 0.0157

Mercury -87026-08-16 21:49 J -30064595.69 -30064595.59 -30064595.49 0.1678 0.1020

Mercury -87024-07-22 09:35 J -30063890.19 -30063890.10 -30063890.02 0.1656 0.1232

Venus -87022-05-20 14:37 J -30063222.95 -30063222.89 -30063222.84 0.1680 0.1582

Mercury -87017-03-14 21:35 J -30061462.73 -30061462.60 -30061462.47 0.1861 0.0920

Mercury -87016-01-06 06:56 J -30061165.25 -30061165.21 -30061165.16 0.1685 0.1561

Mercury -87015-12-12 18:27 J -30060459.85 -30060459.73 -30060459.62 0.1661 0.0685

Mercury -87005-05-04 03:35 J -30057029.48 -30057029.35 -30057029.23 0.1667 0.0150

87TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 87th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -86997-12-01 21:20 J | -30053895.72 | -30053895.61 | -30053895.51 | 0.1877 | 0.1317 | | |
| Mercury | -86996-09-24 12:42 J | -30053599.10 | -30053598.97 | -30053598.85 | 0.1673 | 0.0405 | | |
| Venus | -86995-10-08 19:54 J | -30053219.82 | -30053219.67 | -30053219.52 | 0.1860 | 0.1024 | | |
| Venus | -86990-05-19 08:37 J | -30051536.31 | -30051536.14 | -30051535.97 | 0.1670 | 0.0320 | | |
| Mercury | -86987-04-23 21:35 J | -30050465.74 | -30050465.60 | -30050465.45 | 0.1869 | 0.0257 | | |
| Mercury | -86986-02-14 21:49 J | -30050168.69 | -30050168.59 | -30050168.49 | 0.1679 | 0.0944 | | |
| Mercury | -86984-01-20 09:35 J | -30049463.18 | -30049463.10 | -30049463.02 | 0.1656 | 0.1307 | | |
| Mercury | -86978-09-13 22:03 J | -30047035.72 | -30047035.58 | -30047035.45 | 0.1862 | 0.0815 | | |
| Mercury | -86977-07-07 07:11 J | -30046738.26 | -30046738.20 | -30046738.15 | 0.1684 | 0.1485 | | |
| Mercury | -86975-06-12 18:27 J | -30046032.84 | -30046032.73 | -30046032.61 | 0.1661 | 0.0767 | | |
| Moon | -86974-12-31 06:56 J | -30045466.38 | -30045466.21 | -30045466.04 | 0.1850 | 0.1038 | | |

Earth -86974-12-31 09:49 J -30045466.22 -30045466.09 -30045465.96 0.1850 0.1323 *
 Mercury -86966-11-03 03:35 J -30042602.47 -30042602.35 -30042602.22 0.1666 0.0224
 Mercury -86957-06-01 21:35 J -30039468.69 -30039468.60 -30039468.50 0.1877 0.1427
 Mercury -86956-03-25 12:42 J -30039172.09 -30039171.97 -30039171.84 0.1672 0.0327
 Earth -86948-06-22 21:06 J -30036160.82 -30036160.62 -30036160.42 0.1674 0.0009
 Moon -86948-06-22 23:30 J -30036160.73 -30036160.52 -30036160.31 0.1675 0.0253 *
 Mercury -86948-10-22 22:18 J -30036038.72 -30036038.57 -30036038.43 0.1870 0.0374
 Mercury -86947-08-15 21:49 J -30035741.69 -30035741.59 -30035741.48 0.1678 0.0872
 Mercury -86945-07-21 09:35 J -30035036.17 -30035036.10 -30035036.03 0.1655 0.1386
 Mercury -86938-03-14 22:32 J -30032608.70 -30032608.56 -30032608.42 0.1862 0.0692
 Mercury -86937-01-06 07:11 J -30032311.27 -30032311.20 -30032311.14 0.1685 0.1415
 Mercury -86936-12-11 18:42 J -30031605.83 -30031605.72 -30031605.61 0.1661 0.0841
 Mercury -86929-08-03 22:32 J -30029178.60 -30029178.56 -30029178.52 0.1854 0.1775
 Venus -86929-08-04 22:18 J -30029177.64 -30029177.57 -30029177.50 0.1855 0.1693
 Moon -86927-12-21 13:11 J -30028309.02 -30028308.95 -30028308.87 0.1878 0.1749
 Mercury -86926-05-04 03:49 J -30028175.47 -30028175.34 -30028175.22 0.1667 0.0300
 Venus -86924-03-15 20:37 J -30027493.81 -30027493.64 -30027493.47 0.1673 0.0074
 Mercury -86918-12-01 21:49 J -30025041.67 -30025041.59 -30025041.50 0.1878 0.1531
 Mercury -86917-09-23 12:56 J -30024745.09 -30024744.96 -30024744.84 0.1672 0.0246
 Mercury -86908-04-22 22:47 J -30021611.70 -30021611.55 -30021611.41 0.1870 0.0489
 Mercury -86907-02-13 22:03 J -30021314.69 -30021314.58 -30021314.47 0.1678 0.0795
 Mercury -86905-01-20 09:49 J -30020609.15 -30020609.09 -30020609.03 0.1655 0.1467
 Mercury -86899-09-12 23:01 J -30018181.68 -30018181.54 -30018181.40 0.1862 0.0578
 Mercury -86898-07-07 07:11 J -30017884.27 -30017884.20 -30017884.12 0.1684 0.1339
 Mercury -86896-06-11 18:42 J -30017178.82 -30017178.72 -30017178.61 0.1661 0.0921
 Mercury -86889-02-02 23:15 J -30014751.60 -30014751.53 -30014751.47 0.1854 0.1648
 Mercury -86887-11-02 03:49 J -30013748.46 -30013748.34 -30013748.21 0.1666 0.0377
 Mercury -86878-06-01 22:32 J -30010614.63 -30010614.56 -30010614.50 0.1878 0.1648
 Mercury -86877-03-24 12:56 J -30010318.09 -30010317.96 -30010317.83 0.1672 0.0175
 Earth -86869-06-25 09:06 J -30007303.29 -30007303.12 -30007302.94 0.1679 0.0823

Moon -86869-06-25 16:47 J -30007302.99 -30007302.80 -30007302.62 0.1680 0.0634 *
 Mercury -86869-10-21 23:01 J -30007184.68 -30007184.54 -30007184.40 0.1870 0.0595
 Mercury -86868-08-14 22:03 J -30006887.69 -30006887.58 -30006887.46 0.1678 0.0719
 Mercury -86866-07-21 09:49 J -30006182.13 -30006182.09 -30006182.04 0.1655 0.1545
 Mercury -86859-03-13 23:15 J -30003754.67 -30003754.53 -30003754.38 0.1863 0.0475
 Mercury -86858-01-05 07:25 J -30003457.27 -30003457.19 -30003457.11 0.1684 0.1260
 Venus -86858-01-11 08:51 J -30003451.30 -30003451.13 -30003450.96 0.1676 0.0180
 Mercury -86857-12-10 18:56 J -30002751.81 -30002751.71 -30002751.61 0.1661 0.1003
 Mercury -86850-08-03 23:44 J -30000324.59 -30000324.51 -30000324.43 0.1854 0.1530
 Earth -86848-12-24 17:44 J -29999450.93 -29999450.76 -29999450.58 0.1871 0.0745
 Moon -86848-12-25 00:56 J -29999450.63 -29999450.46 -29999450.29 0.1871 0.0969 *
 Mercury -86847-05-03 04:03 J -29999321.46 -29999321.33 -29999321.21 0.1666 0.0454
 Mercury -86839-11-30 23:01 J -29996187.59 -29996187.54 -29996187.49 0.1878 0.1766
 Mercury -86838-09-23 13:11 J -29995891.08 -29995890.95 -29995890.83 0.1672 0.0112
 Venus -86831-06-02 01:54 J -29993447.56 -29993447.42 -29993447.29 0.1866 0.1214
 Mercury -86829-04-21 23:30 J -29992757.65 -29992757.52 -29992757.38 0.1871 0.0710
 Mercury -86828-02-12 22:18 J -29992460.69 -29992460.57 -29992460.46 0.1678 0.0642
 Mercury -86826-01-19 10:03 J -29991755.10 -29991755.08 -29991755.06 0.1655 0.1625
 Earth -86822-06-18 18:42 J -29990143.87 -29990143.72 -29990143.58 0.1659 0.1124
 Moon -86822-06-19 01:11 J -29990143.61 -29990143.45 -29990143.29 0.1660 0.0864 *
 Mercury -86820-09-11 23:59 J -29989327.64 -29989327.50 -29989327.35 0.1863 0.0347
 Mercury -86819-07-06 07:25 J -29989030.28 -29989030.19 -29989030.10 0.1684 0.1189
 Mercury -86817-06-10 18:56 J -29988324.80 -29988324.71 -29988324.61 0.1660 0.1079
 Mercury -86810-02-01 23:59 J -29985897.59 -29985897.50 -29985897.41 0.1854 0.1431
 Mercury -86808-11-01 04:03 J -29984894.45 -29984894.33 -29984894.21 0.1666 0.0531
 Mercury -86799-05-31 23:15 J -29981760.55 -29981760.53 -29981760.52 0.1878 0.1863
 Mercury -86798-03-24 13:11 J -29981464.07 -29981463.95 -29981463.82 0.1672 0.0036
 Venus -86793-11-07 20:23 J -29979408.81 -29979408.65 -29979408.48 0.1679 0.0447
 Earth -86790-06-28 22:03 J -29978445.60 -29978445.58 -29978445.55 0.1684 0.1665
 Mercury -86790-10-22 00:13 J -29978330.62 -29978330.49 -29978330.36 0.1871 0.0836

Mercury -86789-08-13 22:18 J -29978033.68 -29978033.57 -29978033.45 0.1678 0.0566
 Mercury -86780-03-13 00:27 J -29974900.63 -29974900.48 -29974900.34 0.1863 0.0240
 Mercury -86779-01-04 07:39 J -29974603.28 -29974603.18 -29974603.09 0.1684 0.1114
 Mercury -86778-12-10 19:11 J -29973897.79 -29973897.70 -29973897.61 0.1660 0.1156
 Mercury -86771-08-03 00:27 J -29971470.58 -29971470.48 -29971470.37 0.1855 0.1309
 Mercury -86770-05-27 16:47 J -29971172.82 -29971172.80 -29971172.78 0.1690 0.1661
 Earth -86769-12-27 16:18 J -29970593.00 -29970592.82 -29970592.63 0.1865 0.0442
 Moon -86769-12-27 20:23 J -29970592.81 -29970592.65 -29970592.49 0.1865 0.0749 *
 Mercury -86768-05-02 04:18 J -29970467.44 -29970467.32 -29970467.21 0.1666 0.0610
 Venus -86765-03-29 04:32 J -29969405.48 -29969405.31 -29969405.14 0.1862 0.0545
 Venus -86761-11-06 14:23 J -29967721.98 -29967721.90 -29967721.82 0.1669 0.1457
 Mercury -86759-09-22 13:25 J -29967037.07 -29967036.94 -29967036.82 0.1672 0.0074
 Mercury -86750-04-22 00:27 J -29963903.61 -29963903.48 -29963903.36 0.1871 0.0934
 Mercury -86749-02-12 22:32 J -29963606.68 -29963606.56 -29963606.44 0.1678 0.0488
 Moon -86743-06-21 03:49 J -29961286.51 -29961286.34 -29961286.17 0.1664 0.0580
 Earth -86743-06-21 04:47 J -29961286.49 -29961286.30 -29961286.11 0.1664 0.0353 *
 Mercury -86741-09-11 00:56 J -29960473.61 -29960473.46 -29960473.32 0.1863 0.0139
 Mercury -86740-07-05 07:39 J -29960176.28 -29960176.18 -29960176.08 0.1683 0.1035
 Mercury -86738-06-10 19:25 J -29959470.78 -29959470.69 -29959470.61 0.1660 0.1239
 Mercury -86731-02-01 01:11 J -29957043.56 -29957043.45 -29957043.33 0.1855 0.1183
 Mercury -86731-11-25 17:01 J -29956745.83 -29956745.79 -29956745.75 0.1690 0.1586
 Mercury -86729-10-31 04:18 J -29956040.43 -29956040.32 -29956040.20 0.1665 0.0693
 Venus -86727-09-05 08:23 J -29955366.30 -29955366.15 -29955365.99 0.1682 0.0704
 Mercury -86719-03-23 13:25 J -29952610.07 -29952609.94 -29952609.81 0.1671 0.0138
 Mercury -86711-10-21 00:56 J -29949476.58 -29949476.46 -29949476.34 0.1871 0.1054
 Mercury -86710-08-13 22:32 J -29949179.68 -29949179.56 -29949179.44 0.1677 0.0413
 Mercury -86701-03-12 01:25 J -29946046.59 -29946046.44 -29946046.29 0.1863 0.0008
 Mercury -86700-01-03 07:39 J -29945749.28 -29945749.18 -29945749.07 0.1684 0.0963
 Venus -86699-01-24 07:54 J -29945363.35 -29945363.17 -29945362.99 0.1857 0.0107
 Mercury -86699-12-09 19:25 J -29945043.76 -29945043.69 -29945043.61 0.1660 0.1318

Venus -86695-09-04 02:23 J -29943679.51 -29943679.40 -29943679.28 0.1672 0.1207

Mercury -86692-08-02 01:25 J -29942616.56 -29942616.44 -29942616.32 0.1855 0.1087

Mercury -86691-05-26 17:01 J -29942318.84 -29942318.79 -29942318.73 0.1690 0.1507

Moon -86690-12-31 08:37 J -29941735.27 -29941735.14 -29941735.01 0.1859 0.1271

Earth -86690-12-31 14:23 J -29941734.99 -29941734.90 -29941734.80 0.1859 0.1602

Mercury -86689-05-01 04:32 J -29941613.43 -29941613.31 -29941613.20 0.1666 0.0768

Mercury -86680-09-21 13:39 J -29938183.06 -29938182.93 -29938182.81 0.1671 0.0221

Mercury -86671-04-21 01:25 J -29935049.55 -29935049.44 -29935049.32 0.1872 0.1174

Mercury -86670-02-11 22:47 J -29934752.68 -29934752.55 -29934752.43 0.1677 0.0338

Moon -86664-06-23 08:37 J -29932429.32 -29932429.14 -29932428.96 0.1668 0.0619

Earth -86664-06-23 15:49 J -29932429.03 -29932428.84 -29932428.65 0.1668 0.0434 *

Mercury -86662-09-11 01:54 J -29931619.57 -29931619.42 -29931619.27 0.1863 0.0110

Venus -86661-07-02 20:08 J -29931323.80 -29931323.66 -29931323.52 0.1685 0.0976

Mercury -86661-07-04 07:54 J -29931322.28 -29931322.17 -29931322.06 0.1683 0.0882

Mercury -86659-06-09 19:39 J -29930616.75 -29930616.68 -29930616.61 0.1660 0.1397

Mercury -86652-01-31 02:08 J -29928189.54 -29928189.41 -29928189.28 0.1856 0.0958

Mercury -86652-11-24 17:01 J -29927891.85 -29927891.79 -29927891.72 0.1690 0.1436

Mercury -86650-10-31 04:32 J -29927186.42 -29927186.31 -29927186.20 0.1665 0.0849

Moon -86643-12-21 08:51 J -29924578.20 -29924578.13 -29924578.05 0.1887 0.1684

Mercury -86640-03-22 13:39 J -29923756.06 -29923755.93 -29923755.80 0.1671 0.0294

Venus -86634-11-21 10:18 J -29921321.23 -29921321.07 -29921320.90 0.1853 0.0778

Mercury -86632-10-20 01:54 J -29920622.53 -29920622.42 -29920622.32 0.1871 0.1281

Mercury -86631-08-12 22:47 J -29920325.67 -29920325.55 -29920325.42 0.1677 0.0258

Venus -86629-07-01 14:37 J -29919637.03 -29919636.89 -29919636.76 0.1675 0.0958

Mercury -86622-03-12 02:23 J -29917192.55 -29917192.40 -29917192.26 0.1864 0.0226

Mercury -86621-01-03 08:08 J -29916895.27 -29916895.16 -29916895.05 0.1683 0.0806

Mercury -86620-12-08 19:54 J -29916189.73 -29916189.67 -29916189.62 0.1660 0.1481

Earth -86617-06-16 06:42 J -29915269.32 -29915269.22 -29915269.11 0.1650 0.1399

Mercury -86613-08-01 02:37 J -29913762.52 -29913762.39 -29913762.26 0.1856 0.0842

Mercury -86612-05-25 17:15 J -29913464.85 -29913464.78 -29913464.71 0.1689 0.1361

Mercury -86610-05-01 04:47 J -29912759.41 -29912759.30 -29912759.20 0.1665 0.0926

Mercury -86601-09-20 13:54 J -29909329.05 -29909328.92 -29909328.80 0.1671 0.0378

Venus -86595-04-30 07:39 J -29907281.29 -29907281.18 -29907281.07 0.1689 0.1253

Mercury -86592-04-20 02:23 J -29906195.50 -29906195.40 -29906195.31 0.1872 0.1397

Mercury -86591-02-10 23:01 J -29905898.67 -29905898.54 -29905898.42 0.1677 0.0180

Moon -86585-06-26 00:42 J -29903571.63 -29903571.47 -29903571.30 0.1673 0.1005

Earth -86585-06-26 02:51 J -29903571.51 -29903571.38 -29903571.25 0.1673 0.1248 *

Mercury -86583-09-10 02:51 J -29902765.53 -29902765.38 -29902765.23 0.1864 0.0342

Mercury -86582-07-04 08:08 J -29902468.27 -29902468.16 -29902468.05 0.1683 0.0731

Mercury -86580-06-08 19:54 J -29901762.71 -29901762.67 -29901762.63 0.1659 0.1557

Mercury -86573-01-31 02:51 J -29899335.51 -29899335.38 -29899335.24 0.1856 0.0740

Mercury -86573-11-23 17:30 J -29899037.85 -29899037.77 -29899037.69 0.1689 0.1281

Mercury -86571-10-30 04:47 J -29898332.40 -29898332.30 -29898332.19 0.1665 0.1010

Venus -86568-09-17 14:08 J -29897279.02 -29897278.91 -29897278.79 0.1849 0.1395

Mercury -86564-06-22 03:06 J -29895905.40 -29895905.37 -29895905.34 0.1848 0.1805

Moon -86564-12-24 11:15 J -29895720.20 -29895720.03 -29895719.85 0.1880 0.0929

Earth -86564-12-24 18:13 J -29895719.92 -29895719.74 -29895719.56 0.1880 0.0566 *

Venus -86563-04-29 02:23 J -29895594.56 -29895594.40 -29895594.25 0.1678 0.0701

Mercury -86561-03-21 13:54 J -29894902.04 -29894901.92 -29894901.79 0.1671 0.0461

Mercury -86553-10-19 02:51 J -29891768.46 -29891768.38 -29891768.29 0.1872 0.1523

Mercury -86552-08-11 23:01 J -29891471.66 -29891471.54 -29891471.41 0.1677 0.0102

Mercury -86543-03-11 03:20 J -29888338.51 -29888338.36 -29888338.22 0.1864 0.0454

Mercury -86542-01-02 08:08 J -29888041.27 -29888041.16 -29888041.04 0.1683 0.0654

Mercury -86541-12-07 20:08 J -29887335.68 -29887335.66 -29887335.65 0.1659 0.1639

Earth -86538-06-19 15:35 J -29886412.02 -29886411.85 -29886411.67 0.1654 0.0669

Moon -86538-06-19 16:47 J -29886412.00 -29886411.80 -29886411.59 0.1654 0.0459 *

Mercury -86534-08-01 03:35 J -29884908.49 -29884908.35 -29884908.21 0.1856 0.0612

Mercury -86533-05-24 17:30 J -29884610.86 -29884610.77 -29884610.69 0.1689 0.1207

Mercury -86531-04-30 05:01 J -29883905.39 -29883905.29 -29883905.19 0.1665 0.1086

Venus -86529-02-25 19:11 J -29883238.77 -29883238.70 -29883238.63 0.1692 0.1535

Mercury -86525-12-21 03:35 J -29881478.40 -29881478.35 -29881478.29 0.1848 0.1688
 Mercury -86522-09-20 14:08 J -29880475.03 -29880474.91 -29880474.79 0.1671 0.0534
 Mercury -86513-04-19 03:06 J -29877341.44 -29877341.37 -29877341.30 0.1872 0.1618
 Mercury -86512-02-09 23:15 J -29877044.66 -29877044.53 -29877044.41 0.1677 0.0033
 Mercury -86504-09-09 03:49 J -29873911.48 -29873911.34 -29873911.20 0.1865 0.0570
 Mercury -86503-07-03 08:23 J -29873614.27 -29873614.15 -29873614.03 0.1682 0.0572
 Venus -86497-02-24 14:08 J -29871552.07 -29871551.91 -29871551.74 0.1681 0.0439
 Mercury -86494-01-30 04:18 J -29870481.47 -29870481.32 -29870481.18 0.1856 0.0489
 Mercury -86494-11-23 17:30 J -29870183.86 -29870183.77 -29870183.68 0.1689 0.1130
 Mercury -86492-10-29 05:15 J -29869478.37 -29869478.28 -29869478.19 0.1664 0.1169
 Mercury -86485-06-21 04:03 J -29867051.41 -29867051.33 -29867051.25 0.1848 0.1578
 Earth -86485-12-27 18:13 J -29866861.92 -29866861.74 -29866861.56 0.1874 0.0671
 Moon -86485-12-27 21:35 J -29866861.78 -29866861.60 -29866861.43 0.1874 0.0987 *
 Mercury -86484-04-15 02:51 J -29866753.39 -29866753.38 -29866753.37 0.1695 0.1686
 Mercury -86482-03-21 14:08 J -29866048.03 -29866047.91 -29866047.79 0.1670 0.0612
 Mercury -86474-10-19 03:49 J -29862914.39 -29862914.34 -29862914.29 0.1873 0.1745
 Mercury -86473-08-10 23:15 J -29862617.65 -29862617.53 -29862617.40 0.1676 0.0062
 Venus -86470-07-15 16:47 J -29861548.90 -29861548.80 -29861548.69 0.1859 0.1484
 Mercury -86464-03-10 04:18 J -29859484.46 -29859484.32 -29859484.18 0.1865 0.0689
 Mercury -86463-01-01 08:23 J -29859187.27 -29859187.15 -29859187.03 0.1683 0.0499
 Earth -86459-06-22 01:39 J -29857554.62 -29857554.43 -29857554.23 0.1658 0.0101
 Moon -86459-06-22 09:20 J -29857554.31 -29857554.11 -29857553.92 0.1659 0.0102 *
 Mercury -86455-07-31 04:18 J -29856054.46 -29856054.32 -29856054.17 0.1857 0.0395
 Mercury -86454-05-24 17:44 J -29855756.86 -29855756.76 -29855756.66 0.1689 0.1050
 Mercury -86452-04-29 05:15 J -29855051.36 -29855051.28 -29855051.20 0.1665 0.1247
 Mercury -86446-12-21 04:47 J -29852624.39 -29852624.30 -29852624.21 0.1849 0.1450
 Mercury -86445-10-14 02:51 J -29852326.41 -29852326.38 -29852326.34 0.1695 0.1609
 Mercury -86443-09-19 14:23 J -29851621.01 -29851620.90 -29851620.78 0.1670 0.0696
 Mercury -86434-04-19 04:18 J -29848487.33 -29848487.32 -29848487.31 0.1873 0.1864
 Mercury -86433-02-09 23:30 J -29848190.65 -29848190.52 -29848190.40 0.1676 0.0142

Venus -86432-12-22 02:23 J -29847509.57 -29847509.40 -29847509.23 0.1684 0.0188
 Mercury -86425-09-08 04:47 J -29845057.43 -29845057.30 -29845057.17 0.1865 0.0802
 Mercury -86424-07-02 08:37 J -29844760.26 -29844760.14 -29844760.02 0.1682 0.0419
 Mercury -86415-01-29 05:01 J -29841627.43 -29841627.29 -29841627.14 0.1857 0.0267
 Mercury -86415-11-22 17:44 J -29841329.86 -29841329.76 -29841329.66 0.1689 0.0977
 Mercury -86413-10-28 05:30 J -29840624.35 -29840624.27 -29840624.20 0.1664 0.1329
 Moon -86412-06-15 03:49 J -29840394.43 -29840394.34 -29840394.25 0.1641 0.1446
 Mercury -86406-06-21 05:01 J -29838197.39 -29838197.29 -29838197.19 0.1848 0.1346
 Earth -86406-12-31 17:15 J -29838003.79 -29838003.78 -29838003.78 0.1868 0.1865
 Moon -86405-01-01 01:11 J -29838003.54 -29838003.45 -29838003.37 0.1867 0.1665
 Mercury -86405-04-14 02:51 J -29837899.43 -29837899.38 -29837899.32 0.1695 0.1535
 Venus -86404-05-11 19:39 J -29837506.84 -29837506.68 -29837506.51 0.1855 0.0820
 Mercury -86403-03-20 14:23 J -29837194.01 -29837193.90 -29837193.78 0.1670 0.0773
 Mercury -86394-08-10 23:30 J -29833763.64 -29833763.52 -29833763.39 0.1676 0.0225
 Mercury -86385-03-09 05:15 J -29830630.41 -29830630.28 -29830630.16 0.1865 0.0917
 Mercury -86385-12-31 08:37 J -29830333.26 -29830333.14 -29830333.01 0.1682 0.0343
 Earth -86380-06-24 11:15 J -29828697.20 -29828697.03 -29828696.86 0.1662 0.0868
 Moon -86380-06-24 14:37 J -29828697.02 -29828696.89 -29828696.75 0.1662 0.1116 *
 Mercury -86376-07-30 05:30 J -29827200.41 -29827200.27 -29827200.12 0.1857 0.0156
 Mercury -86375-05-23 17:44 J -29826902.86 -29826902.76 -29826902.65 0.1689 0.0901
 Mercury -86373-04-28 05:30 J -29826197.33 -29826197.27 -29826197.20 0.1664 0.1409
 Mercury -86367-12-20 05:44 J -29823770.37 -29823770.26 -29823770.15 0.1849 0.1220
 Mercury -86366-10-14 03:06 J -29823472.43 -29823472.37 -29823472.31 0.1695 0.1455
 Venus -86366-10-19 13:39 J -29823467.09 -29823466.93 -29823466.76 0.1687 0.0100
 Mercury -86364-09-18 14:37 J -29822767.00 -29822766.89 -29822766.78 0.1670 0.0854
 Earth -86359-12-21 10:47 J -29820847.11 -29820847.05 -29820847.00 0.1895 0.1802
 Moon -86359-12-21 19:25 J -29820846.81 -29820846.69 -29820846.57 0.1895 0.1416
 Mercury -86354-02-08 23:44 J -29819336.64 -29819336.51 -29819336.39 0.1676 0.0298
 Mercury -86346-09-08 05:44 J -29816203.38 -29816203.26 -29816203.14 0.1865 0.1034
 Mercury -86345-07-01 08:51 J -29815906.26 -29815906.13 -29815906.01 0.1682 0.0265

Venus -86338-03-08 23:01 J -29813464.72 -29813464.54 -29813464.36 0.1851 0.0172
 Mercury -86336-01-28 05:59 J -29812773.40 -29812773.25 -29812773.10 0.1857 0.0045
 Mercury -86336-11-21 17:59 J -29812475.86 -29812475.75 -29812475.64 0.1688 0.0818
 Mercury -86334-10-28 05:44 J -29811770.31 -29811770.26 -29811770.21 0.1664 0.1493
 Moon -86333-06-17 04:47 J -29811537.43 -29811537.30 -29811537.17 0.1645 0.1156
 Earth -86333-06-17 05:44 J -29811537.42 -29811537.26 -29811537.10 0.1645 0.0937 *
 Mercury -86327-06-20 06:13 J -29809343.36 -29809343.24 -29809343.12 0.1849 0.1103
 Mercury -86326-04-14 03:06 J -29809045.44 -29809045.37 -29809045.30 0.1695 0.1382
 Mercury -86324-03-19 14:51 J -29808339.99 -29808339.88 -29808339.78 0.1670 0.0937
 Mercury -86315-08-09 23:44 J -29804909.63 -29804909.51 -29804909.38 0.1676 0.0375
 Mercury -86306-03-09 06:13 J -29801776.36 -29801776.24 -29801776.13 0.1866 0.1149
 Mercury -86306-12-31 08:51 J -29801479.25 -29801479.13 -29801479.00 0.1682 0.0185
 Moon -86301-06-26 17:15 J -29799839.87 -29799839.78 -29799839.70 0.1666 0.1471
 Venus -86300-08-16 01:39 J -29799424.60 -29799424.43 -29799424.27 0.1690 0.0358
 Mercury -86297-07-29 06:27 J -29798346.38 -29798346.23 -29798346.08 0.1858 0.0097
 Mercury -86296-05-22 17:59 J -29798048.86 -29798048.75 -29798048.63 0.1688 0.0746
 Mercury -86294-04-28 05:44 J -29797343.30 -29797343.26 -29797343.22 0.1664 0.1572
 Mercury -86288-12-19 06:42 J -29794916.35 -29794916.22 -29794916.10 0.1849 0.0991
 Mercury -86287-10-13 03:20 J -29794618.44 -29794618.36 -29794618.28 0.1695 0.1302
 Mercury -86285-09-17 14:51 J -29793912.98 -29793912.88 -29793912.78 0.1670 0.1013
 Earth -86280-12-24 15:06 J -29791989.05 -29791988.87 -29791988.68 0.1889 0.0436
 Moon -86280-12-24 16:03 J -29791988.99 -29791988.83 -29791988.66 0.1889 0.0667 *
 Mercury -86275-02-07 23:59 J -29790482.62 -29790482.50 -29790482.38 0.1676 0.0458
 Venus -86272-01-03 02:37 J -29789422.56 -29789422.39 -29789422.22 0.1846 0.0459
 Venus -86268-08-14 20:08 J -29787737.70 -29787737.66 -29787737.61 0.1680 0.1602
 Mercury -86267-09-07 06:42 J -29787349.33 -29787349.22 -29787349.12 0.1866 0.1267
 Mercury -86266-07-01 09:06 J -29787052.25 -29787052.12 -29787051.99 0.1681 0.0102
 Mercury -86257-01-28 07:11 J -29783919.35 -29783919.20 -29783919.05 0.1858 0.0209
 Mercury -86257-11-20 18:13 J -29783621.86 -29783621.74 -29783621.63 0.1688 0.0666
 Mercury -86255-10-27 05:59 J -29782916.26 -29782916.25 -29782916.24 0.1663 0.1653

Moon -86254-06-20 06:13 J -29782680.43 -29782680.24 -29782680.05 0.1648 0.0024
 Earth -86254-06-20 13:11 J -29782680.14 -29782679.95 -29782679.75 0.1648 0.0220 *
 Mercury -86248-06-19 07:11 J -29780489.33 -29780489.20 -29780489.07 0.1850 0.0878
 Mercury -86247-04-13 03:20 J -29780191.44 -29780191.36 -29780191.28 0.1694 0.1229
 Mercury -86245-03-18 14:51 J -29779485.97 -29779485.88 -29779485.78 0.1669 0.1094
 Mercury -86236-08-08 23:59 J -29776055.62 -29776055.50 -29776055.38 0.1675 0.0536
 Venus -86234-06-13 12:56 J -29775382.11 -29775381.96 -29775381.80 0.1694 0.0640
 Mercury -86227-03-08 06:56 J -29772922.30 -29772922.21 -29772922.11 0.1866 0.1381
 Mercury -86227-12-30 09:06 J -29772625.25 -29772625.12 -29772624.99 0.1682 0.0029
 Mercury -86218-07-29 07:11 J -29769492.34 -29769492.20 -29769492.05 0.1858 0.0307
 Mercury -86217-05-21 18:13 J -29769194.85 -29769194.74 -29769194.62 0.1688 0.0588
 Mercury -86209-12-18 07:54 J -29766062.31 -29766062.17 -29766062.03 0.1850 0.0747
 Mercury -86208-10-12 03:20 J -29765764.44 -29765764.36 -29765764.26 0.1694 0.1152
 Venus -86207-10-31 05:44 J -29765380.41 -29765380.26 -29765380.12 0.1841 0.1106
 Mercury -86206-09-17 15:06 J -29765058.96 -29765058.87 -29765058.78 0.1669 0.1179
 Venus -86202-06-12 07:54 J -29763695.27 -29763695.17 -29763695.07 0.1683 0.1343
 Moon -86201-12-27 10:32 J -29763131.22 -29763131.06 -29763130.91 0.1883 0.1034
 Earth -86201-12-27 18:13 J -29763130.91 -29763130.74 -29763130.57 0.1882 0.0871 *
 Mercury -86199-05-10 07:39 J -29762632.19 -29762632.18 -29762632.17 0.1841 0.1833
 Mercury -86196-02-07 00:13 J -29761628.61 -29761628.49 -29761628.38 0.1675 0.0616
 Mercury -86188-09-06 07:25 J -29758495.27 -29758495.19 -29758495.10 0.1866 0.1493
 Mercury -86187-06-30 09:20 J -29758198.24 -29758198.11 -29758197.99 0.1681 0.0074
 Mercury -86178-01-27 08:08 J -29755065.31 -29755065.16 -29755065.02 0.1858 0.0441
 Mercury -86178-11-20 18:27 J -29754767.85 -29754767.73 -29754767.61 0.1688 0.0513
 Moon -86175-06-22 18:42 J -29753822.93 -29753822.72 -29753822.52 0.1652 0.0320
 Earth -86175-06-22 23:15 J -29753822.72 -29753822.53 -29753822.35 0.1652 0.0544 *
 Mercury -86169-06-18 08:08 J -29751635.30 -29751635.16 -29751635.02 0.1850 0.0648
 Venus -86168-04-10 00:13 J -29751339.63 -29751339.49 -29751339.35 0.1697 0.0930
 Mercury -86168-04-12 03:35 J -29751337.45 -29751337.35 -29751337.25 0.1694 0.1072
 Mercury -86166-03-18 15:06 J -29750631.95 -29750631.87 -29750631.78 0.1669 0.1257

Mercury -86160-11-08 08:08 J -29748205.21 -29748205.16 -29748205.11 0.1842 0.1718

Mercury -86159-09-02 12:56 J -29747906.99 -29747906.96 -29747906.93 0.1701 0.1634

Mercury -86157-08-08 00:13 J -29747201.60 -29747201.49 -29747201.37 0.1675 0.0699

Mercury -86148-03-07 07:54 J -29744068.24 -29744068.17 -29744068.10 0.1867 0.1611

Mercury -86148-12-29 09:20 J -29743771.23 -29743771.11 -29743770.98 0.1681 0.0135

Venus -86141-08-27 09:35 J -29741338.16 -29741338.10 -29741338.04 0.1837 0.1711

Mercury -86139-07-28 08:23 J -29740638.29 -29740638.15 -29740638.01 0.1858 0.0551

Mercury -86138-05-21 18:27 J -29740340.85 -29740340.73 -29740340.61 0.1688 0.0431

Venus -86136-04-08 19:39 J -29739652.81 -29739652.68 -29739652.55 0.1686 0.1074

Mercury -86130-12-18 08:37 J -29737208.28 -29737208.14 -29737207.99 0.1850 0.0523

Mercury -86129-10-11 03:35 J -29736910.45 -29736910.35 -29736910.25 0.1694 0.0996

Moon -86128-06-15 21:35 J -29736662.76 -29736662.60 -29736662.43 0.1636 0.0972

Earth -86128-06-15 21:49 J -29736662.72 -29736662.59 -29736662.46 0.1636 0.1188 *

Mercury -86127-09-16 15:20 J -29736204.93 -29736204.86 -29736204.78 0.1669 0.1337

Moon -86122-12-31 16:03 J -29734272.86 -29734272.83 -29734272.80 0.1877 0.1846

Mercury -86120-05-09 08:37 J -29733778.21 -29733778.14 -29733778.06 0.1842 0.1600

Mercury -86119-03-03 12:56 J -29733480.01 -29733479.96 -29733479.92 0.1701 0.1563

Mercury -86117-02-07 00:27 J -29732774.60 -29732774.48 -29732774.37 0.1675 0.0775

Venus -86109-08-27 07:39 J -29729650.24 -29729650.18 -29729650.12 0.1852 0.1744

Mercury -86109-09-05 08:23 J -29729641.20 -29729641.15 -29729641.10 0.1867 0.1725

Mercury -86108-06-29 09:35 J -29729344.23 -29729344.10 -29729343.98 0.1681 0.0221

Venus -86102-02-05 11:30 J -29727297.13 -29727297.02 -29727296.90 0.1701 0.1222

Mercury -86099-01-26 08:51 J -29726211.27 -29726211.13 -29726210.99 0.1859 0.0659

Mercury -86099-11-19 18:42 J -29725913.84 -29725913.72 -29725913.60 0.1687 0.0349

Earth -86096-06-25 07:54 J -29724965.29 -29724965.17 -29724965.05 0.1656 0.1303

Moon -86096-06-25 13:11 J -29724965.03 -29724964.95 -29724964.87 0.1657 0.1528

Mercury -86090-06-18 09:06 J -29722781.26 -29722781.12 -29722780.97 0.1851 0.0406

Mercury -86089-04-11 03:49 J -29722483.45 -29722483.34 -29722483.24 0.1694 0.0922

Mercury -86087-03-17 15:35 J -29721777.92 -29721777.85 -29721777.79 0.1669 0.1420

Mercury -86081-11-07 09:20 J -29719351.20 -29719351.11 -29719351.02 0.1842 0.1480

Mercury -86080-09-01 12:56 J -29719053.02 -29719052.96 -29719052.90 0.1700 0.1482

Mercury -86078-08-08 00:27 J -29718347.59 -29718347.48 -29718347.37 0.1675 0.0855

Moon -86075-12-20 23:30 J -29717116.62 -29717116.52 -29717116.41 0.1904 0.1646

Earth -86075-12-21 04:32 J -29717116.38 -29717116.31 -29717116.23 0.1904 0.1739

Venus -86070-02-04 07:11 J -29715610.35 -29715610.20 -29715610.05 0.1689 0.0806

Mercury -86069-03-06 08:51 J -29715214.15 -29715214.13 -29715214.11 0.1867 0.1840

Mercury -86069-12-28 09:35 J -29714917.22 -29714917.10 -29714916.97 0.1681 0.0293

Mercury -86060-07-27 09:20 J -29711784.24 -29711784.11 -29711783.98 0.1859 0.0780

Mercury -86059-05-20 18:42 J -29711486.85 -29711486.72 -29711486.60 0.1687 0.0277

Mercury -86051-12-17 09:35 J -29708354.25 -29708354.10 -29708353.95 0.1851 0.0293

Mercury -86050-10-11 03:49 J -29708056.45 -29708056.34 -29708056.23 0.1694 0.0839

Earth -86049-06-18 04:32 J -29707805.49 -29707805.31 -29707805.12 0.1640 0.0486

Moon -86049-06-18 11:15 J -29707805.21 -29707805.03 -29707804.85 0.1640 0.0673 *

Mercury -86048-09-15 15:35 J -29707350.90 -29707350.85 -29707350.80 0.1669 0.1499

Venus -86043-06-24 11:15 J -29705608.17 -29705608.03 -29705607.89 0.1848 0.1104

Mercury -86041-05-08 09:35 J -29704924.20 -29704924.10 -29704924.00 0.1842 0.1371

Mercury -86040-03-02 13:11 J -29704626.02 -29704625.95 -29704625.89 0.1700 0.1405

Mercury -86038-02-06 00:42 J -29703920.58 -29703920.47 -29703920.37 0.1675 0.0939

Venus -86037-12-02 23:01 J -29703254.62 -29703254.54 -29703254.47 0.1704 0.1516

Mercury -86029-06-28 09:35 J -29700490.22 -29700490.10 -29700489.97 0.1680 0.0379

Mercury -86020-01-25 09:49 J -29697357.22 -29697357.09 -29697356.96 0.1859 0.0899

Mercury -86020-11-18 18:42 J -29697059.84 -29697059.72 -29697059.59 0.1687 0.0200

Mercury -86011-06-17 10:03 J -29693927.23 -29693927.08 -29693926.93 0.1851 0.0176

Mercury -86010-04-11 03:49 J -29693629.45 -29693629.34 -29693629.23 0.1694 0.0765

Mercury -86008-03-16 15:49 J -29692923.88 -29692923.84 -29692923.81 0.1668 0.1581

Venus -86005-12-01 19:11 J -29691567.86 -29691567.70 -29691567.54 0.1692 0.0540

Mercury -86002-11-07 10:18 J -29690497.18 -29690497.07 -29690496.96 0.1842 0.1243

Mercury -86001-08-31 13:11 J -29690199.03 -29690198.95 -29690198.88 0.1700 0.1330

86TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 86th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -85999-08-07 00:42 J | -29689493.57 | -29689493.47 | -29689493.37 | 0.1674 | 0.1016 | | |
| Earth | -85996-12-24 09:35 J | -29688258.29 | -29688258.10 | -29688257.91 | 0.1897 | 0.0342 | | |
| Moon | -85996-12-24 17:15 J | -29688257.98 | -29688257.78 | -29688257.59 | 0.1897 | 0.0491 | * | |
| Mercury | -85990-12-28 09:49 J | -29686063.21 | -29686063.09 | -29686062.97 | 0.1681 | 0.0452 | | |
| Mercury | -85981-07-26 10:03 J | -29682930.20 | -29682930.08 | -29682929.96 | 0.1859 | 0.1000 | | |
| Mercury | -85980-05-19 18:56 J | -29682632.84 | -29682632.71 | -29682632.59 | 0.1687 | 0.0114 | | |
| Venus | -85977-04-20 14:23 J | -29681566.07 | -29681565.90 | -29681565.73 | 0.1843 | 0.0457 | | |
| Mercury | -85972-12-16 10:47 J | -29679500.20 | -29679500.05 | -29679499.90 | 0.1851 | 0.0046 | | |
| Mercury | -85971-10-10 04:03 J | -29679202.44 | -29679202.33 | -29679202.22 | 0.1693 | 0.0684 | | |
| Earth | -85970-06-21 11:30 J | -29678948.21 | -29678948.02 | -29678947.83 | 0.1643 | 0.0226 | | |
| Moon | -85970-06-21 15:20 J | -29678948.04 | -29678947.86 | -29678947.69 | 0.1643 | 0.0453 | * | |
| Mercury | -85969-09-14 15:49 J | -29678496.84 | -29678496.84 | -29678496.83 | 0.1668 | 0.1666 | | |
| Mercury | -85962-05-08 10:47 J | -29676070.17 | -29676070.05 | -29676069.94 | 0.1843 | 0.1136 | | |
| Mercury | -85961-03-01 13:11 J | -29675772.03 | -29675771.95 | -29675771.87 | 0.1700 | 0.1253 | | |
| Mercury | -85959-02-05 00:42 J | -29675066.56 | -29675066.47 | -29675066.37 | 0.1674 | 0.1098 | | |
| Mercury | -85950-06-28 09:49 J | -29671636.21 | -29671636.09 | -29671635.97 | 0.1680 | 0.0533 | | |
| Mercury | -85941-01-25 10:47 J | -29668503.17 | -29668503.05 | -29668502.93 | 0.1860 | 0.1134 | | |
| Mercury | -85941-11-17 18:56 J | -29668205.83 | -29668205.71 | -29668205.58 | 0.1687 | 0.0043 | | |
| Venus | -85939-09-29 06:13 J | -29667525.41 | -29667525.24 | -29667525.07 | 0.1696 | 0.0248 | | |
| Mercury | -85932-06-16 10:47 J | -29665073.19 | -29665073.05 | -29665072.90 | 0.1851 | 0.0076 | | |

Mercury -85931-04-10 04:03 J -29664775.44 -29664775.33 -29664775.21 0.1693 0.0606

Earth -85923-06-14 14:37 J -29661787.98 -29661787.89 -29661787.80 0.1628 0.1422

Moon -85923-06-14 15:20 J -29661787.88 -29661787.86 -29661787.84 0.1628 0.1616 *

Mercury -85923-11-06 11:15 J -29661643.16 -29661643.03 -29661642.91 0.1843 0.1016

Mercury -85922-08-31 13:25 J -29661345.03 -29661344.94 -29661344.85 0.1700 0.1174

Mercury -85920-08-06 00:56 J -29660639.55 -29660639.46 -29660639.37 0.1674 0.1181

Earth -85917-12-27 13:39 J -29659400.09 -29659399.93 -29659399.77 0.1891 0.1007

Moon -85917-12-27 19:25 J -29659399.83 -29659399.69 -29659399.55 0.1891 0.1235 *

Venus -85911-02-15 18:13 J -29657523.92 -29657523.74 -29657523.56 0.1839 0.0167

Mercury -85911-12-27 10:03 J -29657209.20 -29657209.08 -29657208.96 0.1680 0.0613

Mercury -85902-07-26 11:01 J -29654076.14 -29654076.04 -29654075.93 0.1860 0.1243

Mercury -85901-05-18 19:11 J -29653778.83 -29653778.70 -29653778.58 0.1687 0.0076

Mercury -85893-12-15 11:30 J -29650646.17 -29650646.02 -29650645.87 0.1852 0.0182

Mercury -85892-10-09 04:18 J -29650348.44 -29650348.32 -29650348.21 0.1693 0.0532

Moon -85891-06-23 15:20 J -29650091.02 -29650090.86 -29650090.70 0.1647 0.0741

Earth -85891-06-23 19:54 J -29650090.83 -29650090.67 -29650090.51 0.1647 0.0972 *

Mercury -85883-05-07 11:44 J -29647216.14 -29647216.01 -29647215.88 0.1843 0.0900

Mercury -85882-03-01 13:25 J -29646918.04 -29646917.94 -29646917.85 0.1700 0.1101

Mercury -85880-02-04 00:56 J -29646212.54 -29646212.46 -29646212.37 0.1674 0.1259

Mercury -85873-07-21 22:47 J -29643487.58 -29643487.55 -29643487.53 0.1706 0.1665

Venus -85873-07-26 17:44 J -29643482.93 -29643482.76 -29643482.59 0.1699 0.0046

Mercury -85871-06-27 10:03 J -29642782.19 -29642782.08 -29642781.96 0.1680 0.0695

Mercury -85862-01-24 11:30 J -29639649.12 -29639649.02 -29639648.92 0.1860 0.1352

Mercury -85862-11-17 19:11 J -29639351.82 -29639351.70 -29639351.57 0.1686 0.0127

Mercury -85853-06-15 11:59 J -29636219.14 -29636219.00 -29636218.85 0.1852 0.0298

Mercury -85852-04-09 04:18 J -29635921.44 -29635921.32 -29635921.20 0.1693 0.0453

Venus -85846-12-13 21:49 J -29633481.75 -29633481.59 -29633481.43 0.1834 0.0789

Moon -85844-06-16 15:20 J -29632931.03 -29632930.86 -29632930.68 0.1631 0.0567

Earth -85844-06-16 21:49 J -29632930.77 -29632930.59 -29632930.42 0.1631 0.0739 *

Mercury -85844-11-05 12:13 J -29632789.13 -29632788.99 -29632788.85 0.1843 0.0780

Mercury -85843-08-30 13:25 J -29632491.04 -29632490.94 -29632490.84 0.1699 0.1020
 Mercury -85841-08-05 01:11 J -29631785.52 -29631785.45 -29631785.38 0.1674 0.1340
 Mercury -85833-01-20 22:32 J -29629060.60 -29629060.56 -29629060.51 0.1706 0.1596
 Mercury -85832-12-26 10:18 J -29628355.19 -29628355.07 -29628354.96 0.1680 0.0774
 Mercury -85823-07-25 11:59 J -29625222.09 -29625222.00 -29625221.91 0.1860 0.1472
 Mercury -85822-05-18 19:11 J -29624924.82 -29624924.70 -29624924.57 0.1686 0.0200
 Mercury -85814-12-15 12:28 J -29621792.13 -29621791.98 -29621791.84 0.1852 0.0406
 Mercury -85813-10-08 04:18 J -29621494.44 -29621494.32 -29621494.19 0.1693 0.0373
 Venus -85807-05-24 04:47 J -29619440.47 -29619440.30 -29619440.14 0.1703 0.0336
 Mercury -85804-05-06 12:42 J -29618362.11 -29618361.97 -29618361.83 0.1844 0.0669
 Mercury -85803-02-28 13:40 J -29618064.04 -29618063.93 -29618063.83 0.1699 0.0943
 Mercury -85801-02-04 01:25 J -29617358.51 -29617358.44 -29617358.38 0.1674 0.1425
 Mercury -85795-09-26 12:42 J -29614932.01 -29614931.97 -29614931.92 0.1835 0.1737
 Mercury -85794-07-21 22:47 J -29614633.61 -29614633.55 -29614633.50 0.1706 0.1518
 Mercury -85792-06-26 10:18 J -29613928.18 -29613928.07 -29613927.96 0.1680 0.0852
 Moon -85791-12-20 14:52 J -29613385.95 -29613385.88 -29613385.80 0.1912 0.1723
 Earth -85791-12-20 18:42 J -29613385.79 -29613385.72 -29613385.64 0.1912 0.1738
 Mercury -85783-01-23 12:28 J -29610795.05 -29610794.98 -29610794.90 0.1860 0.1591
 Mercury -85783-11-16 19:25 J -29610497.82 -29610497.69 -29610497.57 0.1686 0.0284
 Venus -85780-10-10 01:11 J -29609439.56 -29609439.45 -29609439.34 0.1829 0.1416
 Mercury -85774-06-15 12:56 J -29607365.11 -29607364.96 -29607364.82 0.1852 0.0524
 Mercury -85773-04-08 04:32 J -29607067.44 -29607067.31 -29607067.19 0.1693 0.0297
 Moon -85765-06-18 23:44 J -29604073.71 -29604073.51 -29604073.30 0.1634 0.0282
 Earth -85765-06-19 04:04 J -29604073.53 -29604073.33 -29604073.14 0.1635 0.0051 *
 Mercury -85765-11-04 13:11 J -29603935.09 -29603934.95 -29603934.81 0.1844 0.0546
 Mercury -85764-08-29 13:40 J -29603637.04 -29603636.93 -29603636.83 0.1699 0.0866
 Mercury -85762-08-05 01:25 J -29602931.50 -29602931.44 -29602931.39 0.1673 0.1501
 Mercury -85755-03-27 12:56 J -29600505.02 -29600504.96 -29600504.89 0.1835 0.1638
 Mercury -85754-01-19 22:47 J -29600206.61 -29600206.55 -29600206.48 0.1706 0.1438
 Mercury -85753-12-25 10:18 J -29599501.17 -29599501.07 -29599500.96 0.1680 0.0936

Mercury -85744-07-24 12:42 J -29596368.03 -29596367.97 -29596367.91 0.1861 0.1694

Mercury -85743-05-17 19:25 J -29596070.81 -29596070.69 -29596070.56 0.1686 0.0366

Venus -85741-03-20 15:49 J -29595398.00 -29595397.84 -29595397.69 0.1707 0.0638

Mercury -85735-12-14 13:25 J -29592938.07 -29592937.94 -29592937.80 0.1853 0.0653

Mercury -85734-10-08 04:32 J -29592640.43 -29592640.31 -29592640.19 0.1692 0.0214

Mercury -85725-05-05 13:25 J -29589508.08 -29589507.94 -29589507.79 0.1844 0.0441

Mercury -85724-02-27 13:40 J -29589210.04 -29589209.93 -29589209.82 0.1699 0.0788

Mercury -85722-02-03 01:25 J -29588504.48 -29588504.44 -29588504.40 0.1673 0.1583

Moon -85718-06-13 11:16 J -29586913.12 -29586913.03 -29586912.95 0.1621 0.1474

Mercury -85716-09-25 13:40 J -29586078.01 -29586077.93 -29586077.84 0.1836 0.1504

Mercury -85715-07-20 22:47 J -29585779.62 -29585779.55 -29585779.47 0.1706 0.1364

Mercury -85713-06-25 10:32 J -29585074.16 -29585074.06 -29585073.96 0.1679 0.1015

Moon -85712-12-23 16:04 J -29584528.02 -29584527.83 -29584527.63 0.1906 0.0367

Earth -85712-12-24 01:11 J -29584527.64 -29584527.45 -29584527.26 0.1906 0.0300 *

Venus -85709-03-19 11:44 J -29583711.10 -29583711.01 -29583710.92 0.1695 0.1421

Mercury -85704-01-22 13:25 J -29581940.97 -29581940.94 -29581940.92 0.1861 0.1824

Mercury -85704-11-15 19:25 J -29581643.81 -29581643.69 -29581643.56 0.1686 0.0444

Mercury -85695-06-14 13:40 J -29578511.07 -29578510.93 -29578510.80 0.1852 0.0744

Mercury -85694-04-08 04:32 J -29578213.43 -29578213.31 -29578213.18 0.1692 0.0144

Earth -85686-06-22 09:49 J -29575216.26 -29575216.09 -29575215.91 0.1638 0.0658

Moon -85686-06-22 13:54 J -29575216.09 -29575215.92 -29575215.75 0.1638 0.0889 *

Mercury -85686-11-04 14:08 J -29575081.06 -29575080.91 -29575080.76 0.1845 0.0314

Mercury -85685-08-28 13:54 J -29574783.04 -29574782.92 -29574782.81 0.1699 0.0709

Mercury -85683-08-04 01:40 J -29574077.43 -29574077.43 -29574077.43 0.1673 0.1669

Venus -85682-08-07 01:54 J -29573709.54 -29573709.42 -29573709.30 0.1840 0.1364

Mercury -85676-03-26 14:08 J -29571651.00 -29571650.91 -29571650.81 0.1836 0.1389

Venus -85675-01-16 02:52 J -29571355.52 -29571355.38 -29571355.24 0.1710 0.0942

Mercury -85675-01-18 23:01 J -29571352.62 -29571352.54 -29571352.46 0.1706 0.1286

Mercury -85674-12-25 10:32 J -29570647.15 -29570647.06 -29570646.96 0.1679 0.1097

Mercury -85664-05-16 19:40 J -29567216.80 -29567216.68 -29567216.56 0.1686 0.0521

Mercury -85656-12-13 14:23 J -29564084.03 -29564083.90 -29564083.77 0.1853 0.0876

Mercury -85655-10-07 04:47 J -29563786.43 -29563786.30 -29563786.18 0.1692 0.0066

Mercury -85646-05-05 14:37 J -29560654.04 -29560653.89 -29560653.75 0.1844 0.0208

Mercury -85645-02-27 13:54 J -29560356.04 -29560355.92 -29560355.81 0.1699 0.0631

Venus -85643-01-14 23:01 J -29559668.66 -29559668.54 -29559668.41 0.1698 0.1139

Earth -85639-06-15 15:49 J -29558056.00 -29558055.84 -29558055.69 0.1624 0.0974

Moon -85639-06-15 22:47 J -29558055.69 -29558055.55 -29558055.41 0.1624 0.1132 *

Mercury -85637-09-24 14:37 J -29557224.00 -29557223.89 -29557223.79 0.1836 0.1284

Mercury -85636-07-19 23:01 J -29556925.62 -29556925.54 -29556925.45 0.1705 0.1204

Mercury -85634-06-25 10:47 J -29556220.14 -29556220.05 -29556219.96 0.1679 0.1178

Earth -85633-12-27 06:28 J -29555669.39 -29555669.23 -29555669.08 0.1900 0.1101

Moon -85633-12-27 07:40 J -29555669.35 -29555669.18 -29555669.01 0.1900 0.1117 *

Mercury -85625-11-14 19:40 J -29552789.79 -29552789.68 -29552789.56 0.1685 0.0608

Venus -85616-06-03 05:59 J -29549667.42 -29549667.25 -29549667.09 0.1835 0.0747

Mercury -85616-06-13 14:52 J -29549657.01 -29549656.88 -29549656.76 0.1853 0.0994

Mercury -85615-04-07 04:47 J -29549359.43 -29549359.30 -29549359.17 0.1692 0.0024

Venus -85610-11-13 13:40 J -29547313.04 -29547312.93 -29547312.81 0.1714 0.1255

Earth -85607-06-24 17:30 J -29546358.87 -29546358.77 -29546358.67 0.1641 0.1394

Moon -85607-06-25 00:28 J -29546358.60 -29546358.48 -29546358.36 0.1642 0.1261

Mercury -85607-11-03 15:06 J -29546227.02 -29546226.87 -29546226.72 0.1845 0.0088

Mercury -85606-08-28 13:54 J -29545929.03 -29545928.92 -29545928.80 0.1698 0.0551

Mercury -85597-03-25 15:06 J -29542796.99 -29542796.87 -29542796.75 0.1836 0.1157

Mercury -85596-01-17 23:01 J -29542498.63 -29542498.54 -29542498.45 0.1705 0.1133

Mercury -85595-12-24 10:47 J -29541793.13 -29541793.05 -29541792.97 0.1679 0.1257

Mercury -85587-06-10 08:23 J -29539068.16 -29539068.15 -29539068.15 0.1712 0.1707

Mercury -85585-05-15 19:40 J -29538362.79 -29538362.68 -29538362.56 0.1685 0.0683

Venus -85578-11-12 10:32 J -29535626.20 -29535626.06 -29535625.91 0.1701 0.0859

Mercury -85577-12-12 15:06 J -29535229.99 -29535229.87 -29535229.75 0.1853 0.1099

Mercury -85576-10-06 05:01 J -29534932.42 -29534932.29 -29534932.17 0.1692 0.0112

Mercury -85567-05-04 15:20 J -29531800.01 -29531799.86 -29531799.71 0.1845 0.0052

Mercury -85566-02-26 14:08 J -29531502.03 -29531501.91 -29531501.80 0.1698 0.0477

Earth -85560-06-17 21:06 J -29529198.81 -29529198.62 -29529198.43 0.1627 0.0302

Moon -85560-06-18 01:54 J -29529198.61 -29529198.42 -29529198.24 0.1627 0.0059 *

Mercury -85558-09-24 15:35 J -29528369.97 -29528369.85 -29528369.72 0.1836 0.1038

Mercury -85557-07-18 23:16 J -29528071.63 -29528071.53 -29528071.44 0.1705 0.1053

Mercury -85555-06-24 11:01 J -29527366.12 -29527366.04 -29527365.97 0.1679 0.1340

Venus -85550-03-31 09:20 J -29525625.29 -29525625.11 -29525624.93 0.1831 0.0125

Mercury -85548-12-09 08:23 J -29524641.18 -29524641.15 -29524641.12 0.1712 0.1631

Mercury -85546-11-14 19:54 J -29523935.78 -29523935.67 -29523935.56 0.1685 0.0765

Venus -85544-09-10 00:28 J -29523270.54 -29523270.48 -29523270.41 0.1717 0.1575

Mercury -85537-06-12 15:35 J -29520802.96 -29520802.85 -29520802.74 0.1854 0.1219

Mercury -85536-04-06 05:01 J -29520505.42 -29520505.29 -29520505.17 0.1692 0.0187

Mercury -85528-11-02 15:49 J -29517372.99 -29517372.84 -29517372.69 0.1845 0.0161

Mercury -85527-08-27 14:08 J -29517075.03 -29517074.91 -29517074.79 0.1698 0.0395

Mercury -85518-03-25 15:49 J -29513942.97 -29513942.84 -29513942.71 0.1837 0.0935

Mercury -85517-01-17 23:16 J -29513644.63 -29513644.53 -29513644.43 0.1705 0.0970

Mercury -85516-12-23 11:01 J -29512939.10 -29512939.04 -29512938.97 0.1679 0.1424

Venus -85512-09-08 21:35 J -29511583.76 -29511583.60 -29511583.44 0.1705 0.0558

Mercury -85508-06-09 08:23 J -29510214.20 -29510214.15 -29510214.10 0.1712 0.1555

Earth -85507-12-20 06:13 J -29509655.31 -29509655.24 -29509655.17 0.1920 0.1790

Moon -85507-12-20 14:52 J -29509654.94 -29509654.88 -29509654.82 0.1919 0.1809

Mercury -85506-05-15 20:08 J -29509508.77 -29509508.66 -29509508.55 0.1685 0.0847

Mercury -85498-12-12 16:04 J -29506375.93 -29506375.83 -29506375.72 0.1854 0.1347

Mercury -85497-10-05 05:01 J -29506078.41 -29506078.29 -29506078.16 0.1691 0.0265

Mercury -85488-05-03 16:18 J -29502945.97 -29502945.82 -29502945.67 0.1845 0.0264

Mercury -85487-02-25 14:08 J -29502648.03 -29502647.91 -29502647.79 0.1698 0.0315

Venus -85484-01-25 13:40 J -29501583.10 -29501582.93 -29501582.76 0.1826 0.0484

Moon -85481-06-20 00:42 J -29500341.65 -29500341.47 -29500341.29 0.1630 0.0183

Earth -85481-06-20 03:35 J -29500341.54 -29500341.35 -29500341.16 0.1630 0.0394 *

Mercury -85479-09-23 16:47 J -29499515.94 -29499515.80 -29499515.67 0.1837 0.0802

Mercury -85478-07-18 23:16 J -29499217.63 -29499217.53 -29499217.42 0.1705 0.0896

Mercury -85476-06-23 11:16 J -29498512.09 -29498512.03 -29498511.98 0.1678 0.1505

Mercury -85469-12-08 08:37 J -29495787.20 -29495787.14 -29495787.08 0.1712 0.1476

Mercury -85467-11-13 20:08 J -29495081.77 -29495081.66 -29495081.56 0.1685 0.0925

Mercury -85458-06-12 16:18 J -29491948.91 -29491948.82 -29491948.73 0.1854 0.1440

Mercury -85457-04-05 05:16 J -29491651.41 -29491651.28 -29491651.16 0.1691 0.0350

Mercury -85449-11-01 17:01 J -29488518.94 -29488518.79 -29488518.65 0.1846 0.0393

Mercury -85448-08-26 14:23 J -29488221.03 -29488220.90 -29488220.78 0.1698 0.0236

Venus -85446-07-07 08:52 J -29487541.30 -29487541.13 -29487540.96 0.1709 0.0266

Mercury -85439-03-24 17:01 J -29485088.93 -29485088.79 -29485088.65 0.1837 0.0688

Mercury -85438-01-16 23:30 J -29484790.63 -29484790.52 -29484790.42 0.1705 0.0819

Mercury -85437-12-22 11:16 J -29484085.07 -29484085.03 -29484084.99 0.1678 0.1584

Moon -85434-06-14 06:28 J -29483181.37 -29483181.23 -29483181.08 0.1616 0.1016

Earth -85434-06-14 12:56 J -29483181.09 -29483180.96 -29483180.83 0.1617 0.1187 *

Mercury -85430-08-14 17:01 J -29481658.83 -29481658.79 -29481658.76 0.1828 0.1770

Mercury -85429-06-08 08:37 J -29481360.21 -29481360.14 -29481360.07 0.1712 0.1399

Earth -85428-12-23 13:25 J -29480797.13 -29480796.94 -29480796.74 0.1914 0.0310

Moon -85428-12-23 16:04 J -29480797.01 -29480796.83 -29480796.65 0.1914 0.0190 *

Mercury -85427-05-14 20:08 J -29480654.76 -29480654.66 -29480654.56 0.1685 0.1007

Venus -85419-11-22 17:30 J -29477540.91 -29477540.77 -29477540.62 0.1821 0.1085

Mercury -85419-12-11 17:01 J -29477521.87 -29477521.79 -29477521.72 0.1854 0.1575

Mercury -85418-10-05 05:16 J -29477224.40 -29477224.28 -29477224.16 0.1691 0.0427

Mercury -85409-05-02 17:16 J -29474091.92 -29474091.78 -29474091.64 0.1846 0.0500

Mercury -85408-02-24 14:23 J -29473794.03 -29473793.90 -29473793.78 0.1698 0.0156

Moon -85402-06-23 02:37 J -29471484.52 -29471484.39 -29471484.27 0.1633 0.1236

Earth -85402-06-23 09:20 J -29471484.26 -29471484.11 -29471483.97 0.1633 0.1089

Mercury -85400-09-22 17:30 J -29470661.92 -29470661.77 -29470661.63 0.1837 0.0582

Mercury -85399-07-17 23:30 J -29470363.63 -29470363.52 -29470363.41 0.1704 0.0734

Mercury -85397-06-22 11:16 J -29469658.03 -29469658.03 -29469658.02 0.1678 0.1671

Mercury -85390-02-12 17:44 J -29467231.83 -29467231.76 -29467231.70 0.1829 0.1643

Mercury -85390-12-08 08:37 J -29466933.22 -29466933.14 -29466933.06 0.1712 0.1322

Mercury -85388-11-12 20:23 J -29466227.75 -29466227.65 -29466227.56 0.1684 0.1092

Venus -85380-05-03 19:25 J -29463498.86 -29463498.69 -29463498.52 0.1712 0.0053

Mercury -85379-06-11 17:30 J -29463094.83 -29463094.77 -29463094.71 0.1854 0.1692

Mercury -85378-04-05 05:16 J -29462797.40 -29462797.28 -29462797.16 0.1691 0.0508

Mercury -85370-11-01 17:44 J -29459664.90 -29459664.76 -29459664.62 0.1846 0.0620

Mercury -85369-08-25 14:23 J -29459367.02 -29459366.90 -29459366.77 0.1698 0.0081

Mercury -85360-03-23 17:59 J -29456234.89 -29456234.75 -29456234.60 0.1837 0.0452

Mercury -85359-01-15 23:30 J -29455936.63 -29455936.52 -29455936.40 0.1705 0.0660

Moon -85355-06-16 12:28 J -29454324.16 -29454323.98 -29454323.80 0.1619 0.0758

Earth -85355-06-16 17:44 J -29454323.95 -29454323.76 -29454323.58 0.1619 0.0529 *

Venus -85353-09-18 21:35 J -29453498.66 -29453498.60 -29453498.53 0.1817 0.1684

Mercury -85351-08-13 17:59 J -29452804.83 -29452804.75 -29452804.67 0.1829 0.1538

Mercury -85350-06-08 08:52 J -29452506.22 -29452506.13 -29452506.05 0.1712 0.1240

Moon -85349-12-26 12:56 J -29451939.11 -29451938.96 -29451938.79 0.1909 0.0955

Earth -85349-12-26 21:06 J -29451938.77 -29451938.62 -29451938.46 0.1909 0.1155

Mercury -85348-05-13 20:23 J -29451800.74 -29451800.65 -29451800.56 0.1684 0.1170

Mercury -85340-12-10 17:44 J -29448667.80 -29448667.76 -29448667.73 0.1855 0.1796

Mercury -85339-10-04 05:30 J -29448370.39 -29448370.27 -29448370.15 0.1691 0.0594

Mercury -85330-05-02 18:13 J -29445237.88 -29445237.74 -29445237.60 0.1846 0.0739

Mercury -85329-02-24 14:37 J -29444940.02 -29444939.89 -29444939.77 0.1697 0.0055

Moon -85323-06-25 16:04 J -29442626.84 -29442626.83 -29442626.83 0.1636 0.1635

Venus -85321-09-18 17:44 J -29441810.83 -29441810.76 -29441810.69 0.1832 0.1663

Mercury -85321-09-21 18:28 J -29441807.87 -29441807.73 -29441807.58 0.1838 0.0334

Mercury -85320-07-16 23:44 J -29441509.63 -29441509.51 -29441509.40 0.1704 0.0579

Venus -85314-03-01 06:28 J -29439456.40 -29439456.23 -29439456.07 0.1716 0.0363

Mercury -85311-02-11 18:28 J -29438377.82 -29438377.73 -29438377.63 0.1829 0.1413

Mercury -85311-12-07 08:52 J -29438079.22 -29438079.13 -29438079.04 0.1711 0.1163

Mercury -85309-11-11 20:37 J -29437373.73 -29437373.64 -29437373.56 0.1684 0.1256

Mercury -85299-04-04 05:30 J -29433943.39 -29433943.27 -29433943.15 0.1691 0.0668

Mercury -85291-10-31 18:42 J -29430810.85 -29430810.72 -29430810.59 0.1846 0.0857
 Mercury -85290-08-25 14:37 J -29430513.02 -29430512.89 -29430512.77 0.1697 0.0089
 Mercury -85281-03-22 18:56 J -29427380.86 -29427380.71 -29427380.56 0.1838 0.0229
 Mercury -85280-01-14 23:44 J -29427082.63 -29427082.51 -29427082.39 0.1704 0.0495
 Earth -85276-06-18 22:18 J -29425466.76 -29425466.57 -29425466.37 0.1622 0.0144
 Moon -85276-06-19 02:08 J -29425466.61 -29425466.41 -29425466.21 0.1622 0.0358 *
 Mercury -85272-08-12 19:11 J -29423950.81 -29423950.70 -29423950.60 0.1829 0.1289
 Mercury -85271-06-07 08:52 J -29423652.22 -29423652.13 -29423652.03 0.1711 0.1085
 Mercury -85269-05-12 20:37 J -29422946.71 -29422946.64 -29422946.56 0.1684 0.1337
 Mercury -85262-10-28 17:59 J -29420221.77 -29420221.75 -29420221.72 0.1718 0.1674
 Mercury -85260-10-03 05:30 J -29419516.38 -29419516.27 -29419516.15 0.1691 0.0756
 Venus -85255-07-16 21:06 J -29417768.76 -29417768.62 -29417768.47 0.1827 0.1030
 Mercury -85251-05-01 19:11 J -29416383.83 -29416383.70 -29416383.58 0.1847 0.0972
 Mercury -85250-02-23 14:37 J -29416086.01 -29416085.89 -29416085.76 0.1697 0.0178
 Venus -85249-12-26 17:16 J -29415413.93 -29415413.78 -29415413.63 0.1720 0.0683
 Mercury -85242-09-21 19:25 J -29412953.84 -29412953.69 -29412953.53 0.1838 0.0108
 Mercury -85241-07-15 23:44 J -29412655.63 -29412655.51 -29412655.39 0.1704 0.0419
 Mercury -85232-02-10 19:25 J -29409523.81 -29409523.69 -29409523.58 0.1829 0.1184
 Mercury -85232-12-06 09:06 J -29409225.22 -29409225.12 -29409225.02 0.1711 0.1005
 Mercury -85230-11-11 20:37 J -29408519.70 -29408519.64 -29408519.57 0.1684 0.1420
 Earth -85229-06-12 11:16 J -29408306.12 -29408306.03 -29408305.93 0.1610 0.1376
 Moon -85229-06-12 17:30 J -29408305.83 -29408305.77 -29408305.70 0.1611 0.1508
 Earth -85223-12-19 15:06 J -29405924.90 -29405924.87 -29405924.83 0.1927 0.1893
 Mercury -85222-04-28 18:13 J -29405794.79 -29405794.74 -29405794.70 0.1718 0.1594
 Mercury -85220-04-03 05:44 J -29405089.37 -29405089.26 -29405089.15 0.1690 0.0839
 Venus -85217-12-25 14:23 J -29403726.99 -29403726.90 -29403726.82 0.1708 0.1461
 Mercury -85212-10-30 19:40 J -29401956.80 -29401956.68 -29401956.56 0.1847 0.1101
 Mercury -85211-08-24 14:52 J -29401659.01 -29401658.88 -29401658.76 0.1697 0.0252
 Mercury -85202-03-22 19:54 J -29398526.82 -29398526.67 -29398526.52 0.1838 0.0030
 Mercury -85201-01-14 23:59 J -29398228.63 -29398228.50 -29398228.38 0.1704 0.0342

Earth -85197-06-21 03:35 J -29396609.52 -29396609.35 -29396609.19 0.1625 0.0827
 Moon -85197-06-21 10:18 J -29396609.24 -29396609.07 -29396608.90 0.1625 0.0643 *
 Mercury -85193-08-11 20:08 J -29395096.79 -29395096.66 -29395096.54 0.1830 0.1058
 Mercury -85192-06-06 09:06 J -29394798.23 -29394798.12 -29394798.02 0.1711 0.0925
 Mercury -85190-05-12 20:52 J -29394092.69 -29394092.63 -29394092.58 0.1684 0.1502
 Venus -85189-05-13 01:54 J -29393726.60 -29393726.42 -29393726.25 0.1823 0.0449
 Venus -85183-10-24 03:49 J -29391371.47 -29391371.34 -29391371.20 0.1724 0.1009
 Mercury -85183-10-27 18:13 J -29391367.80 -29391367.74 -29391367.68 0.1718 0.1516
 Mercury -85181-10-02 05:44 J -29390662.36 -29390662.26 -29390662.15 0.1690 0.0920
 Mercury -85172-04-30 19:54 J -29387529.78 -29387529.67 -29387529.55 0.1847 0.1207
 Mercury -85171-02-22 14:52 J -29387232.00 -29387231.88 -29387231.76 0.1697 0.0332
 Mercury -85163-09-20 20:23 J -29384099.80 -29384099.65 -29384099.50 0.1839 0.0136
 Mercury -85162-07-15 23:59 J -29383801.62 -29383801.50 -29383801.37 0.1703 0.0255
 Mercury -85153-02-10 20:37 J -29380669.77 -29380669.64 -29380669.51 0.1830 0.0928
 Mercury -85153-12-05 09:06 J -29380371.23 -29380371.12 -29380371.01 0.1711 0.0846
 Venus -85151-10-23 01:25 J -29379684.56 -29379684.44 -29379684.31 0.1711 0.1170
 Mercury -85151-11-10 21:06 J -29379665.66 -29379665.62 -29379665.58 0.1683 0.1589
 Earth -85150-06-15 15:35 J -29379449.02 -29379448.85 -29379448.68 0.1613 0.0740
 Moon -85150-06-15 19:25 J -29379448.86 -29379448.69 -29379448.51 0.1613 0.0545 *
 Earth -85144-12-23 00:56 J -29377066.65 -29377066.46 -29377066.27 0.1922 0.0343
 Moon -85144-12-23 05:44 J -29377066.47 -29377066.26 -29377066.05 0.1922 0.0042 *
 Mercury -85143-04-27 18:13 J -29376940.80 -29376940.74 -29376940.67 0.1718 0.1438
 Mercury -85141-04-02 05:59 J -29376235.35 -29376235.25 -29376235.15 0.1690 0.1000
 Mercury -85133-10-29 20:37 J -29373102.74 -29373102.64 -29373102.54 0.1847 0.1330
 Mercury -85132-08-23 15:06 J -29372805.00 -29372804.87 -29372804.75 0.1697 0.0418
 Venus -85123-03-10 05:59 J -29369684.43 -29369684.25 -29369684.07 0.1818 0.0149
 Mercury -85123-03-21 20:52 J -29369672.77 -29369672.63 -29369672.48 0.1839 0.0268
 Mercury -85122-01-13 23:59 J -29369374.62 -29369374.50 -29369374.37 0.1704 0.0181
 Earth -85118-06-24 10:04 J -29367752.15 -29367752.08 -29367752.02 0.1628 0.1522
 Venus -85117-08-20 14:37 J -29367329.00 -29367328.89 -29367328.79 0.1727 0.1340

Mercury -85114-08-11 20:52 J -29366242.76 -29366242.63 -29366242.49 0.1830 0.0825

Mercury -85113-06-05 09:20 J -29365944.22 -29365944.11 -29365944.00 0.1711 0.0762

Mercury -85111-05-11 21:06 J -29365238.63 -29365238.62 -29365238.61 0.1684 0.1669

Mercury -85104-10-26 18:28 J -29362513.81 -29362513.73 -29362513.66 0.1717 0.1356

Mercury -85102-10-02 06:13 J -29361808.34 -29361808.24 -29361808.15 0.1690 0.1089

Mercury -85093-04-29 21:06 J -29358675.71 -29358675.62 -29358675.53 0.1848 0.1453

Mercury -85092-02-21 15:06 J -29358377.99 -29358377.87 -29358377.75 0.1696 0.0496

Venus -85085-08-19 12:13 J -29355642.13 -29355641.99 -29355641.84 0.1715 0.0860

Mercury -85084-09-19 21:35 J -29355245.75 -29355245.60 -29355245.46 0.1839 0.0385

Mercury -85083-07-15 00:13 J -29354947.62 -29354947.49 -29354947.37 0.1703 0.0092

Mercury -85074-02-09 21:35 J -29351815.74 -29351815.60 -29351815.46 0.1830 0.0696

Mercury -85074-12-05 09:20 J -29351517.23 -29351517.11 -29351517.00 0.1710 0.0686

Moon -85071-06-17 16:18 J -29350591.99 -29350591.82 -29350591.64 0.1615 0.0312

Earth -85071-06-17 20:08 J -29350591.85 -29350591.66 -29350591.47 0.1615 0.0082 *

Mercury -85065-07-01 21:20 J -29348385.63 -29348385.61 -29348385.58 0.1821 0.1782

Earth -85065-12-26 09:20 J -29348208.27 -29348208.11 -29348207.96 0.1917 0.1169

Moon -85065-12-26 17:16 J -29348207.94 -29348207.78 -29348207.61 0.1917 0.0990

Mercury -85064-04-26 18:28 J -29348086.81 -29348086.73 -29348086.65 0.1718 0.1280

Mercury -85062-04-02 06:13 J -29347381.33 -29347381.24 -29347381.15 0.1690 0.1166

Venus -85057-01-05 10:47 J -29345642.22 -29345642.05 -29345641.89 0.1814 0.0726

Mercury -85054-10-29 21:35 J -29344248.68 -29344248.60 -29344248.53 0.1848 0.1568

Mercury -85053-08-22 15:20 J -29343950.98 -29343950.86 -29343950.75 0.1696 0.0585

Venus -85051-06-18 01:11 J -29343286.49 -29343286.45 -29343286.41 0.1731 0.1676

Mercury -85044-03-20 21:49 J -29340818.74 -29340818.59 -29340818.45 0.1839 0.0492

Mercury -85043-01-13 00:13 J -29340520.61 -29340520.49 -29340520.36 0.1703 0.0057

Mercury -85035-08-10 22:04 J -29337388.72 -29337388.58 -29337388.43 0.1831 0.0573

Mercury -85034-06-05 09:20 J -29337090.22 -29337090.11 -29337089.99 0.1710 0.0604

Mercury -85026-12-31 22:04 J -29333958.64 -29333958.58 -29333958.52 0.1822 0.1655

Mercury -85025-10-25 18:28 J -29333659.81 -29333659.73 -29333659.64 0.1717 0.1197

Moon -85024-06-11 06:42 J -29333431.29 -29333431.22 -29333431.14 0.1605 0.1465

Earth -85024-06-11 12:56 J -29333431.00 -29333430.96 -29333430.91 0.1605 0.1555

Mercury -85023-10-01 06:13 J -29332954.32 -29332954.24 -29332954.15 0.1690 0.1253

Venus -85019-06-16 23:30 J -29331599.68 -29331599.52 -29331599.36 0.1718 0.0562

Mercury -85014-04-29 22:04 J -29329821.64 -29329821.58 -29329821.53 0.1848 0.1686

Mercury -85013-02-21 15:20 J -29329523.98 -29329523.86 -29329523.75 0.1696 0.0663

Mercury -85005-09-18 22:32 J -29326391.71 -29326391.56 -29326391.42 0.1839 0.0624

Mercury -85004-07-14 00:28 J -29326093.61 -29326093.48 -29326093.36 0.1703 0.0094

85TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 85th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -84995-02-08 22:32 J | -29322961.71 | -29322961.56 | -29322961.42 | 0.1831 | 0.0464 | | |
| Mercury | -84995-12-04 09:35 J | -29322663.22 | -29322663.10 | -29322662.98 | 0.1710 | 0.0519 | | |
| Moon | -84992-06-19 17:44 J | -29321734.93 | -29321734.76 | -29321734.58 | 0.1618 | 0.0762 | | |
| Earth | -84992-06-20 00:56 J | -29321734.64 | -29321734.46 | -29321734.28 | 0.1618 | 0.0585 | * | |
| Venus | -84992-11-01 15:20 J | -29321599.99 | -29321599.86 | -29321599.74 | 0.1809 | 0.1294 | | |
| Mercury | -84986-07-01 22:32 J | -29319531.64 | -29319531.56 | -29319531.48 | 0.1822 | 0.1539 | | |
| Mercury | -84985-04-25 18:42 J | -29319232.81 | -29319232.72 | -29319232.63 | 0.1717 | 0.1116 | | |
| Mercury | -84983-04-01 06:28 J | -29318527.31 | -29318527.23 | -29318527.16 | 0.1689 | 0.1339 | | |
| Mercury | -84976-09-16 03:49 J | -29315802.35 | -29315802.34 | -29315802.33 | 0.1724 | 0.1714 | | |
| Mercury | -84975-10-28 22:32 J | -29315394.58 | -29315394.56 | -29315394.53 | 0.1848 | 0.1815 | | |
| Mercury | -84974-08-22 15:20 J | -29315096.97 | -29315096.86 | -29315096.75 | 0.1696 | 0.0746 | | |
| Mercury | -84965-03-19 23:01 J | -29311964.68 | -29311964.54 | -29311964.41 | 0.1839 | 0.0741 | | |

Mercury -84964-01-12 00:28 J -29311666.60 -29311666.48 -29311666.36 0.1703 0.0154

Mercury -84956-08-09 23:01 J -29308534.68 -29308534.54 -29308534.39 0.1831 0.0338

Mercury -84955-06-04 09:35 J -29308236.22 -29308236.10 -29308235.98 0.1710 0.0439

Venus -84953-04-13 10:04 J -29307557.25 -29307557.08 -29307556.92 0.1722 0.0233

Mercury -84947-12-30 23:01 J -29305104.63 -29305104.54 -29305104.44 0.1822 0.1414

Mercury -84946-10-25 18:42 J -29304805.82 -29304805.72 -29304805.62 0.1717 0.1036

Moon -84945-06-13 11:59 J -29304574.15 -29304574.00 -29304573.86 0.1607 0.1112

Earth -84945-06-13 16:04 J -29304573.99 -29304573.83 -29304573.67 0.1607 0.0922 *

Mercury -84944-09-30 06:28 J -29304100.29 -29304100.23 -29304100.16 0.1689 0.1419

Mercury -84936-03-17 03:49 J -29301375.37 -29301375.34 -29301375.30 0.1724 0.1633

Mercury -84934-02-20 15:35 J -29300669.96 -29300669.85 -29300669.74 0.1696 0.0831

Mercury -84926-09-18 23:16 J -29297537.66 -29297537.53 -29297537.39 0.1840 0.0858

Mercury -84925-07-13 00:42 J -29297239.60 -29297239.47 -29297239.35 0.1702 0.0243

Mercury -84916-02-07 23:44 J -29294107.66 -29294107.51 -29294107.36 0.1831 0.0206

Mercury -84916-12-03 09:35 J -29293809.22 -29293809.10 -29293808.98 0.1710 0.0360

Moon -84913-06-22 04:04 J -29292877.48 -29292877.33 -29292877.17 0.1621 0.1091

Earth -84913-06-22 05:44 J -29292877.38 -29292877.26 -29292877.14 0.1621 0.1269 *

Mercury -84907-06-30 23:30 J -29290677.62 -29290677.52 -29290677.41 0.1822 0.1300

Mercury -84906-04-25 18:42 J -29290378.82 -29290378.72 -29290378.62 0.1717 0.0957

Mercury -84904-03-31 06:42 J -29289673.28 -29289673.22 -29289673.17 0.1689 0.1503

Mercury -84897-09-15 03:49 J -29286948.39 -29286948.34 -29286948.29 0.1724 0.1556

Mercury -84895-08-21 15:35 J -29286242.95 -29286242.85 -29286242.74 0.1696 0.0914

Venus -84894-08-29 14:23 J -29285870.01 -29285869.90 -29285869.79 0.1820 0.1395

Venus -84887-02-08 20:52 J -29283514.80 -29283514.63 -29283514.46 0.1726 0.0086

Mercury -84886-03-19 23:59 J -29283110.63 -29283110.50 -29283110.37 0.1840 0.0984

Mercury -84885-01-12 00:42 J -29282812.59 -29282812.47 -29282812.35 0.1703 0.0320

Mercury -84877-08-08 23:59 J -29279680.65 -29279680.50 -29279680.35 0.1831 0.0105

Mercury -84876-06-03 09:49 J -29279382.21 -29279382.09 -29279381.97 0.1710 0.0273

Mercury -84868-12-30 00:13 J -29276250.61 -29276250.49 -29276250.37 0.1823 0.1169

Mercury -84867-10-24 18:56 J -29275951.82 -29275951.71 -29275951.61 0.1716 0.0872

Earth -84866-06-16 19:25 J -29275716.88 -29275716.69 -29275716.50 0.1609 0.0290
 Moon -84866-06-16 22:47 J -29275716.75 -29275716.55 -29275716.34 0.1609 0.0067 *
 Mercury -84865-09-29 06:42 J -29275246.25 -29275246.22 -29275246.18 0.1689 0.1594
 Moon -84860-12-22 02:23 J -29273336.59 -29273336.40 -29273336.20 0.1930 0.0181
 Earth -84860-12-22 11:01 J -29273336.23 -29273336.04 -29273335.84 0.1929 0.0408 *
 Mercury -84857-03-16 04:04 J -29272521.39 -29272521.33 -29272521.27 0.1724 0.1474
 Mercury -84855-02-19 15:49 J -29271815.94 -29271815.84 -29271815.74 0.1695 0.0998
 Mercury -84847-09-18 00:28 J -29268683.60 -29268683.48 -29268683.36 0.1840 0.1102
 Mercury -84846-07-13 00:42 J -29268385.59 -29268385.47 -29268385.35 0.1702 0.0407
 Mercury -84837-02-08 00:42 J -29265253.62 -29265253.47 -29265253.32 0.1832 0.0031
 Mercury -84837-12-02 09:49 J -29264955.21 -29264955.09 -29264954.97 0.1709 0.0195
 Venus -84828-06-25 18:42 J -29261827.88 -29261827.72 -29261827.56 0.1815 0.0793
 Mercury -84828-06-30 00:42 J -29261823.60 -29261823.47 -29261823.35 0.1823 0.1055
 Mercury -84827-04-24 18:56 J -29261524.82 -29261524.71 -29261524.60 0.1717 0.0792
 Mercury -84825-03-30 06:56 J -29260819.23 -29260819.21 -29260819.20 0.1689 0.1673
 Venus -84822-12-07 07:25 J -29259472.35 -29259472.19 -29259472.02 0.1730 0.0419
 Mercury -84818-09-15 04:18 J -29258094.40 -29258094.32 -29258094.25 0.1724 0.1389
 Mercury -84816-08-20 15:49 J -29257388.93 -29257388.84 -29257388.74 0.1695 0.1085
 Mercury -84807-03-19 00:42 J -29254256.58 -29254256.47 -29254256.35 0.1841 0.1218
 Mercury -84806-01-11 00:56 J -29253958.58 -29253958.46 -29253958.34 0.1702 0.0489
 Mercury -84798-08-09 01:11 J -29250826.60 -29250826.45 -29250826.30 0.1832 0.0159
 Mercury -84797-06-02 09:49 J -29250528.21 -29250528.09 -29250527.96 0.1709 0.0126
 Mercury -84789-12-29 01:25 J -29247396.58 -29247396.44 -29247396.31 0.1823 0.0927
 Mercury -84788-10-23 19:11 J -29247097.82 -29247097.70 -29247097.59 0.1716 0.0710
 Earth -84787-06-18 23:59 J -29246859.68 -29246859.50 -29246859.31 0.1612 0.0371
 Moon -84787-06-19 06:42 J -29246859.41 -29246859.22 -29246859.03 0.1612 0.0197 *
 Moon -84781-12-25 19:25 J -29244477.88 -29244477.69 -29244477.49 0.1925 0.0826
 Earth -84781-12-25 21:06 J -29244477.77 -29244477.62 -29244477.46 0.1925 0.1167 *
 Mercury -84778-03-16 04:04 J -29243667.40 -29243667.33 -29243667.25 0.1724 0.1315
 Mercury -84776-02-18 15:49 J -29242961.92 -29242961.84 -29242961.74 0.1695 0.1167

Mercury -84768-09-17 01:25 J -29239829.54 -29239829.44 -29239829.34 0.1841 0.1347

Mercury -84767-07-12 00:56 J -29239531.58 -29239531.46 -29239531.34 0.1702 0.0571

Venus -84762-04-22 23:44 J -29237785.69 -29237785.51 -29237785.33 0.1811 0.0238

Mercury -84758-02-07 01:40 J -29236399.58 -29236399.43 -29236399.28 0.1832 0.0268

Mercury -84758-12-02 10:04 J -29236101.20 -29236101.08 -29236100.95 0.1709 0.0043

Venus -84756-10-03 17:59 J -29235429.90 -29235429.75 -29235429.60 0.1734 0.0755

Mercury -84749-06-29 01:40 J -29232969.56 -29232969.43 -29232969.29 0.1824 0.0809

Mercury -84748-04-23 19:11 J -29232670.82 -29232670.70 -29232670.59 0.1716 0.0628

Earth -84740-06-12 17:59 J -29229698.89 -29229698.75 -29229698.61 0.1601 0.1103

Moon -84740-06-12 22:04 J -29229698.72 -29229698.58 -29229698.43 0.1602 0.0933 *

Mercury -84739-09-14 04:18 J -29229240.41 -29229240.32 -29229240.24 0.1723 0.1230

Mercury -84737-08-19 16:04 J -29228534.91 -29228534.83 -29228534.75 0.1695 0.1250

Mercury -84728-03-18 01:54 J -29225402.51 -29225402.42 -29225402.33 0.1841 0.1465

Mercury -84727-01-10 01:11 J -29225104.57 -29225104.45 -29225104.34 0.1702 0.0658

Venus -84724-10-02 16:32 J -29223742.89 -29223742.81 -29223742.73 0.1721 0.1491

Mercury -84719-08-08 02:08 J -29221972.55 -29221972.41 -29221972.26 0.1832 0.0396

Mercury -84718-06-02 10:04 J -29221674.20 -29221674.08 -29221673.95 0.1709 0.0070

Mercury -84710-12-29 02:23 J -29218542.54 -29218542.40 -29218542.26 0.1823 0.0685

Mercury -84709-10-22 19:11 J -29218243.81 -29218243.70 -29218243.58 0.1716 0.0546

Earth -84708-06-21 04:04 J -29218002.47 -29218002.33 -29218002.18 0.1614 0.1029

Moon -84708-06-21 04:47 J -29218002.42 -29218002.30 -29218002.19 0.1614 0.1223 *

Mercury -84700-05-20 02:08 J -29215112.44 -29215112.41 -29215112.38 0.1815 0.1772

Mercury -84699-03-15 04:18 J -29214813.41 -29214813.32 -29214813.22 0.1723 0.1148

Mercury -84697-02-18 16:18 J -29214107.90 -29214107.82 -29214107.75 0.1695 0.1340

Venus -84696-02-17 04:47 J -29213743.48 -29213743.30 -29213743.13 0.1806 0.0331

Venus -84690-08-01 04:32 J -29211387.44 -29211387.31 -29211387.18 0.1738 0.1098

Mercury -84689-09-16 02:23 J -29210975.47 -29210975.40 -29210975.33 0.1841 0.1585

Mercury -84688-07-11 01:11 J -29210677.56 -29210677.45 -29210677.33 0.1701 0.0745

Mercury -84679-02-06 02:52 J -29207545.53 -29207545.38 -29207545.24 0.1833 0.0522

Mercury -84679-12-01 10:18 J -29207247.20 -29207247.07 -29207246.95 0.1709 0.0145

Mercury -84670-06-29 02:52 J -29204115.53 -29204115.38 -29204115.24 0.1824 0.0567

Mercury -84669-04-22 19:25 J -29203816.81 -29203816.69 -29203816.58 0.1716 0.0466

Moon -84661-06-14 18:28 J -29200841.89 -29200841.73 -29200841.56 0.1603 0.0664

Earth -84661-06-14 21:35 J -29200841.78 -29200841.60 -29200841.41 0.1603 0.0468 *

Mercury -84661-11-18 02:52 J -29200685.44 -29200685.38 -29200685.31 0.1815 0.1633

Mercury -84660-09-13 04:32 J -29200386.41 -29200386.31 -29200386.22 0.1723 0.1068

Venus -84658-07-31 03:06 J -29199700.49 -29199700.37 -29199700.24 0.1725 0.1171

Mercury -84658-08-19 16:18 J -29199680.88 -29199680.82 -29199680.75 0.1695 0.1423

Mercury -84650-02-03 13:40 J -29196955.96 -29196955.93 -29196955.90 0.1731 0.1671

Mercury -84649-03-17 02:52 J -29196548.43 -29196548.38 -29196548.33 0.1841 0.1708

Mercury -84648-01-09 01:11 J -29196250.55 -29196250.45 -29196250.34 0.1702 0.0826

Mercury -84640-08-07 03:06 J -29193118.51 -29193118.37 -29193118.23 0.1833 0.0626

Mercury -84639-06-01 10:18 J -29192820.19 -29192820.07 -29192819.94 0.1708 0.0234

Venus -84631-12-15 09:35 J -29189701.25 -29189701.10 -29189700.94 0.1802 0.0884

Mercury -84631-12-28 03:35 J -29189688.50 -29189688.35 -29189688.20 0.1824 0.0433

Mercury -84630-10-22 19:25 J -29189389.81 -29189389.69 -29189389.57 0.1715 0.0378

Moon -84629-06-23 02:37 J -29189145.46 -29189145.39 -29189145.32 0.1616 0.1497

Venus -84624-05-28 14:52 J -29187344.98 -29187344.88 -29187344.79 0.1742 0.1451

Mercury -84621-05-19 03:20 J -29186258.44 -29186258.36 -29186258.27 0.1815 0.1518

Mercury -84620-03-14 04:32 J -29185959.41 -29185959.31 -29185959.21 0.1723 0.0985

Mercury -84618-02-17 16:18 J -29185253.87 -29185253.82 -29185253.76 0.1694 0.1507

Mercury -84611-08-04 13:40 J -29182528.97 -29182528.93 -29182528.89 0.1730 0.1593

Mercury -84610-09-16 03:20 J -29182121.37 -29182121.36 -29182121.34 0.1842 0.1827

Mercury -84609-07-10 01:25 J -29181823.54 -29181823.44 -29181823.33 0.1701 0.0910

Mercury -84600-02-05 03:49 J -29178691.48 -29178691.34 -29178691.20 0.1833 0.0764

Mercury -84600-11-30 10:32 J -29178393.19 -29178393.06 -29178392.94 0.1708 0.0313

Venus -84592-05-27 13:54 J -29175658.06 -29175657.92 -29175657.77 0.1729 0.0858

Mercury -84591-06-28 03:49 J -29175261.49 -29175261.34 -29175261.19 0.1824 0.0322

Mercury -84590-04-22 19:25 J -29174962.81 -29174962.69 -29174962.56 0.1716 0.0302

Moon -84582-06-17 17:59 J -29171984.94 -29171984.75 -29171984.56 0.1605 0.0335

Earth -84582-06-18 00:13 J -29171984.68 -29171984.49 -29171984.29 0.1605 0.0169 *
 Mercury -84582-11-18 03:49 J -29171831.43 -29171831.34 -29171831.24 0.1816 0.1400
 Mercury -84581-09-12 04:47 J -29171532.41 -29171532.30 -29171532.20 0.1723 0.0900
 Mercury -84579-08-18 16:32 J -29170826.85 -29170826.81 -29170826.77 0.1694 0.1595
 Earth -84576-12-21 18:28 J -29169605.92 -29169605.73 -29169605.53 0.1936 0.0524
 Moon -84576-12-22 01:25 J -29169605.62 -29169605.44 -29169605.25 0.1936 0.0116 *
 Mercury -84571-02-02 13:40 J -29168101.98 -29168101.93 -29168101.87 0.1730 0.1513
 Mercury -84569-01-09 01:40 J -29167396.53 -29167396.43 -29167396.33 0.1701 0.0997
 Venus -84565-10-11 14:52 J -29165658.99 -29165658.88 -29165658.77 0.1797 0.1425
 Mercury -84561-08-06 04:18 J -29164264.45 -29164264.32 -29164264.19 0.1833 0.0885
 Mercury -84560-05-31 10:32 J -29163966.18 -29163966.06 -29163965.94 0.1708 0.0392
 Mercury -84552-12-27 04:32 J -29160834.46 -29160834.31 -29160834.16 0.1824 0.0193
 Mercury -84551-10-21 19:40 J -29160535.80 -29160535.68 -29160535.56 0.1715 0.0213
 Mercury -84542-05-19 04:32 J -29157404.42 -29157404.31 -29157404.20 0.1815 0.1272
 Mercury -84541-03-13 04:47 J -29157105.41 -29157105.30 -29157105.20 0.1723 0.0825
 Mercury -84539-02-16 16:32 J -29156399.82 -29156399.81 -29156399.79 0.1694 0.1678
 Moon -84535-06-11 17:16 J -29154823.88 -29154823.78 -29154823.69 0.1597 0.1403
 Earth -84535-06-11 21:06 J -29154823.73 -29154823.62 -29154823.50 0.1597 0.1264 *
 Venus -84533-10-11 07:54 J -29153971.21 -29153971.17 -29153971.14 0.1812 0.1764
 Mercury -84532-08-03 13:54 J -29153674.99 -29153674.92 -29153674.85 0.1730 0.1425
 Mercury -84530-07-10 01:40 J -29152969.53 -29152969.43 -29152969.33 0.1701 0.1080
 Venus -84526-03-25 00:13 J -29151615.65 -29151615.49 -29151615.33 0.1732 0.0515
 Mercury -84521-02-05 04:32 J -29149837.43 -29149837.31 -29149837.18 0.1833 0.0997
 Mercury -84521-11-29 10:47 J -29149539.17 -29149539.05 -29149538.93 0.1708 0.0482
 Mercury -84512-06-27 05:01 J -29146407.44 -29146407.29 -29146407.14 0.1825 0.0073
 Mercury -84511-04-21 19:40 J -29146108.80 -29146108.68 -29146108.56 0.1715 0.0132
 Moon -84503-06-20 04:18 J -29143127.51 -29143127.32 -29143127.13 0.1608 0.0607
 Earth -84503-06-20 04:32 J -29143127.47 -29143127.31 -29143127.14 0.1608 0.0820 *
 Mercury -84503-11-17 05:01 J -29142977.40 -29142977.29 -29142977.17 0.1816 0.1146
 Mercury -84502-09-12 04:47 J -29142678.41 -29142678.30 -29142678.19 0.1722 0.0736

Moon -84497-12-25 02:52 J -29140747.55 -29140747.38 -29140747.22 0.1932 0.0787
 Earth -84497-12-25 07:11 J -29140747.36 -29140747.20 -29140747.04 0.1932 0.1124 *
 Mercury -84492-02-01 13:54 J -29139247.99 -29139247.92 -29139247.84 0.1730 0.1348
 Mercury -84490-01-08 01:40 J -29138542.52 -29138542.43 -29138542.34 0.1701 0.1167
 Mercury -84482-08-06 05:16 J -29135410.40 -29135410.28 -29135410.16 0.1834 0.1124
 Mercury -84481-05-30 10:47 J -29135112.17 -29135112.05 -29135111.94 0.1708 0.0560
 Mercury -84473-12-26 05:30 J -29131980.42 -29131980.27 -29131980.12 0.1825 0.0050
 Mercury -84472-10-20 19:54 J -29131681.80 -29131681.67 -29131681.55 0.1715 0.0060
 Venus -84467-08-08 12:56 J -29129929.09 -29129928.96 -29129928.83 0.1808 0.1205
 Mercury -84463-05-18 05:30 J -29128550.40 -29128550.27 -29128550.15 0.1816 0.1033
 Mercury -84462-03-13 05:01 J -29128251.41 -29128251.29 -29128251.18 0.1722 0.0652
 Venus -84460-01-19 11:01 J -29127573.21 -29127573.04 -29127572.87 0.1737 0.0188
 Earth -84456-06-14 00:13 J -29125966.67 -29125966.49 -29125966.32 0.1598 0.0648
 Moon -84456-06-14 04:47 J -29125966.49 -29125966.30 -29125966.11 0.1599 0.0498 *
 Mercury -84453-08-02 13:54 J -29124821.00 -29124820.92 -29124820.84 0.1730 0.1267
 Mercury -84451-07-09 01:54 J -29124115.50 -29124115.42 -29124115.34 0.1700 0.1252
 Mercury -84442-02-04 05:44 J -29120983.36 -29120983.26 -29120983.15 0.1834 0.1254
 Mercury -84442-11-29 10:47 J -29120685.16 -29120685.05 -29120684.93 0.1708 0.0646
 Mercury -84433-06-26 05:59 J -29117553.40 -29117553.25 -29117553.10 0.1825 0.0170
 Mercury -84432-04-20 19:54 J -29117254.79 -29117254.67 -29117254.55 0.1715 0.0039
 Earth -84424-06-22 08:23 J -29114270.22 -29114270.15 -29114270.07 0.1610 0.1476
 Mercury -84424-11-16 06:13 J -29114123.37 -29114123.24 -29114123.11 0.1816 0.0897
 Mercury -84423-09-11 05:01 J -29113824.41 -29113824.29 -29113824.18 0.1722 0.0572
 Mercury -84413-02-01 14:08 J -29110394.00 -29110393.91 -29110393.82 0.1730 0.1181
 Mercury -84411-01-07 01:54 J -29109688.49 -29109688.42 -29109688.34 0.1701 0.1335
 Mercury -84403-08-05 05:59 J -29106556.35 -29106556.25 -29106556.15 0.1834 0.1358
 Mercury -84402-05-30 11:01 J -29106258.15 -29106258.04 -29106257.93 0.1707 0.0734
 Venus -84401-06-04 17:30 J -29105886.93 -29105886.77 -29105886.60 0.1803 0.0626
 Venus -84395-11-16 21:20 J -29103530.78 -29103530.61 -29103530.45 0.1740 0.0168
 Mercury -84394-12-26 06:42 J -29103126.37 -29103126.22 -29103126.07 0.1826 0.0306

Mercury -84393-10-19 19:54 J -29102827.79 -29102827.67 -29102827.54 0.1714 0.0138

Mercury -84384-05-17 06:42 J -29099696.36 -29099696.22 -29099696.09 0.1816 0.0785

Mercury -84383-03-12 05:01 J -29099397.41 -29099397.29 -29099397.17 0.1722 0.0489

Earth -84377-06-16 02:52 J -29097109.57 -29097109.38 -29097109.19 0.1600 0.0019

Moon -84377-06-16 09:20 J -29097109.30 -29097109.11 -29097108.93 0.1600 0.0185 *

Mercury -84374-08-02 14:08 J -29095967.00 -29095966.91 -29095966.82 0.1729 0.1102

Mercury -84372-07-08 02:08 J -29095261.48 -29095261.41 -29095261.35 0.1700 0.1423

Mercury -84365-12-22 23:16 J -29092536.54 -29092536.53 -29092536.51 0.1737 0.1715

Mercury -84363-02-03 06:56 J -29092129.30 -29092129.21 -29092129.13 0.1834 0.1497

Mercury -84363-11-28 11:01 J -29091831.15 -29091831.04 -29091830.93 0.1707 0.0815

Mercury -84354-06-26 06:56 J -29088699.36 -29088699.21 -29088699.06 0.1825 0.0410

Mercury -84353-04-19 20:08 J -29088400.79 -29088400.66 -29088400.54 0.1715 0.0211

Mercury -84345-11-15 07:11 J -29085269.34 -29085269.20 -29085269.06 0.1817 0.0661

Mercury -84344-09-10 05:16 J -29084970.40 -29084970.28 -29084970.16 0.1721 0.0403

Venus -84335-04-01 23:01 J -29081844.71 -29081844.54 -29081844.36 0.1798 0.0104

Mercury -84335-04-07 07:11 J -29081839.24 -29081839.20 -29081839.15 0.1808 0.1728

Mercury -84334-01-31 14:08 J -29081540.01 -29081539.91 -29081539.81 0.1729 0.1020

Mercury -84332-01-06 02:08 J -29080834.46 -29080834.41 -29080834.35 0.1700 0.1509

Earth -84330-06-11 02:37 J -29079948.48 -29079948.39 -29079948.31 0.1592 0.1416

Moon -84330-06-11 05:01 J -29079948.38 -29079948.29 -29079948.20 0.1592 0.1365 *

Venus -84329-09-13 07:25 J -29079488.35 -29079488.19 -29079488.03 0.1745 0.0517

Mercury -84325-06-22 23:16 J -29078109.56 -29078109.53 -29078109.49 0.1737 0.1634

Mercury -84324-08-04 07:11 J -29077702.27 -29077702.20 -29077702.13 0.1834 0.1612

Mercury -84323-05-29 11:01 J -29077404.14 -29077404.04 -29077403.93 0.1707 0.0901

Mercury -84315-12-25 07:40 J -29074272.33 -29074272.18 -29074272.04 0.1826 0.0543

Mercury -84314-10-19 20:08 J -29073973.78 -29073973.66 -29073973.54 0.1714 0.0292

Mercury -84305-05-16 07:40 J -29070842.32 -29070842.18 -29070842.03 0.1817 0.0535

Mercury -84304-03-11 05:16 J -29070543.40 -29070543.28 -29070543.16 0.1722 0.0326

Earth -84298-06-19 05:30 J -29068252.44 -29068252.27 -29068252.09 0.1602 0.0612

Moon -84298-06-19 06:28 J -29068252.39 -29068252.23 -29068252.08 0.1602 0.0826 *

Mercury -84296-10-06 07:40 J -29067412.25 -29067412.18 -29067412.11 0.1808 0.1617
 Mercury -84295-08-01 14:23 J -29067113.00 -29067112.90 -29067112.80 0.1729 0.0931
 Mercury -84293-07-07 02:23 J -29066407.44 -29066407.40 -29066407.36 0.1700 0.1595
 Moon -84292-12-20 22:18 J -29065875.78 -29065875.57 -29065875.36 0.1942 0.0544
 Earth -84292-12-20 23:16 J -29065875.71 -29065875.53 -29065875.34 0.1942 0.0703 *
 Mercury -84286-12-22 23:30 J -29063682.57 -29063682.52 -29063682.47 0.1736 0.1553
 Mercury -84284-02-02 07:40 J -29063275.23 -29063275.18 -29063275.13 0.1835 0.1725
 Mercury -84284-11-27 11:16 J -29062977.13 -29062977.03 -29062976.93 0.1707 0.0989
 Mercury -84275-06-25 08:08 J -29059845.30 -29059845.16 -29059845.02 0.1826 0.0666
 Mercury -84274-04-19 20:08 J -29059546.78 -29059546.66 -29059546.54 0.1714 0.0377
 Venus -84269-01-28 04:32 J -29057802.48 -29057802.31 -29057802.14 0.1794 0.0454
 Mercury -84266-11-15 08:23 J -29056415.30 -29056415.15 -29056415.00 0.1817 0.0411
 Mercury -84265-09-09 05:16 J -29056116.40 -29056116.28 -29056116.15 0.1721 0.0239
 Venus -84263-07-11 17:44 J -29055445.91 -29055445.76 -29055445.62 0.1748 0.0877
 Mercury -84256-04-06 08:23 J -29052985.24 -29052985.15 -29052985.07 0.1808 0.1488
 Mercury -84255-01-30 14:23 J -29052686.01 -29052685.90 -29052685.80 0.1729 0.0855
 Mercury -84253-01-06 02:23 J -29051980.42 -29051980.40 -29051980.38 0.1700 0.1679
 Moon -84251-06-12 23:16 J -29051091.67 -29051091.53 -29051091.38 0.1594 0.0962
 Earth -84251-06-13 03:49 J -29051091.51 -29051091.34 -29051091.18 0.1594 0.0814 *
 Mercury -84246-06-22 23:30 J -29049255.58 -29049255.52 -29049255.46 0.1736 0.1471
 Mercury -84244-05-28 11:16 J -29048550.12 -29048550.03 -29048549.93 0.1707 0.1069
 Mercury -84236-12-24 08:37 J -29045418.28 -29045418.14 -29045418.01 0.1826 0.0784
 Mercury -84235-10-18 20:23 J -29045119.77 -29045119.65 -29045119.53 0.1714 0.0464
 Venus -84231-07-10 17:16 J -29043758.87 -29043758.78 -29043758.69 0.1735 0.1462
 Mercury -84226-05-16 08:37 J -29041988.29 -29041988.14 -29041987.99 0.1818 0.0297
 Mercury -84225-03-10 05:30 J -29041689.40 -29041689.27 -29041689.15 0.1721 0.0158
 Moon -84219-06-21 03:20 J -29039395.50 -29039395.36 -29039395.22 0.1604 0.1050
 Earth -84219-06-21 09:06 J -29039395.24 -29039395.12 -29039395.00 0.1604 0.1264 *
 Mercury -84217-10-05 08:52 J -29038558.23 -29038558.13 -29038558.03 0.1808 0.1359
 Mercury -84216-07-31 14:23 J -29038259.01 -29038258.90 -29038258.79 0.1729 0.0772

Earth -84213-12-24 13:40 J -29037017.10 -29037016.93 -29037016.77 0.1939 0.1012
 Moon -84213-12-24 23:01 J -29037016.72 -29037016.54 -29037016.37 0.1938 0.0850
 Mercury -84207-12-21 23:30 J -29034828.59 -29034828.52 -29034828.45 0.1736 0.1389
 Mercury -84205-11-26 11:30 J -29034123.11 -29034123.02 -29034122.93 0.1707 0.1158
 Venus -84204-11-24 09:49 J -29033760.24 -29033760.09 -29033759.94 0.1789 0.0991
 Venus -84197-05-08 03:20 J -29031403.48 -29031403.36 -29031403.24 0.1753 0.1254
 Mercury -84196-06-24 09:06 J -29030991.25 -29030991.12 -29030990.99 0.1826 0.0905
 Mercury -84195-04-18 20:23 J -29030692.77 -29030692.65 -29030692.53 0.1714 0.0544
 Mercury -84187-11-14 09:20 J -29027561.26 -29027561.11 -29027560.96 0.1817 0.0164
 Mercury -84186-09-09 05:30 J -29027262.40 -29027262.27 -29027262.15 0.1721 0.0079
 Mercury -84177-04-05 09:06 J -29024131.23 -29024131.12 -29024131.01 0.1809 0.1254
 Mercury -84176-01-29 14:37 J -29023832.00 -29023831.89 -29023831.78 0.1729 0.0684
 Moon -84172-06-14 23:44 J -29022234.71 -29022234.51 -29022234.32 0.1595 0.0041
 Earth -84172-06-15 06:28 J -29022234.42 -29022234.23 -29022234.04 0.1596 0.0203 *
 Mercury -84167-06-21 23:44 J -29020401.59 -29020401.51 -29020401.43 0.1736 0.1306
 Venus -84165-05-07 03:35 J -29019716.48 -29019716.35 -29019716.23 0.1739 0.1127
 Mercury -84165-05-27 11:30 J -29019696.10 -29019696.02 -29019695.93 0.1706 0.1247
 Mercury -84157-12-23 09:49 J -29016564.22 -29016564.09 -29016563.97 0.1827 0.1039
 Mercury -84156-10-17 20:37 J -29016265.76 -29016265.64 -29016265.53 0.1713 0.0632
 Mercury -84147-05-15 09:49 J -29013134.25 -29013134.09 -29013133.94 0.1818 0.0061
 Mercury -84146-03-10 05:30 J -29012835.39 -29012835.27 -29012835.14 0.1721 0.0023
 Venus -84138-09-21 15:20 J -29009717.95 -29009717.86 -29009717.77 0.1784 0.1514
 Mercury -84138-10-05 10:04 J -29009704.20 -29009704.08 -29009703.96 0.1809 0.1115
 Mercury -84137-07-30 14:37 J -29009405.01 -29009404.89 -29009404.78 0.1728 0.0604
 Venus -84131-03-05 13:25 J -29007361.00 -29007360.94 -29007360.88 0.1757 0.1626
 Mercury -84128-12-20 23:44 J -29005974.60 -29005974.51 -29005974.43 0.1736 0.1224
 Mercury -84126-11-26 11:30 J -29005269.09 -29005269.02 -29005268.94 0.1706 0.1327
 Earth -84125-06-09 07:40 J -29005073.21 -29005073.18 -29005073.15 0.1589 0.1568
 Mercury -84117-06-23 09:49 J -29002137.21 -29002137.09 -29002136.97 0.1827 0.1139
 Mercury -84116-04-17 20:37 J -29001838.75 -29001838.64 -29001838.53 0.1714 0.0715

Mercury -84108-11-13 10:18 J -28998707.22 -28998707.07 -28998706.92 0.1818 0.0078

Mercury -84107-09-08 05:44 J -28998408.39 -28998408.26 -28998408.14 0.1720 0.0108

Venus -84106-09-21 06:42 J -28998030.30 -28998030.22 -28998030.14 0.1800 0.1589

Venus -84099-03-04 13:40 J -28995674.08 -28995673.93 -28995673.78 0.1743 0.0772

Mercury -84098-04-05 10:32 J -28995277.19 -28995277.06 -28995276.93 0.1809 0.0992

Mercury -84097-01-29 14:37 J -28994978.01 -28994977.89 -28994977.77 0.1728 0.0522

Moon -84093-06-17 08:08 J -28993377.36 -28993377.16 -28993376.96 0.1597 0.0241

Earth -84093-06-17 08:37 J -28993377.33 -28993377.14 -28993376.96 0.1597 0.0426 *

Mercury -84088-06-20 23:44 J -28991547.60 -28991547.51 -28991547.42 0.1736 0.1142

Mercury -84086-05-27 11:44 J -28990842.08 -28990842.01 -28990841.94 0.1706 0.1412

Mercury -84078-12-23 10:32 J -28987710.16 -28987710.06 -28987709.95 0.1827 0.1275

Mercury -84077-10-16 20:37 J -28987411.75 -28987411.64 -28987411.53 0.1713 0.0801

Mercury -84068-05-14 10:47 J -28984280.20 -28984280.05 -28984279.90 0.1818 0.0201

Mercury -84067-03-09 05:44 J -28983981.39 -28983981.26 -28983981.14 0.1721 0.0185

Mercury -84059-10-04 10:47 J -28980850.18 -28980850.05 -28980849.92 0.1809 0.0883

Mercury -84058-07-30 14:52 J -28980551.00 -28980550.88 -28980550.76 0.1728 0.0434

Mercury -84049-12-19 23:44 J -28977120.60 -28977120.51 -28977120.41 0.1735 0.1061

Mercury -84047-11-25 11:59 J -28976415.06 -28976415.00 -28976414.95 0.1706 0.1504

Earth -84046-06-12 08:52 J -28976216.28 -28976216.13 -28976215.98 0.1590 0.0978

Moon -84046-06-12 13:11 J -28976216.11 -28976215.95 -28976215.78 0.1590 0.0864 *

Venus -84040-07-18 11:59 J -28973988.14 -28973988.00 -28973987.85 0.1795 0.1040

Mercury -84039-05-12 08:52 J -28973690.16 -28973690.13 -28973690.10 0.1743 0.1685

Mercury -84038-06-23 11:01 J -28973283.13 -28973283.04 -28973282.94 0.1827 0.1399

Mercury -84037-04-16 20:37 J -28972984.74 -28972984.64 -28972984.53 0.1713 0.0886

Venus -84034-12-30 23:59 J -28971631.67 -28971631.50 -28971631.34 0.1747 0.0424

Mercury -84029-11-12 11:16 J -28969853.18 -28969853.03 -28969852.88 0.1818 0.0325

Mercury -84028-09-07 05:44 J -28969554.38 -28969554.26 -28969554.14 0.1720 0.0270

Mercury -84019-04-04 11:30 J -28966423.16 -28966423.02 -28966422.88 0.1810 0.0753

Mercury -84018-01-28 14:52 J -28966124.00 -28966123.88 -28966123.76 0.1728 0.0359

Earth -84014-06-20 10:18 J -28964520.21 -28964520.07 -28964519.92 0.1599 0.1050

Moon -84014-06-20 16:47 J -28964519.91 -28964519.80 -28964519.69 0.1599 0.1282
Mercury -84009-06-19 23:59 J -28962693.60 -28962693.50 -28962693.40 0.1736 0.0976
Moon -84008-12-19 16:32 J -28962145.97 -28962145.81 -28962145.65 0.1948 0.1037
Earth -84008-12-19 23:30 J -28962145.69 -28962145.52 -28962145.34 0.1948 0.0974 *
Mercury -84007-05-26 11:59 J -28961988.05 -28961988.00 -28961987.96 0.1706 0.1584

84TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 84th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|----------------|-----------------------------|---|---------------------|---------------------|---------------------|---------------|-----------------|---|
| Mercury | -84000-11-10 09:06 J | | -28959263.17 | -28959263.12 | -28959263.08 | 0.1743 | 0.1599 | |
| Mercury | -83999-12-22 11:30 J | | -28958856.11 | -28958856.02 | -28958855.94 | 0.1827 | 0.1511 | |
| Mercury | -83998-10-16 20:52 J | | -28958557.73 | -28958557.63 | -28958557.53 | 0.1713 | 0.0974 | |
| Mercury | -83989-05-13 11:44 J | | -28955426.16 | -28955426.01 | -28955425.86 | 0.1819 | 0.0439 | |
| Mercury | -83988-03-08 05:59 J | | -28955127.38 | -28955127.25 | -28955127.13 | 0.1720 | 0.0358 | |
| Mercury | -83980-10-03 11:59 J | | -28951996.14 | -28951996.00 | -28951995.85 | 0.1810 | 0.0625 | |
| Mercury | -83979-07-29 14:52 J | | -28951697.00 | -28951696.88 | -28951696.76 | 0.1728 | 0.0270 | |
| Venus | -83974-05-15 17:01 J | | -28949945.96 | -28949945.79 | -28949945.61 | 0.1790 | 0.0487 | |
| Mercury | -83970-02-23 11:59 J | | -28948566.05 | -28948566.00 | -28948565.96 | 0.1801 | 0.1707 | |
| Mercury | -83970-12-19 23:59 J | | -28948266.60 | -28948266.50 | -28948266.40 | 0.1735 | 0.0893 | |
| Venus | -83968-10-27 09:35 J | | -28947589.27 | -28947589.10 | -28947588.93 | 0.1751 | 0.0050 | |
| Mercury | -83968-11-24 11:59 J | | -28947561.02 | -28947561.00 | -28947560.98 | 0.1706 | 0.1672 | |
| Earth | -83967-06-14 10:18 J | | -28947359.26 | -28947359.07 | -28947358.88 | 0.1591 | 0.0373 | |
| Moon | -83967-06-14 16:04 J | | -28947359.01 | -28947358.83 | -28947358.65 | 0.1592 | 0.0484 * | |

Mercury -83960-05-11 08:52 J -28944836.18 -28944836.13 -28944836.07 0.1743 0.1526

Mercury -83959-06-22 11:59 J -28944429.07 -28944429.00 -28944428.94 0.1828 0.1633

Mercury -83958-04-16 20:52 J -28944130.73 -28944130.63 -28944130.53 0.1713 0.1053

Mercury -83950-11-12 12:13 J -28940999.13 -28940998.99 -28940998.84 0.1819 0.0572

Mercury -83949-09-06 05:59 J -28940700.37 -28940700.25 -28940700.13 0.1720 0.0438

Mercury -83940-04-03 12:13 J -28937569.13 -28937568.99 -28937568.84 0.1810 0.0519

Mercury -83939-01-27 15:06 J -28937270.00 -28937269.87 -28937269.75 0.1727 0.0187

Moon -83935-06-22 17:44 J -28935662.82 -28935662.76 -28935662.71 0.1601 0.1523

Mercury -83931-08-24 12:28 J -28934139.05 -28934138.98 -28934138.90 0.1801 0.1580

Mercury -83930-06-19 23:59 J -28933839.61 -28933839.50 -28933839.39 0.1735 0.0811

Moon -83929-12-23 08:52 J -28933287.33 -28933287.13 -28933286.94 0.1945 0.0764

Earth -83929-12-23 17:01 J -28933286.97 -28933286.79 -28933286.61 0.1945 0.0828 *

Mercury -83921-11-09 09:06 J -28930409.19 -28930409.12 -28930409.05 0.1743 0.1440

Mercury -83920-12-21 12:28 J -28930002.01 -28930001.98 -28930001.94 0.1828 0.1767

Mercury -83919-10-15 21:06 J -28929703.72 -28929703.62 -28929703.53 0.1713 0.1140

Mercury -83910-05-13 12:42 J -28926572.11 -28926571.97 -28926571.83 0.1819 0.0685

Mercury -83909-03-07 05:59 J -28926273.37 -28926273.25 -28926273.13 0.1720 0.0522

Venus -83908-03-11 23:01 J -28925903.72 -28925903.54 -28925903.36 0.1786 0.0039

Venus -83902-08-24 19:25 J -28923546.86 -28923546.69 -28923546.52 0.1756 0.0325

Mercury -83901-10-02 13:11 J -28923142.10 -28923141.95 -28923141.80 0.1810 0.0383

Mercury -83900-07-28 15:06 J -28922843.00 -28922842.87 -28922842.75 0.1727 0.0110

Mercury -83891-02-22 12:56 J -28919712.05 -28919711.96 -28919711.87 0.1801 0.1467

Mercury -83891-12-18 23:59 J -28919412.61 -28919412.50 -28919412.39 0.1735 0.0729

Moon -83888-06-16 11:01 J -28918502.21 -28918502.04 -28918501.87 0.1593 0.0393

Earth -83888-06-16 11:44 J -28918502.20 -28918502.01 -28918501.82 0.1593 0.0239 *

Mercury -83881-05-10 09:06 J -28915982.19 -28915982.12 -28915982.04 0.1743 0.1356

Mercury -83879-04-15 21:06 J -28915276.70 -28915276.62 -28915276.53 0.1713 0.1228

Mercury -83871-11-11 13:25 J -28912145.08 -28912144.94 -28912144.81 0.1820 0.0814

Mercury -83870-09-06 06:13 J -28911846.36 -28911846.24 -28911846.13 0.1719 0.0611

Mercury -83861-04-02 13:25 J -28908715.09 -28908714.94 -28908714.78 0.1810 0.0266

Mercury -83860-01-26 15:06 J -28908416.00 -28908415.87 -28908415.75 0.1727 0.0029

Mercury -83852-08-23 13:25 J -28905285.04 -28905284.94 -28905284.84 0.1801 0.1341

Mercury -83851-06-19 00:13 J -28904985.61 -28904985.49 -28904985.38 0.1735 0.0645

Venus -83842-01-07 04:32 J -28901861.48 -28901861.31 -28901861.14 0.1781 0.0559

Mercury -83842-11-09 09:06 J -28901555.20 -28901555.12 -28901555.04 0.1743 0.1276

Moon -83841-06-10 10:04 J -28901341.19 -28901341.08 -28901340.96 0.1587 0.1193

Earth -83841-06-10 14:37 J -28901341.02 -28901340.89 -28901340.75 0.1587 0.1133 *

Mercury -83840-10-14 21:06 J -28900849.69 -28900849.62 -28900849.54 0.1712 0.1314

Venus -83836-06-21 05:16 J -28899504.44 -28899504.28 -28899504.13 0.1760 0.0707

Mercury -83831-05-12 13:40 J -28897718.06 -28897717.93 -28897717.80 0.1819 0.0931

Mercury -83830-03-07 06:13 J -28897419.36 -28897419.24 -28897419.13 0.1720 0.0693

Mercury -83822-10-02 13:54 J -28894288.08 -28894287.92 -28894287.77 0.1811 0.0151

Mercury -83821-07-27 15:20 J -28893988.99 -28893988.86 -28893988.74 0.1727 0.0094

Mercury -83812-02-21 14:08 J -28890858.02 -28890857.91 -28890857.80 0.1802 0.1211

Mercury -83812-12-18 00:13 J -28890558.61 -28890558.49 -28890558.38 0.1734 0.0561

Moon -83809-06-18 07:25 J -28889645.36 -28889645.19 -28889645.01 0.1594 0.0621

Earth -83809-06-18 14:08 J -28889645.07 -28889644.91 -28889644.75 0.1594 0.0862 *

Venus -83804-06-20 05:44 J -28887817.30 -28887817.26 -28887817.23 0.1746 0.1708

Mercury -83802-05-10 09:20 J -28887128.20 -28887128.11 -28887128.03 0.1742 0.1193

Mercury -83800-04-14 21:06 J -28886422.69 -28886422.62 -28886422.54 0.1712 0.1397

Mercury -83792-11-10 14:08 J -28883291.03 -28883290.91 -28883290.78 0.1820 0.1054

Mercury -83791-09-05 06:13 J -28882992.35 -28882992.24 -28882992.13 0.1719 0.0777

Mercury -83782-04-02 14:37 J -28879861.05 -28879860.89 -28879860.74 0.1811 0.0050

Mercury -83781-01-26 15:06 J -28879561.99 -28879561.87 -28879561.74 0.1727 0.0161

Venus -83777-11-03 10:18 J -28877819.21 -28877819.07 -28877818.93 0.1777 0.1072

Mercury -83773-08-22 14:23 J -28876431.02 -28876430.90 -28876430.77 0.1802 0.1098

Mercury -83772-06-18 00:13 J -28876131.60 -28876131.49 -28876131.37 0.1735 0.0476

Venus -83770-04-18 14:23 J -28875462.03 -28875461.90 -28875461.76 0.1764 0.1108

Mercury -83763-11-08 09:20 J -28872701.20 -28872701.11 -28872701.02 0.1742 0.1106

Moon -83762-06-13 09:49 J -28872484.28 -28872484.09 -28872483.90 0.1588 0.0472

Earth -83762-06-13 15:20 J -28872484.03 -28872483.86 -28872483.68 0.1588 0.0543 *
 Mercury -83761-10-13 21:20 J -28871995.67 -28871995.61 -28871995.55 0.1712 0.1488
 Mercury -83753-03-30 18:13 J -28869270.74 -28869270.74 -28869270.73 0.1750 0.1749
 Mercury -83752-05-11 14:37 J -28868864.00 -28868863.89 -28868863.77 0.1820 0.1174
 Mercury -83751-03-06 06:13 J -28868565.34 -28868565.24 -28868565.13 0.1719 0.0864
 Mercury -83743-10-01 15:06 J -28865434.02 -28865433.87 -28865433.72 0.1811 0.0111
 Mercury -83742-07-27 15:20 J -28865134.98 -28865134.86 -28865134.74 0.1727 0.0238
 Venus -83738-04-17 15:35 J -28863774.95 -28863774.85 -28863774.74 0.1750 0.1354
 Mercury -83733-02-21 15:06 J -28862004.00 -28862003.87 -28862003.74 0.1802 0.0972
 Mercury -83733-12-17 00:13 J -28861704.61 -28861704.49 -28861704.37 0.1734 0.0396
 Earth -83730-06-21 15:49 J -28860787.90 -28860787.84 -28860787.77 0.1596 0.1485
 Earth -83724-12-18 20:23 J -28858415.80 -28858415.65 -28858415.50 0.1953 0.1323
 Moon -83724-12-19 06:13 J -28858415.37 -28858415.24 -28858415.10 0.1953 0.1420
 Mercury -83723-05-09 09:20 J -28858274.21 -28858274.11 -28858274.01 0.1742 0.1030
 Mercury -83721-04-13 21:20 J -28857568.65 -28857568.61 -28857568.56 0.1712 0.1568
 Mercury -83714-09-29 18:28 J -28854843.76 -28854843.73 -28854843.69 0.1750 0.1658
 Mercury -83713-11-09 15:20 J -28854436.97 -28854436.86 -28854436.76 0.1820 0.1301
 Mercury -83712-09-04 06:28 J -28854138.34 -28854138.23 -28854138.13 0.1719 0.0950
 Venus -83711-08-31 16:18 J -28853776.90 -28853776.82 -28853776.74 0.1772 0.1580
 Venus -83704-02-13 00:13 J -28851419.57 -28851419.49 -28851419.40 0.1768 0.1495
 Mercury -83703-04-01 15:20 J -28851007.01 -28851006.86 -28851006.71 0.1811 0.0217
 Mercury -83702-01-25 15:20 J -28850707.98 -28850707.86 -28850707.73 0.1727 0.0331
 Mercury -83694-08-22 15:35 J -28847576.98 -28847576.85 -28847576.71 0.1802 0.0844
 Mercury -83693-06-17 00:28 J -28847277.60 -28847277.48 -28847277.36 0.1734 0.0314
 Mercury -83684-11-07 09:20 J -28843847.21 -28843847.11 -28843847.00 0.1742 0.0942
 Earth -83683-06-15 16:47 J -28843627.00 -28843626.80 -28843626.61 0.1589 0.0075
 Moon -83683-06-15 17:44 J -28843626.96 -28843626.76 -28843626.56 0.1589 0.0079 *
 Mercury -83682-10-13 21:35 J -28843141.63 -28843141.60 -28843141.58 0.1712 0.1657
 Venus -83679-08-31 05:59 J -28842089.35 -28842089.25 -28842089.14 0.1787 0.1439
 Mercury -83674-03-30 18:28 J -28840416.78 -28840416.73 -28840416.68 0.1750 0.1582

Mercury -83673-05-10 15:35 J -28840009.94 -28840009.85 -28840009.75 0.1820 0.1418
 Venus -83672-02-12 01:25 J -28839732.58 -28839732.44 -28839732.30 0.1754 0.0984
 Mercury -83672-03-05 06:28 J -28839711.33 -28839711.23 -28839711.13 0.1719 0.1035
 Mercury -83664-09-30 16:04 J -28836579.98 -28836579.83 -28836579.68 0.1811 0.0354
 Mercury -83663-07-26 15:20 J -28836280.98 -28836280.86 -28836280.74 0.1726 0.0408
 Mercury -83654-02-20 16:04 J -28833149.97 -28833149.83 -28833149.69 0.1802 0.0731
 Mercury -83654-12-17 00:28 J -28832850.60 -28832850.48 -28832850.36 0.1734 0.0222
 Earth -83645-12-22 16:32 J -28829557.00 -28829556.81 -28829556.61 0.1950 0.0565
 Moon -83645-12-22 16:32 J -28829556.98 -28829556.81 -28829556.64 0.1950 0.0716 *
 Mercury -83644-05-08 09:35 J -28829420.21 -28829420.10 -28829420.00 0.1742 0.0857
 Earth -83636-06-09 21:06 J -28826465.73 -28826465.62 -28826465.51 0.1584 0.1289
 Moon -83636-06-10 03:06 J -28826465.48 -28826465.37 -28826465.27 0.1584 0.1313
 Mercury -83635-09-28 18:28 J -28825989.79 -28825989.73 -28825989.67 0.1750 0.1498
 Mercury -83634-11-09 16:18 J -28825582.90 -28825582.82 -28825582.75 0.1821 0.1546
 Mercury -83633-09-03 06:28 J -28825284.32 -28825284.23 -28825284.13 0.1719 0.1123
 Mercury -83624-03-31 16:32 J -28822152.96 -28822152.81 -28822152.66 0.1811 0.0474
 Mercury -83623-01-24 15:35 J -28821853.97 -28821853.85 -28821853.74 0.1726 0.0494
 Mercury -83615-08-21 16:32 J -28818722.95 -28818722.81 -28818722.66 0.1803 0.0602
 Mercury -83614-06-17 00:28 J -28818423.60 -28818423.48 -28818423.36 0.1734 0.0142
 Venus -83613-06-27 11:44 J -28818047.16 -28818047.01 -28818046.85 0.1782 0.0912
 Venus -83607-12-10 11:30 J -28815690.18 -28815690.02 -28815689.87 0.1759 0.0617
 Mercury -83605-01-11 16:32 J -28815292.86 -28815292.81 -28815292.75 0.1794 0.1673
 Mercury -83605-11-06 09:35 J -28814993.21 -28814993.10 -28814992.99 0.1742 0.0776
 Earth -83604-06-17 17:59 J -28814769.93 -28814769.75 -28814769.58 0.1590 0.0672
 Moon -83604-06-18 00:13 J -28814769.65 -28814769.49 -28814769.33 0.1590 0.0895 *
 Mercury -83595-03-29 18:28 J -28811562.79 -28811562.73 -28811562.66 0.1750 0.1414
 Mercury -83594-05-10 16:32 J -28811155.87 -28811155.81 -28811155.75 0.1820 0.1660
 Mercury -83593-03-04 06:42 J -28810857.31 -28810857.22 -28810857.14 0.1719 0.1207
 Mercury -83585-09-29 16:47 J -28807725.94 -28807725.80 -28807725.65 0.1812 0.0591
 Mercury -83584-07-25 15:35 J -28807426.96 -28807426.85 -28807426.73 0.1726 0.0585

Mercury -83575-02-19 17:16 J -28804295.93 -28804295.78 -28804295.63 0.1803 0.0471

Mercury -83575-12-16 00:28 J -28803996.60 -28803996.48 -28803996.35 0.1734 0.0085

Mercury -83566-07-12 17:01 J -28800865.86 -28800865.79 -28800865.72 0.1794 0.1559

Mercury -83565-05-07 09:35 J -28800566.21 -28800566.10 -28800565.99 0.1741 0.0691

Earth -83557-06-11 21:20 J -28797608.78 -28797608.61 -28797608.43 0.1585 0.0701

Moon -83557-06-12 02:52 J -28797608.54 -28797608.38 -28797608.21 0.1585 0.0729 *

Mercury -83556-09-27 18:42 J -28797135.80 -28797135.72 -28797135.65 0.1749 0.1333

Mercury -83555-11-08 17:16 J -28796728.81 -28796728.78 -28796728.76 0.1821 0.1788

Mercury -83554-09-03 06:42 J -28796430.30 -28796430.22 -28796430.14 0.1718 0.1294

Venus -83547-04-24 17:16 J -28794004.95 -28794004.78 -28794004.60 0.1778 0.0385

Mercury -83545-03-30 17:30 J -28793298.91 -28793298.77 -28793298.63 0.1812 0.0722

Mercury -83544-01-23 15:35 J -28792999.96 -28792999.85 -28792999.73 0.1726 0.0665

Venus -83541-10-06 20:52 J -28791647.80 -28791647.63 -28791647.46 0.1763 0.0227

Mercury -83536-08-20 17:30 J -28789868.92 -28789868.77 -28789868.62 0.1803 0.0361

Mercury -83535-06-16 00:42 J -28789569.59 -28789569.47 -28789569.35 0.1734 0.0038

Mercury -83526-01-10 17:30 J -28786438.86 -28786438.77 -28786438.67 0.1794 0.1433

Mercury -83526-11-06 09:35 J -28786139.21 -28786139.10 -28786138.98 0.1741 0.0607

Earth -83525-06-19 19:11 J -28785912.81 -28785912.70 -28785912.59 0.1592 0.1291

Moon -83525-06-19 22:47 J -28785912.67 -28785912.55 -28785912.42 0.1592 0.1129 *

Mercury -83516-03-28 18:42 J -28782708.81 -28782708.72 -28782708.64 0.1749 0.1250

Mercury -83514-03-04 06:42 J -28782003.29 -28782003.22 -28782003.14 0.1718 0.1382

Mercury -83506-09-29 17:59 J -28778871.88 -28778871.75 -28778871.61 0.1812 0.0847

Mercury -83505-07-24 15:49 J -28778572.95 -28778572.84 -28778572.73 0.1726 0.0753

Mercury -83496-02-18 18:13 J -28775441.90 -28775441.74 -28775441.59 0.1803 0.0233

Mercury -83496-12-15 00:42 J -28775142.59 -28775142.47 -28775142.35 0.1733 0.0116

Mercury -83487-07-11 18:13 J -28772011.85 -28772011.74 -28772011.64 0.1794 0.1309

Mercury -83486-05-07 09:35 J -28771712.21 -28771712.10 -28771711.98 0.1741 0.0526

Venus -83481-02-19 23:59 J -28769962.68 -28769962.50 -28769962.32 0.1773 0.0109

Moon -83478-06-14 21:35 J -28768751.77 -28768751.60 -28768751.42 0.1586 0.0042

Earth -83478-06-14 22:32 J -28768751.75 -28768751.56 -28768751.37 0.1586 0.0109 *

Mercury -83477-09-26 18:42 J -28768281.81 -28768281.72 -28768281.63 0.1749 0.1160
 Venus -83475-08-04 06:13 J -28767605.40 -28767605.24 -28767605.07 0.1767 0.0176
 Mercury -83475-09-02 06:56 J -28767576.27 -28767576.21 -28767576.15 0.1718 0.1470
 Mercury -83466-03-30 18:13 J -28764444.87 -28764444.74 -28764444.61 0.1812 0.0957
 Mercury -83465-01-23 15:49 J -28764145.95 -28764145.84 -28764145.73 0.1726 0.0841
 Mercury -83457-08-19 18:42 J -28761014.87 -28761014.72 -28761014.56 0.1804 0.0108
 Mercury -83456-06-15 00:42 J -28760715.59 -28760715.47 -28760715.34 0.1733 0.0207
 Mercury -83447-01-09 18:42 J -28757584.83 -28757584.72 -28757584.60 0.1794 0.1180
 Mercury -83447-11-05 09:49 J -28757285.21 -28757285.09 -28757284.97 0.1741 0.0434
 Earth -83440-12-17 15:49 J -28754685.93 -28754685.84 -28754685.74 0.1957 0.1724
 Mercury -83437-03-27 18:42 J -28753854.81 -28753854.72 -28753854.62 0.1749 0.1082
 Mercury -83435-03-03 06:56 J -28753149.26 -28753149.21 -28753149.16 0.1718 0.1555
 Moon -83431-06-08 22:47 J -28751590.63 -28751590.55 -28751590.47 0.1582 0.1413
 Earth -83431-06-09 04:18 J -28751590.39 -28751590.32 -28751590.24 0.1582 0.1438
 Mercury -83428-08-18 03:49 J -28750424.36 -28750424.34 -28750424.32 0.1757 0.1723
 Mercury -83427-09-28 18:56 J -28750017.83 -28750017.71 -28750017.58 0.1813 0.1094
 Mercury -83426-07-24 15:49 J -28749718.94 -28749718.84 -28749718.73 0.1725 0.0924
 Mercury -83417-02-18 19:11 J -28746587.86 -28746587.70 -28746587.55 0.1803 0.0038
 Mercury -83417-12-14 00:56 J -28746288.58 -28746288.46 -28746288.34 0.1733 0.0294
 Venus -83416-12-17 05:44 J -28745920.43 -28745920.26 -28745920.09 0.1768 0.0616
 Venus -83409-05-31 15:35 J -28743563.00 -28743562.85 -28743562.69 0.1772 0.0572
 Mercury -83408-07-10 19:11 J -28743157.82 -28743157.70 -28743157.58 0.1795 0.1063
 Mercury -83407-05-06 09:49 J -28742858.21 -28742858.09 -28742857.97 0.1741 0.0351
 Moon -83399-06-16 17:30 J -28739894.95 -28739894.77 -28739894.59 0.1587 0.0314
 Earth -83399-06-16 23:30 J -28739894.70 -28739894.52 -28739894.33 0.1587 0.0504 *
 Mercury -83398-09-26 18:56 J -28739427.81 -28739427.71 -28739427.62 0.1749 0.0997
 Mercury -83396-09-01 06:56 J -28738722.24 -28738722.21 -28738722.17 0.1718 0.1644
 Mercury -83388-02-16 03:49 J -28735997.38 -28735997.34 -28735997.30 0.1757 0.1641
 Mercury -83387-03-29 19:25 J -28735590.80 -28735590.69 -28735590.57 0.1813 0.1215
 Mercury -83386-01-22 16:04 J -28735291.93 -28735291.83 -28735291.73 0.1725 0.1013

Mercury -83378-08-19 19:40 J -28732160.83 -28732160.68 -28732160.52 0.1804 0.0151

Mercury -83377-06-14 00:56 J -28731861.58 -28731861.46 -28731861.34 0.1733 0.0377

Mercury -83368-01-08 19:54 J -28728730.81 -28728730.67 -28728730.54 0.1795 0.0931

Mercury -83368-11-04 09:49 J -28728431.21 -28728431.09 -28728430.97 0.1741 0.0268

Earth -83361-12-21 13:54 J -28725827.12 -28725826.92 -28725826.72 0.1955 0.0235

Moon -83361-12-21 21:20 J -28725826.82 -28725826.61 -28725826.41 0.1955 0.0653 *

Mercury -83358-03-27 18:56 J -28725000.81 -28725000.71 -28725000.61 0.1749 0.0907

Moon -83352-06-10 23:30 J -28722733.69 -28722733.52 -28722733.35 0.1582 0.0835

Earth -83352-06-11 05:01 J -28722733.45 -28722733.29 -28722733.13 0.1582 0.0855 *

Venus -83350-10-14 12:13 J -28721878.13 -28721877.99 -28721877.85 0.1764 0.1101

Mercury -83349-08-17 03:49 J -28721570.39 -28721570.34 -28721570.28 0.1756 0.1557

Mercury -83348-09-27 19:54 J -28721163.77 -28721163.67 -28721163.57 0.1813 0.1333

Mercury -83347-07-23 16:04 J -28720864.92 -28720864.83 -28720864.73 0.1725 0.1105

Venus -83343-03-29 00:56 J -28719520.60 -28719520.46 -28719520.33 0.1776 0.0989

Mercury -83338-02-17 20:23 J -28717733.80 -28717733.65 -28717733.50 0.1804 0.0274

Mercury -83338-12-14 00:56 J -28717434.58 -28717434.46 -28717434.34 0.1733 0.0462

Mercury -83329-07-09 20:08 J -28714303.79 -28714303.66 -28714303.52 0.1795 0.0815

Mercury -83328-05-05 10:04 J -28714004.21 -28714004.08 -28714003.96 0.1740 0.0186

Moon -83320-06-18 21:49 J -28711037.71 -28711037.59 -28711037.47 0.1588 0.1273

Earth -83320-06-19 00:42 J -28711037.60 -28711037.47 -28711037.33 0.1588 0.1111 *

Mercury -83319-09-25 18:56 J -28710573.82 -28710573.71 -28710573.60 0.1748 0.0825

Venus -83311-03-28 03:06 J -28707833.45 -28707833.37 -28707833.29 0.1762 0.1559

Mercury -83309-02-16 04:04 J -28707143.40 -28707143.33 -28707143.27 0.1756 0.1471

Mercury -83308-03-28 20:37 J -28706736.73 -28706736.64 -28706736.56 0.1813 0.1464

Mercury -83307-01-21 16:04 J -28706437.92 -28706437.83 -28706437.74 0.1725 0.1186

Mercury -83299-08-18 20:37 J -28703306.79 -28703306.64 -28703306.49 0.1804 0.0382

Mercury -83298-06-14 01:11 J -28703007.57 -28703007.45 -28703007.34 0.1733 0.0554

Mercury -83289-01-08 20:52 J -28699876.77 -28699876.63 -28699876.48 0.1795 0.0681

Mercury -83289-11-03 10:04 J -28699577.20 -28699577.08 -28699576.96 0.1740 0.0092

Venus -83284-08-10 18:28 J -28697835.80 -28697835.73 -28697835.65 0.1759 0.1585

Moon -83282-12-26 15:49 J -28696967.89 -28696967.84 -28696967.80 0.1952 0.1884
 Mercury -83280-05-30 20:52 J -28696446.65 -28696446.63 -28696446.60 0.1786 0.1751
 Mercury -83279-03-26 18:56 J -28696146.82 -28696146.71 -28696146.60 0.1748 0.0741
 Venus -83277-01-24 10:32 J -28695478.17 -28695478.06 -28695477.96 0.1780 0.1391
 Earth -83273-06-13 05:30 J -28693876.46 -28693876.27 -28693876.08 0.1583 0.0263
 Moon -83273-06-13 07:40 J -28693876.38 -28693876.18 -28693875.98 0.1583 0.0297 *
 Mercury -83270-08-17 04:04 J -28692716.40 -28692716.33 -28692716.26 0.1756 0.1387
 Mercury -83269-09-26 21:06 J -28692309.69 -28692309.62 -28692309.55 0.1813 0.1587
 Mercury -83268-07-22 16:18 J -28692010.91 -28692010.82 -28692010.74 0.1725 0.1276
 Mercury -83259-02-16 21:20 J -28688879.76 -28688879.61 -28688879.46 0.1805 0.0519
 Mercury -83259-12-13 01:11 J -28688580.57 -28688580.45 -28688580.34 0.1732 0.0636
 Venus -83252-08-10 06:56 J -28686148.32 -28686148.21 -28686148.09 0.1775 0.1358
 Mercury -83250-07-09 21:20 J -28685449.76 -28685449.61 -28685449.46 0.1795 0.0560
 Mercury -83249-05-04 10:04 J -28685150.20 -28685150.08 -28685149.95 0.1740 0.0033
 Venus -83245-01-23 12:42 J -28683791.09 -28683790.97 -28683790.85 0.1766 0.1178
 Moon -83241-06-21 06:13 J -28682180.28 -28682180.24 -28682180.19 0.1589 0.1535
 Mercury -83241-11-28 21:20 J -28682019.67 -28682019.61 -28682019.55 0.1786 0.1634
 Mercury -83240-09-24 19:11 J -28681719.81 -28681719.70 -28681719.59 0.1748 0.0648
 Mercury -83230-02-15 04:04 J -28678289.41 -28678289.33 -28678289.25 0.1756 0.1304
 Mercury -83229-03-27 21:20 J -28677882.66 -28677882.61 -28677882.56 0.1814 0.1703
 Mercury -83228-01-20 16:18 J -28677583.89 -28677583.82 -28677583.74 0.1724 0.1366
 Mercury -83220-08-17 21:49 J -28674452.73 -28674452.59 -28674452.44 0.1805 0.0651
 Mercury -83219-06-13 01:11 J -28674153.56 -28674153.45 -28674153.34 0.1732 0.0726
 Mercury -83210-01-07 22:04 J -28671022.73 -28671022.58 -28671022.43 0.1796 0.0429
 Mercury -83210-11-03 10:18 J -28670723.20 -28670723.07 -28670722.95 0.1740 0.0091
 Mercury -83201-05-29 22:04 J -28667592.67 -28667592.58 -28667592.50 0.1787 0.1502
 Mercury -83200-03-25 19:11 J -28667292.82 -28667292.70 -28667292.59 0.1748 0.0572
 Earth -83194-06-16 05:44 J -28665019.45 -28665019.26 -28665019.08 0.1584 0.0332
 Moon -83194-06-16 12:13 J -28665019.17 -28665018.99 -28665018.81 0.1584 0.0462 *
 Mercury -83191-08-16 04:18 J -28663862.41 -28663862.32 -28663862.24 0.1756 0.1215

Mercury -83189-07-21 16:18 J -28663156.88 -28663156.82 -28663156.75 0.1724 0.1452

Venus -83186-06-07 13:25 J -28662106.10 -28662105.94 -28662105.79 0.1770 0.0857

Mercury -83180-02-15 22:18 J -28660025.71 -28660025.57 -28660025.43 0.1805 0.0761

Venus -83180-11-19 22:18 J -28659748.72 -28659748.57 -28659748.42 0.1770 0.0795

Mercury -83180-12-12 01:25 J -28659726.55 -28659726.44 -28659726.33 0.1732 0.0817

Mercury -83171-07-08 22:32 J -28656595.72 -28656595.56 -28656595.41 0.1796 0.0312

Mercury -83170-05-04 10:18 J -28656296.19 -28656296.07 -28656295.95 0.1740 0.0169

Mercury -83162-11-28 22:32 J -28653165.65 -28653165.56 -28653165.46 0.1787 0.1371

Mercury -83161-09-23 19:11 J -28652865.81 -28652865.70 -28652865.58 0.1748 0.0481

Mercury -83151-02-14 04:18 J -28649435.41 -28649435.32 -28649435.23 0.1756 0.1131

Mercury -83149-01-20 16:32 J -28648729.86 -28648729.81 -28648729.76 0.1724 0.1542

Earth -83147-06-10 12:56 J -28647858.10 -28647857.96 -28647857.81 0.1580 0.1003

Moon -83147-06-10 17:16 J -28647857.93 -28647857.78 -28647857.64 0.1581 0.0935 *

Mercury -83141-08-16 22:47 J -28645598.68 -28645598.55 -28645598.41 0.1805 0.0896

Mercury -83140-06-12 01:25 J -28645299.55 -28645299.44 -28645299.34 0.1732 0.0900

Mercury -83131-01-06 23:01 J -28642168.69 -28642168.54 -28642168.38 0.1796 0.0181

Mercury -83131-11-02 10:18 J -28641869.19 -28641869.07 -28641868.95 0.1740 0.0259

Mercury -83122-05-29 23:01 J -28638738.65 -28638738.54 -28638738.43 0.1787 0.1260

Mercury -83121-03-24 19:25 J -28638438.81 -28638438.69 -28638438.57 0.1747 0.0391

Venus -83120-04-03 19:25 J -28638063.86 -28638063.69 -28638063.51 0.1765 0.0358

Earth -83115-06-18 07:25 J -28636162.34 -28636162.19 -28636162.04 0.1585 0.0946

Moon -83115-06-18 10:04 J -28636162.23 -28636162.08 -28636161.92 0.1585 0.0793 *

Venus -83114-09-17 07:25 J -28635706.35 -28635706.19 -28635706.02 0.1775 0.0393

Mercury -83112-08-15 04:18 J -28635008.42 -28635008.32 -28635008.22 0.1755 0.1045

Mercury -83110-07-21 16:32 J -28634302.84 -28634302.81 -28634302.77 0.1724 0.1634

Mercury -83102-01-05 13:25 J -28631577.97 -28631577.94 -28631577.91 0.1763 0.1700

Mercury -83101-02-15 23:30 J -28631171.64 -28631171.52 -28631171.39 0.1805 0.1025

Mercury -83101-12-11 01:25 J -28630872.54 -28630872.44 -28630872.34 0.1732 0.0988

Mercury -83092-07-07 23:30 J -28627741.67 -28627741.52 -28627741.36 0.1796 0.0064

Mercury -83091-05-03 10:32 J -28627442.18 -28627442.06 -28627441.94 0.1739 0.0349

Mercury -83083-11-27 23:44 J -28624311.63 -28624311.51 -28624311.39 0.1787 0.1116

Mercury -83082-09-23 19:25 J -28624011.81 -28624011.69 -28624011.57 0.1747 0.0307

Moon -83077-12-20 00:56 J -28622097.66 -28622097.46 -28622097.26 0.1958 0.0082

Earth -83077-12-20 10:32 J -28622097.26 -28622097.06 -28622096.86 0.1958 0.0131 *

Mercury -83072-02-13 04:18 J -28620581.42 -28620581.32 -28620581.22 0.1755 0.0959

Mercury -83070-01-19 16:32 J -28619875.81 -28619875.81 -28619875.80 0.1724 0.1718

Moon -83068-06-12 10:32 J -28619001.23 -28619001.06 -28619000.88 0.1581 0.0431

Earth -83068-06-12 13:40 J -28619001.12 -28619000.93 -28619000.75 0.1581 0.0413 *

Mercury -83063-07-06 13:25 J -28617150.98 -28617150.94 -28617150.89 0.1763 0.1611

Mercury -83062-08-16 23:44 J -28616744.63 -28616744.51 -28616744.39 0.1805 0.1136

Mercury -83061-06-11 01:40 J -28616445.53 -28616445.43 -28616445.33 0.1732 0.1083

Venus -83054-01-30 02:37 J -28614021.57 -28614021.39 -28614021.21 0.1761 0.0108

Mercury -83052-01-06 00:13 J -28613314.64 -28613314.49 -28613314.33 0.1797 0.0082

Mercury -83052-11-01 10:32 J -28613015.18 -28613015.06 -28613014.94 0.1739 0.0435

Venus -83048-07-14 17:01 J -28611663.96 -28611663.79 -28611663.62 0.1779 0.0028

Mercury -83043-05-29 00:13 J -28609884.62 -28609884.49 -28609884.36 0.1787 0.0997

Mercury -83042-03-24 19:25 J -28609584.81 -28609584.69 -28609584.57 0.1747 0.0219

Earth -83036-06-20 08:23 J -28607305.18 -28607305.15 -28607305.11 0.1586 0.1553

Mercury -83033-08-14 04:32 J -28606154.42 -28606154.31 -28606154.21 0.1755 0.0873

Mercury -83023-01-04 13:25 J -28602724.00 -28602723.94 -28602723.88 0.1763 0.1530

Mercury -83022-02-15 00:28 J -28602317.58 -28602317.48 -28602317.37 0.1806 0.1276

Mercury -83022-12-11 01:40 J -28602018.52 -28602018.43 -28602018.34 0.1731 0.1167

Mercury -83013-07-07 00:42 J -28598887.63 -28598887.47 -28598887.32 0.1797 0.0198

Mercury -83012-05-02 10:32 J -28598588.17 -28598588.06 -28598587.94 0.1739 0.0522

Mercury -83004-11-27 00:42 J -28595457.60 -28595457.47 -28595457.33 0.1788 0.0876

Mercury -83003-09-22 19:40 J -28595157.80 -28595157.68 -28595157.56 0.1747 0.0129

83RD MILLENNIUM BCE

This is a list of transits visible from Mars in the 83rd millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Moon | -82998-12-25 07:25 J | -28593238.34 | -28593238.19 | -28593238.04 | 0.1956 | 0.1461 | | |
| Earth | -82998-12-25 06:56 J | -28593238.28 | -28593238.21 | -28593238.14 | 0.1957 | 0.1814 | * | |
| Mercury | -82993-02-13 04:32 J | -28591727.42 | -28591727.31 | -28591727.20 | 0.1755 | 0.0787 | | |
| Moon | -82989-06-14 07:40 J | -28590144.37 | -28590144.18 | -28590143.99 | 0.1581 | 0.0052 | | |
| Earth | -82989-06-14 14:23 J | -28590144.09 | -28590143.90 | -28590143.71 | 0.1582 | 0.0184 | * | |
| Venus | -82989-11-26 08:52 J | -28589979.30 | -28589979.13 | -28589978.96 | 0.1756 | 0.0593 | | |
| Mercury | -82984-07-05 13:40 J | -28588297.00 | -28588296.93 | -28588296.87 | 0.1763 | 0.1440 | | |
| Mercury | -82983-08-16 01:11 J | -28587890.55 | -28587890.45 | -28587890.36 | 0.1806 | 0.1403 | | |
| Venus | -82982-05-12 01:54 J | -28587621.58 | -28587621.42 | -28587621.25 | 0.1784 | 0.0439 | | |
| Mercury | -82982-06-11 01:54 J | -28587591.51 | -28587591.42 | -28587591.34 | 0.1731 | 0.1258 | | |
| Mercury | -82973-01-06 01:11 J | -28584460.60 | -28584460.45 | -28584460.29 | 0.1797 | 0.0332 | | |
| Mercury | -82973-10-31 10:47 J | -28584161.17 | -28584161.05 | -28584160.94 | 0.1739 | 0.0612 | | |
| Mercury | -82964-05-28 01:25 J | -28581030.58 | -28581030.44 | -28581030.30 | 0.1788 | 0.0741 | | |
| Mercury | -82963-03-23 19:40 J | -28580730.81 | -28580730.68 | -28580730.56 | 0.1747 | 0.0065 | | |
| Mercury | -82954-08-14 04:32 J | -28577300.42 | -28577300.31 | -28577300.19 | 0.1755 | 0.0697 | | |
| Mercury | -82944-01-03 13:40 J | -28573870.01 | -28573869.93 | -28573869.86 | 0.1763 | 0.1354 | | |
| Mercury | -82943-02-14 01:25 J | -28573463.52 | -28573463.44 | -28573463.36 | 0.1806 | 0.1515 | | |
| Mercury | -82943-12-10 01:54 J | -28573164.49 | -28573164.42 | -28573164.34 | 0.1731 | 0.1350 | | |
| Moon | -82942-06-09 18:42 J | -28572982.83 | -28572982.72 | -28572982.60 | 0.1579 | 0.1260 | | |
| Earth | -82942-06-09 22:47 J | -28572982.68 | -28572982.55 | -28572982.42 | 0.1579 | 0.1144 | * | |
| Mercury | -82934-07-07 01:54 J | -28570033.57 | -28570033.42 | -28570033.27 | 0.1797 | 0.0455 | | |
| Mercury | -82933-05-01 10:47 J | -28569734.16 | -28569734.05 | -28569733.94 | 0.1739 | 0.0697 | | |

Mercury -82925-11-26 02:08 J -28566603.56 -28566603.41 -28566603.27 0.1788 0.0610
 Mercury -82924-09-21 19:40 J -28566303.80 -28566303.68 -28566303.56 0.1747 0.0060
 Venus -82923-09-23 16:04 J -28565936.98 -28565936.83 -28565936.69 0.1752 0.1054
 Venus -82916-03-08 10:47 J -28563579.19 -28563579.05 -28563578.90 0.1788 0.0875
 Mercury -82915-04-18 02:08 J -28563173.46 -28563173.41 -28563173.36 0.1779 0.1680
 Mercury -82914-02-12 04:47 J -28562873.42 -28562873.30 -28562873.19 0.1755 0.0614
 Moon -82910-06-17 11:30 J -28561287.18 -28561287.02 -28561286.85 0.1582 0.0908
 Earth -82910-06-17 14:23 J -28561287.06 -28561286.90 -28561286.73 0.1582 0.0778 *
 Mercury -82905-07-04 13:40 J -28559443.01 -28559442.93 -28559442.85 0.1763 0.1271
 Mercury -82904-08-15 02:08 J -28559036.47 -28559036.41 -28559036.35 0.1807 0.1650
 Mercury -82903-06-10 01:54 J -28558737.49 -28558737.42 -28558737.35 0.1731 0.1434
 Mercury -82894-01-05 02:23 J -28555606.55 -28555606.40 -28555606.25 0.1797 0.0583
 Mercury -82894-10-31 10:47 J -28555307.15 -28555307.05 -28555306.94 0.1739 0.0792
 Mercury -82885-05-27 02:23 J -28552176.55 -28552176.40 -28552176.25 0.1788 0.0496
 Venus -82884-03-07 14:23 J -28551891.91 -28551891.90 -28551891.89 0.1773 0.1767
 Mercury -82884-03-22 19:54 J -28551876.79 -28551876.67 -28551876.55 0.1746 0.0140
 Mercury -82876-10-17 02:52 J -28548746.46 -28548746.38 -28548746.31 0.1780 0.1545
 Mercury -82875-08-13 04:47 J -28548446.42 -28548446.30 -28548446.19 0.1754 0.0525
 Mercury -82865-01-03 13:40 J -28545016.01 -28545015.93 -28545015.84 0.1762 0.1183
 Mercury -82864-02-13 02:37 J -28544609.41 -28544609.39 -28544609.36 0.1807 0.1784
 Mercury -82864-12-09 02:08 J -28544310.47 -28544310.41 -28544310.36 0.1731 0.1526
 Earth -82863-06-11 22:18 J -28544125.75 -28544125.57 -28544125.39 0.1579 0.0562
 Moon -82863-06-12 01:25 J -28544125.63 -28544125.44 -28544125.25 0.1579 0.0509 *
 Venus -82857-07-20 22:47 J -28541894.64 -28541894.55 -28541894.46 0.1747 0.1515
 Mercury -82855-07-06 02:52 J -28541179.52 -28541179.38 -28541179.24 0.1798 0.0705
 Mercury -82854-05-01 11:01 J -28540880.15 -28540880.04 -28540879.94 0.1738 0.0878
 Venus -82850-01-03 20:08 J -28539536.77 -28539536.66 -28539536.54 0.1792 0.1295
 Mercury -82846-11-26 03:20 J -28537749.52 -28537749.36 -28537749.21 0.1789 0.0357
 Mercury -82845-09-20 19:54 J -28537449.79 -28537449.67 -28537449.55 0.1746 0.0224
 Mercury -82836-04-17 03:06 J -28534319.46 -28534319.37 -28534319.28 0.1779 0.1434

Mercury -82835-02-11 04:47 J -28534019.41 -28534019.30 -28534019.18 0.1754 0.0435

Earth -82831-06-19 15:35 J -28532429.94 -28532429.85 -28532429.77 0.1583 0.1391

Moon -82831-06-19 20:37 J -28532429.76 -28532429.64 -28532429.52 0.1583 0.1259

Mercury -82826-07-04 13:54 J -28530589.02 -28530588.92 -28530588.83 0.1762 0.1092

Venus -82825-07-20 09:49 J -28530207.20 -28530207.09 -28530206.98 0.1762 0.1351

Mercury -82824-06-09 02:08 J -28529883.45 -28529883.41 -28529883.37 0.1730 0.1622

Venus -82818-01-02 23:44 J -28527849.62 -28527849.51 -28527849.41 0.1778 0.1367

Mercury -82817-11-23 22:47 J -28527158.56 -28527158.55 -28527158.54 0.1771 0.1762

Mercury -82815-01-04 03:35 J -28526752.48 -28526752.35 -28526752.21 0.1798 0.0843

Mercury -82815-10-30 11:01 J -28526453.14 -28526453.04 -28526452.94 0.1738 0.0967

Mercury -82806-05-27 03:35 J -28523322.50 -28523322.35 -28523322.19 0.1789 0.0238

Mercury -82805-03-21 19:54 J -28523022.79 -28523022.67 -28523022.55 0.1746 0.0312

Mercury -82797-10-16 03:49 J -28519892.44 -28519892.34 -28519892.23 0.1780 0.1294

Mercury -82796-08-12 05:01 J -28519592.41 -28519592.29 -28519592.18 0.1754 0.0352

Earth -82793-12-19 04:32 J -28518367.50 -28518367.31 -28518367.11 0.1961 0.0556

Moon -82793-12-19 11:59 J -28518367.19 -28518367.00 -28518366.81 0.1961 0.0204 *

Mercury -82786-01-02 13:54 J -28516162.02 -28516161.92 -28516161.82 0.1762 0.1010

Venus -82785-10-31 04:47 J -28515494.33 -28515494.30 -28515494.26 0.1797 0.1744

Mercury -82785-12-08 02:08 J -28515456.42 -28515456.41 -28515456.39 0.1730 0.1706

Earth -82784-06-13 22:47 J -28515268.74 -28515268.55 -28515268.36 0.1580 0.0046

Moon -82784-06-14 05:01 J -28515268.47 -28515268.29 -28515268.10 0.1580 0.0104 *

Mercury -82777-05-24 23:01 J -28512731.58 -28512731.54 -28512731.51 0.1770 0.1671

Mercury -82776-07-05 03:49 J -28512325.47 -28512325.34 -28512325.21 0.1798 0.0956

Mercury -82775-04-30 11:01 J -28512026.13 -28512026.04 -28512025.94 0.1738 0.1057

Mercury -82767-11-25 04:18 J -28508895.48 -28508895.32 -28508895.17 0.1789 0.0118

Mercury -82766-09-20 20:08 J -28508595.78 -28508595.66 -28508595.54 0.1746 0.0406

Venus -82759-05-17 16:32 J -28506164.96 -28506164.81 -28506164.65 0.1758 0.0879

Mercury -82757-04-16 04:32 J -28505465.43 -28505465.31 -28505465.19 0.1780 0.1163

Mercury -82756-02-10 05:01 J -28505165.41 -28505165.29 -28505165.17 0.1754 0.0261

Venus -82753-10-30 08:52 J -28503807.27 -28503807.13 -28503806.99 0.1782 0.0964

Mercury -82747-07-03 13:54 J -28501735.02 -28501734.92 -28501734.81 0.1762 0.0919

Mercury -82738-11-23 22:47 J -28498304.60 -28498304.55 -28498304.50 0.1770 0.1592

Earth -82737-06-08 08:08 J -28498107.26 -28498107.16 -28498107.05 0.1579 0.1288

Moon -82737-06-08 11:59 J -28498107.12 -28498107.00 -28498106.88 0.1579 0.1145 *

Mercury -82736-01-03 04:32 J -28497898.43 -28497898.31 -28497898.19 0.1798 0.1092

Mercury -82736-10-29 11:16 J -28497599.12 -28497599.03 -28497598.94 0.1738 0.1147

Mercury -82727-05-26 04:47 J -28494468.45 -28494468.30 -28494468.14 0.1789 0.0042

Mercury -82726-03-21 20:08 J -28494168.78 -28494168.66 -28494168.55 0.1746 0.0489

Mercury -82718-10-16 04:47 J -28491038.42 -28491038.30 -28491038.17 0.1780 0.1049

Mercury -82717-08-11 05:01 J -28490738.41 -28490738.29 -28490738.16 0.1754 0.0176

Moon -82714-12-23 22:04 J -28489508.73 -28489508.58 -28489508.43 0.1960 0.1192

Earth -82714-12-24 03:49 J -28489508.47 -28489508.34 -28489508.21 0.1960 0.1472 *

Mercury -82707-01-01 13:54 J -28487308.02 -28487307.92 -28487307.81 0.1762 0.0836

Earth -82705-06-15 23:16 J -28486411.70 -28486411.53 -28486411.35 0.1580 0.0627

Moon -82705-06-16 00:13 J -28486411.65 -28486411.49 -28486411.32 0.1580 0.0562 *

Mercury -82698-05-24 23:01 J -28483877.60 -28483877.54 -28483877.48 0.1770 0.1502

Mercury -82697-07-04 05:01 J -28483471.40 -28483471.29 -28483471.17 0.1799 0.1221

Mercury -82696-04-29 11:16 J -28483172.11 -28483172.03 -28483171.94 0.1738 0.1235

Venus -82693-03-13 23:30 J -28482122.70 -28482122.52 -28482122.35 0.1753 0.0407

Mercury -82688-11-24 05:30 J -28480041.43 -28480041.27 -28480041.12 0.1789 0.0155

Venus -82687-08-27 17:59 J -28479764.91 -28479764.75 -28479764.59 0.1787 0.0542

Mercury -82687-09-19 20:08 J -28479741.77 -28479741.66 -28479741.54 0.1746 0.0585

Mercury -82678-04-16 05:30 J -28476611.40 -28476611.27 -28476611.14 0.1780 0.0916

Mercury -82677-02-10 05:01 J -28476311.41 -28476311.29 -28476311.16 0.1754 0.0096

Mercury -82668-07-02 14:08 J -28472881.02 -28472880.91 -28472880.80 0.1762 0.0747

Mercury -82659-11-22 23:01 J -28469450.61 -28469450.54 -28469450.46 0.1770 0.1410

Moon -82658-06-11 05:16 J -28469250.43 -28469250.28 -28469250.12 0.1578 0.0800

Earth -82658-06-11 08:37 J -28469250.31 -28469250.14 -28469249.97 0.1578 0.0705 *

Mercury -82657-01-03 05:44 J -28469044.36 -28469044.26 -28469044.16 0.1799 0.1345

Mercury -82657-10-28 11:30 J -28468745.10 -28468745.02 -28468744.94 0.1738 0.1330

Mercury -82648-05-25 05:44 J -28465614.41 -28465614.26 -28465614.10 0.1790 0.0271

Mercury -82647-03-20 20:23 J -28465314.77 -28465314.65 -28465314.54 0.1745 0.0673

Mercury -82639-10-15 06:13 J -28462184.38 -28462184.24 -28462184.10 0.1781 0.0778

Mercury -82638-08-11 05:16 J -28461884.40 -28461884.28 -28461884.16 0.1753 0.0038

Mercury -82629-12-31 14:08 J -28458454.02 -28458453.91 -28458453.80 0.1761 0.0656

Venus -82627-01-09 06:42 J -28458080.40 -28458080.22 -28458080.04 0.1749 0.0059

Moon -82626-06-18 18:13 J -28457554.84 -28457554.74 -28457554.65 0.1581 0.1341

Earth -82626-06-18 23:44 J -28457554.63 -28457554.51 -28457554.39 0.1581 0.1225

Venus -82621-06-24 02:52 J -28455722.55 -28455722.38 -28455722.21 0.1791 0.0113

Mercury -82619-05-23 23:01 J -28455023.61 -28455023.54 -28455023.46 0.1770 0.1330

Mercury -82618-07-04 06:13 J -28454617.33 -28454617.24 -28454617.16 0.1799 0.1468

Mercury -82617-04-28 11:30 J -28454318.09 -28454318.02 -28454317.95 0.1737 0.1416

Mercury -82609-11-23 06:42 J -28451187.38 -28451187.22 -28451187.07 0.1790 0.0415

Mercury -82608-09-18 20:23 J -28450887.76 -28450887.65 -28450887.54 0.1745 0.0758

Mercury -82599-04-15 06:28 J -28447757.37 -28447757.23 -28447757.08 0.1781 0.0669

Mercury -82598-02-09 05:16 J -28447457.40 -28447457.28 -28447457.16 0.1753 0.0110

Mercury -82590-09-05 06:42 J -28444327.25 -28444327.22 -28444327.18 0.1772 0.1721

Mercury -82589-07-01 14:23 J -28444027.02 -28444026.90 -28444026.79 0.1761 0.0570

Mercury -82580-11-21 23:01 J -28440596.62 -28440596.54 -28440596.45 0.1770 0.1243

Moon -82579-06-13 02:08 J -28440393.60 -28440393.41 -28440393.22 0.1579 0.0118

Earth -82579-06-13 08:08 J -28440393.35 -28440393.16 -28440392.97 0.1579 0.0121 *

Mercury -82578-01-02 06:56 J -28440190.28 -28440190.21 -28440190.15 0.1799 0.1606

Mercury -82578-10-28 11:30 J -28439891.08 -28439891.02 -28439890.96 0.1737 0.1506

Mercury -82569-05-24 06:56 J -28436760.35 -28436760.21 -28436760.06 0.1790 0.0534

Mercury -82568-03-19 20:23 J -28436460.75 -28436460.65 -28436460.54 0.1745 0.0850

Venus -82562-11-06 13:40 J -28434038.10 -28434037.93 -28434037.76 0.1744 0.0508

Mercury -82560-10-14 07:25 J -28433330.34 -28433330.19 -28433330.04 0.1781 0.0527

Mercury -82559-08-10 05:16 J -28433030.40 -28433030.28 -28433030.15 0.1753 0.0197

Venus -82555-04-21 11:30 J -28431680.19 -28431680.02 -28431679.86 0.1796 0.0337

Mercury -82550-03-06 07:11 J -28429900.26 -28429900.20 -28429900.13 0.1772 0.1596

Mercury -82550-12-31 14:08 J -28429600.02 -28429599.91 -28429599.79 0.1761 0.0486
 Mercury -82540-05-22 23:16 J -28426169.62 -28426169.53 -28426169.44 0.1769 0.1148
 Mercury -82539-07-03 07:11 J -28425763.25 -28425763.20 -28425763.16 0.1799 0.1717
 Mercury -82538-04-28 11:44 J -28425464.06 -28425464.01 -28425463.97 0.1737 0.1598
 Earth -82532-06-07 18:42 J -28423231.80 -28423231.72 -28423231.65 0.1578 0.1429
 Mercury -82530-11-23 07:40 J -28422333.33 -28422333.18 -28422333.04 0.1790 0.0660
 Mercury -82529-09-17 20:37 J -28422033.74 -28422033.64 -28422033.54 0.1745 0.0944
 Mercury -82520-04-14 07:54 J -28418903.32 -28418903.17 -28418903.02 0.1781 0.0398
 Mercury -82519-02-08 05:30 J -28418603.39 -28418603.27 -28418603.15 0.1753 0.0279
 Mercury -82511-09-04 07:54 J -28415473.26 -28415473.17 -28415473.08 0.1772 0.1469
 Mercury -82510-07-01 14:23 J -28415173.02 -28415172.90 -28415172.78 0.1761 0.0391
 Moon -82509-12-17 18:56 J -28414637.90 -28414637.71 -28414637.52 0.1963 0.1103
 Earth -82509-12-17 21:06 J -28414637.79 -28414637.62 -28414637.44 0.1963 0.1029 *
 Mercury -82501-11-20 23:16 J -28411742.63 -28411742.53 -28411742.43 0.1769 0.1067
 Moon -82500-06-15 07:54 J -28411536.36 -28411536.17 -28411535.98 0.1579 0.0501
 Earth -82500-06-15 08:08 J -28411536.34 -28411536.16 -28411535.98 0.1579 0.0476 *
 Mercury -82499-10-27 11:44 J -28411037.03 -28411037.01 -28411036.98 0.1737 0.1689
 Venus -82496-09-02 20:52 J -28409995.77 -28409995.63 -28409995.48 0.1740 0.0951
 Mercury -82491-04-13 08:08 J -28408312.18 -28408312.16 -28408312.14 0.1778 0.1742
 Mercury -82490-05-24 08:08 J -28407906.30 -28407906.16 -28407906.02 0.1790 0.0791
 Venus -82489-02-16 20:08 J -28407637.81 -28407637.66 -28407637.51 0.1800 0.0786
 Mercury -82489-03-18 20:37 J -28407606.74 -28407606.64 -28407606.54 0.1745 0.1027
 Mercury -82481-10-13 08:08 J -28404476.31 -28404476.16 -28404476.00 0.1781 0.0288
 Mercury -82480-08-09 05:30 J -28404176.39 -28404176.27 -28404176.15 0.1753 0.0371
 Mercury -82471-03-05 08:23 J -28401046.25 -28401046.15 -28401046.04 0.1773 0.1340
 Mercury -82471-12-30 14:23 J -28400746.02 -28400745.90 -28400745.78 0.1761 0.0305
 Mercury -82461-05-21 23:16 J -28397315.63 -28397315.53 -28397315.43 0.1769 0.0978
 Earth -82453-06-09 18:13 J -28394374.90 -28394374.74 -28394374.58 0.1578 0.0853
 Moon -82453-06-09 23:16 J -28394374.71 -28394374.53 -28394374.35 0.1578 0.0671 *
 Mercury -82452-10-12 08:23 J -28393885.19 -28393885.15 -28393885.11 0.1777 0.1656

Mercury -82451-11-22 08:37 J -28393479.27 -28393479.14 -28393479.00 0.1791 0.0918

Mercury -82450-09-17 20:37 J -28393179.73 -28393179.64 -28393179.54 0.1745 0.1122

Mercury -82441-04-13 08:52 J -28390049.28 -28390049.13 -28390048.97 0.1782 0.0154

Mercury -82440-02-07 05:30 J -28389749.39 -28389749.27 -28389749.15 0.1753 0.0453

Mercury -82432-09-03 09:06 J -28386619.24 -28386619.12 -28386619.01 0.1773 0.1211

Mercury -82431-06-30 14:23 J -28386319.02 -28386318.90 -28386318.78 0.1761 0.0221

Venus -82430-07-01 04:04 J -28385953.44 -28385953.33 -28385953.23 0.1736 0.1404

Earth -82430-12-22 21:35 J -28385778.77 -28385778.60 -28385778.43 0.1962 0.1058

Moon -82430-12-23 07:40 J -28385778.34 -28385778.18 -28385778.01 0.1962 0.1080

Venus -82424-12-14 05:01 J -28383595.41 -28383595.29 -28383595.17 0.1805 0.1234

Mercury -82422-11-20 23:30 J -28382888.62 -28382888.52 -28382888.42 0.1769 0.0884

Earth -82421-06-17 08:23 J -28382679.29 -28382679.15 -28382679.01 0.1579 0.1069

Moon -82421-06-17 14:08 J -28382679.06 -28382678.91 -28382678.76 0.1579 0.0984 *

Mercury -82412-04-12 08:23 J -28379458.21 -28379458.15 -28379458.10 0.1777 0.1574

Mercury -82411-05-23 09:06 J -28379052.24 -28379052.12 -28379051.99 0.1791 0.1036

Mercury -82410-03-18 20:52 J -28378752.72 -28378752.63 -28378752.55 0.1744 0.1211

Mercury -82402-10-13 09:35 J -28375622.25 -28375622.10 -28375621.94 0.1782 0.0034

Mercury -82401-08-08 05:44 J -28375322.38 -28375322.26 -28375322.15 0.1752 0.0547

Venus -82398-06-30 13:40 J -28374266.03 -28374265.93 -28374265.82 0.1750 0.1391

Mercury -82392-03-04 09:35 J -28372192.22 -28372192.10 -28372191.97 0.1773 0.1085

Venus -82392-12-13 09:35 J -28371908.19 -28371908.10 -28371908.01 0.1790 0.1522

Mercury -82392-12-29 14:37 J -28371892.01 -28371891.89 -28371891.77 0.1760 0.0128

Mercury -82382-05-21 23:30 J -28368461.63 -28368461.52 -28368461.42 0.1769 0.0807

Earth -82374-06-12 17:44 J -28365517.95 -28365517.76 -28365517.57 0.1578 0.0270

Moon -82374-06-12 23:30 J -28365517.70 -28365517.52 -28365517.34 0.1578 0.0344 *

Mercury -82373-10-11 08:23 J -28365031.21 -28365031.15 -28365031.08 0.1777 0.1479

Mercury -82372-11-21 09:49 J -28364625.20 -28364625.09 -28364624.97 0.1791 0.1176

Mercury -82371-09-16 20:52 J -28364325.71 -28364325.63 -28364325.55 0.1744 0.1299

Mercury -82362-04-13 09:49 J -28361195.24 -28361195.09 -28361194.93 0.1782 0.0105

Mercury -82361-02-07 05:44 J -28360895.37 -28360895.26 -28360895.14 0.1752 0.0639

Venus -82358-10-11 13:11 J -28359553.00 -28359552.95 -28359552.90 0.1809 0.1714
 Mercury -82353-09-02 10:18 J -28357765.20 -28357765.07 -28357764.94 0.1773 0.0955
 Mercury -82352-06-29 14:37 J -28357465.01 -28357464.89 -28357464.77 0.1760 0.0037
 Mercury -82343-11-19 23:30 J -28354034.63 -28354034.52 -28354034.41 0.1769 0.0713
 Mercury -82333-04-11 08:23 J -28350604.22 -28350604.15 -28350604.08 0.1777 0.1396
 Venus -82332-04-26 20:52 J -28350223.78 -28350223.63 -28350223.48 0.1746 0.0941
 Mercury -82332-05-22 10:18 J -28350198.18 -28350198.07 -28350197.97 0.1791 0.1295
 Mercury -82331-03-17 20:52 J -28349898.70 -28349898.63 -28349898.55 0.1744 0.1392
 Moon -82327-06-07 06:13 J -28348356.32 -28348356.24 -28348356.16 0.1578 0.1401
 Venus -82326-10-10 18:28 J -28347865.87 -28347865.73 -28347865.60 0.1794 0.1094
 Mercury -82323-10-12 10:47 J -28346768.21 -28346768.05 -28346767.90 0.1782 0.0244
 Mercury -82322-08-08 05:44 J -28346468.37 -28346468.26 -28346468.15 0.1752 0.0723
 Mercury -82313-03-03 10:47 J -28343338.19 -28343338.05 -28343337.91 0.1773 0.0832
 Mercury -82313-12-28 14:37 J -28343038.01 -28343037.89 -28343037.77 0.1760 0.0054
 Mercury -82303-05-20 23:44 J -28339607.63 -28339607.51 -28339607.40 0.1768 0.0623
 Earth -82295-06-14 17:44 J -28336660.95 -28336660.76 -28336660.57 0.1578 0.0319
 Moon -82295-06-14 18:13 J -28336660.92 -28336660.74 -28336660.57 0.1578 0.0325 *
 Mercury -82294-10-11 08:23 J -28336177.23 -28336177.15 -28336177.07 0.1777 0.1309
 Mercury -82293-11-20 10:47 J -28335771.14 -28335771.05 -28335770.96 0.1792 0.1424
 Mercury -82292-09-15 21:06 J -28335471.68 -28335471.62 -28335471.56 0.1744 0.1484
 Mercury -82283-04-12 11:16 J -28332341.18 -28332341.03 -28332340.88 0.1783 0.0366
 Mercury -82282-02-06 05:44 J -28332041.37 -28332041.26 -28332041.15 0.1752 0.0812
 Mercury -82274-09-02 11:16 J -28328911.17 -28328911.03 -28328910.88 0.1774 0.0703
 Mercury -82273-06-28 14:52 J -28328611.01 -28328610.88 -28328610.76 0.1760 0.0155
 Venus -82266-02-22 04:04 J -28326181.50 -28326181.33 -28326181.16 0.1741 0.0482
 Mercury -82264-01-22 11:30 J -28325481.03 -28325481.02 -28325481.01 0.1765 0.1757
 Mercury -82264-11-18 23:30 J -28325180.63 -28325180.52 -28325180.40 0.1768 0.0542
 Venus -82260-08-07 02:52 J -28323823.53 -28323823.38 -28323823.22 0.1799 0.0646
 Mercury -82254-04-11 08:37 J -28321750.23 -28321750.14 -28321750.06 0.1777 0.1220
 Mercury -82253-05-21 11:16 J -28321344.10 -28321344.03 -28321343.95 0.1792 0.1550

Mercury -82252-03-16 21:06 J -28321044.67 -28321044.62 -28321044.57 0.1744 0.1569

Moon -82248-06-08 23:16 J -28319499.64 -28319499.53 -28319499.41 0.1578 0.1204

Earth -82248-06-09 04:18 J -28319499.46 -28319499.32 -28319499.17 0.1578 0.1002 *

Mercury -82244-10-11 11:30 J -28317914.17 -28317914.02 -28317913.87 0.1783 0.0482

Mercury -82243-08-07 05:59 J -28317614.35 -28317614.25 -28317614.15 0.1752 0.0908

Mercury -82234-03-03 11:59 J -28314484.15 -28314484.00 -28314483.85 0.1774 0.0571

Mercury -82234-12-28 14:52 J -28314184.00 -28314183.88 -28314183.76 0.1760 0.0234

Mercury -82225-07-23 11:59 J -28311054.06 -28311054.00 -28311053.95 0.1765 0.1636

Moon -82225-12-16 05:30 J -28310908.32 -28310908.27 -28310908.22 0.1963 0.1880

Earth -82225-12-16 11:44 J -28310908.13 -28310908.01 -28310907.88 0.1963 0.1558

Mercury -82224-05-19 23:44 J -28310753.63 -28310753.51 -28310753.40 0.1768 0.0449

Moon -82216-06-16 11:44 J -28307804.16 -28307804.01 -28307803.86 0.1578 0.0954

Earth -82216-06-16 17:16 J -28307803.93 -28307803.78 -28307803.62 0.1578 0.0914 *

Mercury -82215-10-10 08:37 J -28307323.23 -28307323.14 -28307323.05 0.1776 0.1134

Mercury -82214-11-20 11:44 J -28306917.06 -28306917.01 -28306916.95 0.1792 0.1678

Mercury -82213-09-14 21:06 J -28306617.65 -28306617.62 -28306617.58 0.1744 0.1663

Mercury -82204-04-11 12:13 J -28303487.13 -28303486.99 -28303486.84 0.1783 0.0618

Mercury -82203-02-05 05:59 J -28303187.35 -28303187.25 -28303187.15 0.1752 0.0992

Venus -82201-12-19 11:30 J -28302139.20 -28302139.02 -28302138.84 0.1737 0.0056

Mercury -82195-09-01 12:28 J -28300057.13 -28300056.98 -28300056.83 0.1774 0.0449

Venus -82194-06-04 11:16 J -28299781.20 -28299781.03 -28299780.86 0.1804 0.0189

Mercury -82194-06-28 14:52 J -28299757.00 -28299756.88 -28299756.76 0.1760 0.0322

Mercury -82185-01-22 12:28 J -28296627.06 -28296626.98 -28296626.90 0.1765 0.1516

Mercury -82185-11-17 23:44 J -28296326.63 -28296326.51 -28296326.39 0.1768 0.0357

Mercury -82175-04-10 08:37 J -28292896.24 -28292896.14 -28292896.05 0.1776 0.1048

Moon -82169-06-10 21:49 J -28290642.78 -28290642.59 -28290642.40 0.1578 0.0352

Earth -82169-06-11 03:49 J -28290642.53 -28290642.34 -28290642.16 0.1578 0.0421 *

Mercury -82166-08-31 17:30 J -28289465.79 -28289465.77 -28289465.74 0.1784 0.1730

Mercury -82165-10-10 12:56 J -28289060.10 -28289059.96 -28289059.82 0.1783 0.0751

Mercury -82164-08-06 05:59 J -28288760.34 -28288760.25 -28288760.15 0.1751 0.1085

Mercury -82155-03-02 12:56 J -28285630.11 -28285629.96 -28285629.81 0.1774 0.0322
 Mercury -82155-12-27 14:52 J -28285330.00 -28285329.88 -28285329.76 0.1759 0.0410
 Mercury -82146-07-23 12:56 J -28282200.05 -28282199.96 -28282199.86 0.1765 0.1383
 Moon -82146-12-21 02:52 J -28282049.59 -28282049.38 -28282049.18 0.1964 0.0692
 Earth -82146-12-21 12:13 J -28282049.19 -28282048.99 -28282048.79 0.1964 0.0550 *
 Mercury -82145-05-18 23:44 J -28281899.63 -28281899.51 -28281899.39 0.1768 0.0274
 Moon -82137-06-18 12:56 J -28278947.05 -28278946.96 -28278946.86 0.1578 0.1374
 Earth -82137-06-18 17:01 J -28278946.84 -28278946.79 -28278946.74 0.1578 0.1507
 Mercury -82136-10-09 08:37 J -28278469.24 -28278469.14 -28278469.04 0.1776 0.0953
 Venus -82135-10-16 18:56 J -28278096.89 -28278096.71 -28278096.54 0.1732 0.0402
 Venus -82128-03-31 19:25 J -28275738.85 -28275738.69 -28275738.52 0.1808 0.0291
 Mercury -82126-03-01 17:30 J -28275038.81 -28275038.77 -28275038.72 0.1784 0.1645
 Mercury -82125-04-10 13:11 J -28274633.09 -28274632.95 -28274632.82 0.1783 0.0860
 Mercury -82124-02-04 06:13 J -28274333.33 -28274333.24 -28274333.15 0.1751 0.1179
 Mercury -82116-08-31 13:40 J -28271203.09 -28271202.93 -28271202.78 0.1775 0.0193
 Mercury -82115-06-27 14:52 J -28270902.99 -28270902.88 -28270902.76 0.1759 0.0502
 Mercury -82106-01-21 13:40 J -28267773.04 -28267772.93 -28267772.82 0.1765 0.1251
 Mercury -82106-11-17 23:44 J -28267472.63 -28267472.51 -28267472.39 0.1768 0.0191
 Mercury -82096-04-09 08:37 J -28264042.24 -28264042.14 -28264042.03 0.1776 0.0871
 Earth -82090-06-14 02:52 J -28261785.57 -28261785.38 -28261785.20 0.1577 0.0163
 Moon -82090-06-14 03:35 J -28261785.55 -28261785.35 -28261785.15 0.1577 0.0101 *
 Mercury -82087-08-30 17:30 J -28260611.82 -28260611.77 -28260611.71 0.1784 0.1560
 Mercury -82086-10-10 13:54 J -28260206.05 -28260205.92 -28260205.79 0.1784 0.1000
 Mercury -82085-08-05 06:13 J -28259906.33 -28259906.24 -28259906.16 0.1751 0.1263
 Mercury -82076-03-01 13:54 J -28256776.07 -28256775.92 -28256775.76 0.1774 0.0085
 Mercury -82076-12-26 15:06 J -28256475.99 -28256475.87 -28256475.76 0.1759 0.0592
 Venus -82069-08-13 02:23 J -28254054.56 -28254054.40 -28254054.24 0.1728 0.0831
 Mercury -82067-07-22 14:08 J -28253346.03 -28253345.91 -28253345.79 0.1766 0.1137
 Mercury -82066-05-18 23:59 J -28253045.62 -28253045.50 -28253045.38 0.1767 0.0089
 Venus -82062-01-27 03:35 J -28251696.50 -28251696.35 -28251696.19 0.1813 0.0769

Mercury -82057-10-08 08:37 J -28249615.24 -28249615.14 -28249615.03 0.1776 0.0784

Mercury -82047-02-28 17:44 J -28246184.83 -28246184.76 -28246184.70 0.1784 0.1472

Mercury -82046-04-10 14:23 J -28245779.02 -28245778.90 -28245778.78 0.1784 0.1127

Mercury -82045-02-04 06:13 J -28245479.32 -28245479.24 -28245479.16 0.1751 0.1354

Earth -82043-06-08 13:54 J -28244624.04 -28244623.92 -28244623.79 0.1579 0.1166

Moon -82043-06-08 19:11 J -28244623.85 -28244623.70 -28244623.55 0.1579 0.0951 *

Mercury -82037-08-30 14:37 J -28242349.05 -28242348.89 -28242348.73 0.1775 0.0062

Mercury -82036-06-26 15:06 J -28242048.98 -28242048.87 -28242048.76 0.1759 0.0681

Mercury -82027-01-20 14:52 J -28238919.01 -28238918.88 -28238918.75 0.1766 0.0995

Mercury -82027-11-16 23:59 J -28238618.62 -28238618.50 -28238618.38 0.1767 0.0042

Mercury -82017-04-08 08:52 J -28235188.24 -28235188.13 -28235188.02 0.1776 0.0691

Earth -82011-06-16 02:23 J -28232928.57 -28232928.40 -28232928.23 0.1577 0.0750

Moon -82011-06-16 08:37 J -28232928.30 -28232928.14 -28232927.97 0.1577 0.0821 *

Mercury -82008-08-29 17:44 J -28231757.83 -28231757.76 -28231757.69 0.1784 0.1380

Mercury -82007-10-09 14:37 J -28231351.99 -28231351.89 -28231351.78 0.1784 0.1245

Mercury -82006-08-05 06:28 J -28231052.30 -28231052.23 -28231052.17 0.1751 0.1452

Venus -82003-06-10 09:49 J -28230012.21 -28230012.09 -28230011.97 0.1724 0.1268

82ND MILLENNIUM BCE

This is a list of transits visible from Mars in the 82nd millennium BCE.

| PLANET | MAX- | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|--------------|-------|-------|--------------|--------------|--------------|--------|--------|
| TRANSIT | | | | | | | | |
| TIME | | | | | | | | |
| Mercury | -81997-02-29 | 15:20 | J | -28227922.02 | -28227921.86 | -28227921.71 | 0.1775 | 0.0200 |
| Venus | -81997-11-23 | 11:59 | J | -28227654.12 | -28227654.00 | -28227653.88 | 0.1817 | 0.1244 |

Mercury -81997-12-25 15:06 J -28227621.98 -28227621.87 -28227621.76 0.1759 0.0769
 Mercury -81988-07-21 15:06 J -28224492.00 -28224491.87 -28224491.73 0.1766 0.0878
 Mercury -81987-05-17 23:59 J -28224191.62 -28224191.50 -28224191.38 0.1767 0.0086
 Mercury -81978-10-08 08:52 J -28220761.24 -28220761.13 -28220761.02 0.1775 0.0603
 Venus -81971-06-09 18:13 J -28218324.84 -28218324.74 -28218324.65 0.1738 0.1458
 Mercury -81968-02-27 17:44 J -28217330.84 -28217330.76 -28217330.68 0.1784 0.1297
 Mercury -81967-04-09 15:20 J -28216924.95 -28216924.86 -28216924.76 0.1784 0.1380
 Mercury -81966-02-03 06:28 J -28216625.29 -28216625.23 -28216625.18 0.1751 0.1536
 Venus -81965-11-22 17:44 J -28215966.83 -28215966.76 -28215966.69 0.1802 0.1613
 Earth -81964-06-10 13:40 J -28215767.11 -28215766.93 -28215766.76 0.1578 0.0579
 Moon -81964-06-10 18:13 J -28215766.90 -28215766.74 -28215766.58 0.1578 0.0714 *
 Mercury -81958-08-30 15:35 J -28213495.00 -28213494.85 -28213494.70 0.1775 0.0311
 Mercury -81957-06-25 15:06 J -28213194.97 -28213194.87 -28213194.76 0.1759 0.0864
 Mercury -81948-01-19 15:49 J -28210064.98 -28210064.84 -28210064.70 0.1766 0.0750
 Mercury -81948-11-16 00:13 J -28209764.62 -28209764.49 -28209764.37 0.1767 0.0191
 Mercury -81938-04-08 08:52 J -28206334.25 -28206334.13 -28206334.02 0.1775 0.0516
 Venus -81937-04-06 17:16 J -28205969.81 -28205969.78 -28205969.76 0.1720 0.1694
 Earth -81932-06-18 02:08 J -28204071.51 -28204071.41 -28204071.31 0.1577 0.1347
 Moon -81932-06-18 05:44 J -28204071.33 -28204071.26 -28204071.19 0.1577 0.1431 *
 Venus -81931-09-20 19:40 J -28203611.72 -28203611.68 -28203611.63 0.1822 0.1752
 Mercury -81929-08-28 17:44 J -28202903.84 -28202903.76 -28202903.67 0.1784 0.1205
 Mercury -81928-10-08 16:04 J -28202497.91 -28202497.83 -28202497.75 0.1784 0.1509
 Mercury -81927-08-04 06:28 J -28202198.27 -28202198.23 -28202198.19 0.1750 0.1627
 Mercury -81918-02-28 16:18 J -28199067.98 -28199067.82 -28199067.67 0.1775 0.0445
 Mercury -81918-12-25 15:20 J -28198767.97 -28198767.86 -28198767.76 0.1759 0.0951
 Mercury -81909-07-20 16:18 J -28195637.96 -28195637.82 -28195637.67 0.1766 0.0619
 Mercury -81908-05-16 23:59 J -28195337.62 -28195337.50 -28195337.38 0.1767 0.0266
 Venus -81905-04-06 01:40 J -28194282.57 -28194282.43 -28194282.28 0.1734 0.1023
 Mercury -81900-12-10 16:18 J -28192207.86 -28192207.82 -28192207.77 0.1757 0.1678
 Venus -81899-09-20 02:08 J -28191924.54 -28191924.41 -28191924.28 0.1807 0.1161

Mercury -81899-10-07 09:06 J -28191907.24 -28191907.12 -28191907.01 0.1775 0.0423

Mercury -81889-02-27 17:44 J -28188476.85 -28188476.76 -28188476.67 0.1783 0.1120

Mercury -81888-04-08 16:18 J -28188070.89 -28188070.82 -28188070.76 0.1784 0.1620

Mercury -81887-02-02 06:28 J -28187771.24 -28187771.23 -28187771.21 0.1750 0.1723

Moon -81885-06-12 10:32 J -28186910.23 -28186910.06 -28186909.88 0.1578 0.0129

Earth -81885-06-12 12:42 J -28186910.16 -28186909.97 -28186909.78 0.1577 0.0021 *

Mercury -81879-08-29 16:47 J -28184640.94 -28184640.80 -28184640.65 0.1776 0.0578

Mercury -81878-06-25 15:20 J -28184340.96 -28184340.86 -28184340.76 0.1758 0.1040

Mercury -81869-01-19 17:01 J -28181210.94 -28181210.79 -28181210.64 0.1766 0.0488

Mercury -81869-11-15 00:13 J -28180910.61 -28180910.49 -28180910.37 0.1767 0.0359

Earth -81862-12-20 00:13 J -28178319.70 -28178319.49 -28178319.28 0.1964 0.0030

Moon -81862-12-20 02:08 J -28178319.60 -28178319.41 -28178319.23 0.1964 0.0323 *

Mercury -81860-06-10 17:01 J -28177780.86 -28177780.79 -28177780.72 0.1758 0.1547

Mercury -81859-04-07 08:52 J -28177480.25 -28177480.13 -28177480.01 0.1775 0.0340

Mercury -81850-08-28 17:44 J -28174049.85 -28174049.76 -28174049.66 0.1784 0.1032

Mercury -81849-10-07 17:01 J -28173643.81 -28173643.79 -28173643.77 0.1785 0.1762

Mercury -81840-01-18 02:52 J -28170619.41 -28170619.38 -28170619.36 0.1792 0.1726

Venus -81839-02-01 09:20 J -28170240.28 -28170240.11 -28170239.94 0.1729 0.0581

Mercury -81839-02-27 17:16 J -28170213.93 -28170213.78 -28170213.64 0.1775 0.0695

Mercury -81839-12-24 15:20 J -28169913.95 -28169913.86 -28169913.77 0.1758 0.1135

Moon -81838-06-07 18:56 J -28169748.74 -28169748.71 -28169748.66 0.1580 0.1535

Earth -81838-06-08 00:42 J -28169748.57 -28169748.47 -28169748.37 0.1580 0.1318

Venus -81833-07-17 10:18 J -28167882.22 -28167882.07 -28167881.91 0.1811 0.0689

Mercury -81830-07-20 17:16 J -28166783.93 -28166783.78 -28166783.62 0.1767 0.0373

Mercury -81829-05-16 00:13 J -28166483.61 -28166483.49 -28166483.37 0.1766 0.0448

Mercury -81821-12-09 17:44 J -28163353.85 -28163353.76 -28163353.67 0.1758 0.1411

Mercury -81820-10-06 09:06 J -28163053.24 -28163053.12 -28163053.00 0.1775 0.0255

Mercury -81810-02-26 17:59 J -28159622.86 -28159622.75 -28159622.65 0.1783 0.0943

Moon -81806-06-15 05:16 J -28158053.45 -28158053.28 -28158053.10 0.1577 0.0515

Earth -81806-06-15 11:44 J -28158053.18 -28158053.01 -28158052.83 0.1577 0.0593 *

Mercury -81801-07-19 02:37 J -28156192.43 -28156192.39 -28156192.34 0.1792 0.1645

Mercury -81800-08-28 17:44 J -28155786.89 -28155786.76 -28155786.62 0.1776 0.0827

Mercury -81799-06-24 15:35 J -28155486.94 -28155486.85 -28155486.77 0.1758 0.1225

Mercury -81790-01-18 17:59 J -28152356.90 -28152356.75 -28152356.59 0.1767 0.0236

Mercury -81790-11-15 00:13 J -28152056.61 -28152056.49 -28152056.38 0.1767 0.0534

Moon -81783-12-23 16:47 J -28149460.91 -28149460.80 -28149460.70 0.1965 0.1664

Mercury -81781-06-09 17:59 J -28148926.85 -28148926.75 -28148926.64 0.1758 0.1301

Mercury -81780-04-06 09:06 J -28148626.24 -28148626.12 -28148626.00 0.1775 0.0153

Venus -81774-11-29 17:01 J -28146197.97 -28146197.79 -28146197.61 0.1725 0.0159

Mercury -81771-08-27 17:59 J -28145195.86 -28145195.75 -28145195.65 0.1783 0.0851

Venus -81767-05-14 18:13 J -28143839.91 -28143839.74 -28143839.57 0.1816 0.0202

Mercury -81761-01-18 02:52 J -28141765.44 -28141765.38 -28141765.33 0.1792 0.1556

Mercury -81760-02-26 18:28 J -28141359.86 -28141359.73 -28141359.60 0.1776 0.0959

Mercury -81760-12-23 15:20 J -28141059.93 -28141059.86 -28141059.78 0.1758 0.1313

Moon -81759-06-09 18:56 J -28140891.90 -28140891.71 -28140891.53 0.1579 0.0573

Earth -81759-06-09 23:16 J -28140891.70 -28140891.53 -28140891.37 0.1579 0.0746 *

Mercury -81751-07-19 18:28 J -28137929.88 -28137929.73 -28137929.57 0.1767 0.0114

Mercury -81750-05-16 00:13 J -28137629.60 -28137629.49 -28137629.37 0.1766 0.0629

Mercury -81742-12-09 18:56 J -28134499.83 -28134499.71 -28134499.59 0.1758 0.1156

Mercury -81741-10-05 09:06 J -28134199.24 -28134199.12 -28134199.00 0.1775 0.0067

Mercury -81731-02-25 17:59 J -28130768.86 -28130768.75 -28130768.64 0.1783 0.0764

Moon -81727-06-17 07:40 J -28129196.32 -28129196.18 -28129196.04 0.1577 0.1118

Earth -81727-06-17 11:16 J -28129196.15 -28129196.03 -28129195.90 0.1577 0.1184 *

Mercury -81722-07-19 02:52 J -28127338.45 -28127338.38 -28127338.31 0.1791 0.1461

Mercury -81721-08-27 18:42 J -28126932.84 -28126932.72 -28126932.59 0.1776 0.1075

Mercury -81720-06-23 15:35 J -28126632.92 -28126632.85 -28126632.78 0.1758 0.1409

Mercury -81711-01-17 19:11 J -28123502.86 -28123502.70 -28123502.54 0.1767 0.0031

Mercury -81711-11-14 00:28 J -28123202.59 -28123202.48 -28123202.37 0.1766 0.0722

Venus -81708-09-26 00:42 J -28122155.65 -28122155.47 -28122155.29 0.1721 0.0268

Mercury -81702-06-09 19:25 J -28120072.82 -28120072.69 -28120072.56 0.1758 0.1031

Venus -81701-03-11 01:54 J -28119797.58 -28119797.42 -28119797.25 0.1821 0.0308

Mercury -81701-04-05 09:06 J -28119772.24 -28119772.12 -28119772.00 0.1774 0.0028

Mercury -81692-08-26 17:59 J -28116341.86 -28116341.75 -28116341.64 0.1783 0.0673

Mercury -81682-01-17 02:52 J -28112911.46 -28112911.38 -28112911.31 0.1791 0.1380

Mercury -81681-02-26 19:25 J -28112505.80 -28112505.69 -28112505.58 0.1776 0.1211

Mercury -81681-12-22 15:35 J -28112205.91 -28112205.85 -28112205.79 0.1758 0.1497

Earth -81680-06-11 22:32 J -28112034.75 -28112034.56 -28112034.37 0.1578 0.0155

Moon -81680-06-12 00:56 J -28112034.65 -28112034.46 -28112034.26 0.1578 0.0300 *

Mercury -81672-07-18 19:40 J -28109075.84 -28109075.68 -28109075.52 0.1767 0.0149

Mercury -81671-05-15 00:28 J -28108775.59 -28108775.48 -28108775.38 0.1766 0.0809

Mercury -81663-12-08 19:54 J -28105645.81 -28105645.67 -28105645.54 0.1758 0.0914

Mercury -81662-10-05 09:20 J -28105345.23 -28105345.11 -28105344.99 0.1774 0.0126

Mercury -81652-02-24 17:59 J -28101914.86 -28101914.75 -28101914.63 0.1783 0.0587

Mercury -81643-07-18 02:52 J -28098484.46 -28098484.38 -28098484.30 0.1791 0.1286

Venus -81642-07-24 08:52 J -28098113.30 -28098113.13 -28098112.97 0.1717 0.0680

Mercury -81642-08-27 20:08 J -28098078.76 -28098078.66 -28098078.56 0.1777 0.1345

Mercury -81641-06-22 15:35 J -28097778.89 -28097778.85 -28097778.80 0.1757 0.1590

Venus -81635-01-06 09:49 J -28095755.24 -28095755.09 -28095754.94 0.1826 0.0806

Earth -81633-06-06 10:32 J -28094873.12 -28094873.06 -28094873.00 0.1582 0.1492

Moon -81633-06-06 17:01 J -28094872.90 -28094872.79 -28094872.68 0.1581 0.1278

Mercury -81632-01-16 20:23 J -28094648.81 -28094648.65 -28094648.50 0.1768 0.0284

Mercury -81632-11-13 00:28 J -28094348.58 -28094348.48 -28094348.38 0.1766 0.0902

Mercury -81623-06-08 20:23 J -28091218.79 -28091218.65 -28091218.51 0.1759 0.0778

Mercury -81622-04-05 09:06 J -28090918.24 -28090918.12 -28090918.00 0.1774 0.0211

Mercury -81613-08-25 18:13 J -28087487.86 -28087487.74 -28087487.63 0.1783 0.0495

Mercury -81603-01-16 03:06 J -28084057.46 -28084057.37 -28084057.29 0.1791 0.1195

Mercury -81602-02-25 20:23 J -28083651.74 -28083651.65 -28083651.56 0.1777 0.1459

Mercury -81602-12-22 15:49 J -28083351.87 -28083351.84 -28083351.81 0.1757 0.1685

Earth -81601-06-13 22:04 J -28083177.76 -28083177.58 -28083177.40 0.1577 0.0435

Moon -81601-06-14 04:18 J -28083177.50 -28083177.32 -28083177.14 0.1577 0.0560 *

Mercury -81593-07-17 20:37 J -28080221.79 -28080221.64 -28080221.48 0.1768 0.0401

Mercury -81592-05-14 00:28 J -28079921.58 -28079921.48 -28079921.38 0.1765 0.0994

Mercury -81584-12-07 21:06 J -28076791.76 -28076791.62 -28076791.47 0.1759 0.0641

Mercury -81583-10-04 09:20 J -28076491.23 -28076491.11 -28076490.99 0.1774 0.0297

Earth -81578-12-18 11:44 J -28074590.21 -28074590.01 -28074589.81 0.1963 0.0627

Moon -81578-12-18 17:16 J -28074590.00 -28074589.78 -28074589.55 0.1963 0.0202 *

Venus -81576-05-20 16:32 J -28074070.95 -28074070.81 -28074070.68 0.1713 0.1097

Mercury -81574-04-29 21:06 J -28073361.65 -28073361.62 -28073361.58 0.1750 0.1699

Mercury -81573-02-24 18:13 J -28073060.86 -28073060.74 -28073060.63 0.1782 0.0404

Venus -81570-11-03 17:44 J -28071712.87 -28071712.76 -28071712.64 0.1830 0.1309

Mercury -81564-07-17 02:52 J -28069630.47 -28069630.38 -28069630.28 0.1791 0.1112

Mercury -81563-08-26 21:06 J -28069224.69 -28069224.62 -28069224.56 0.1777 0.1593

Earth -81554-06-09 10:04 J -28066016.24 -28066016.08 -28066015.93 0.1580 0.0900

Moon -81554-06-09 14:08 J -28066016.04 -28066015.91 -28066015.78 0.1580 0.1084 *

Mercury -81553-01-16 21:20 J -28065794.76 -28065794.61 -28065794.46 0.1768 0.0539

Mercury -81553-11-12 00:28 J -28065494.57 -28065494.48 -28065494.38 0.1766 0.1085

Venus -81544-05-19 23:30 J -28062383.59 -28062383.52 -28062383.44 0.1726 0.1563

Mercury -81544-06-07 21:20 J -28062364.76 -28062364.61 -28062364.46 0.1759 0.0531

Mercury -81543-04-04 09:20 J -28062064.22 -28062064.11 -28062063.99 0.1774 0.0396

Venus -81538-11-03 00:56 J -28060025.53 -28060025.46 -28060025.40 0.1815 0.1659

Mercury -81535-10-28 21:49 J -28058934.66 -28058934.59 -28058934.52 0.1751 0.1562

Mercury -81534-08-25 18:13 J -28058633.86 -28058633.74 -28058633.62 0.1782 0.0313

Mercury -81524-01-15 03:06 J -28055203.47 -28055203.37 -28055203.28 0.1791 0.1020

Mercury -81523-02-24 21:35 J -28054797.63 -28054797.60 -28054797.56 0.1777 0.1729

Earth -81522-06-16 20:52 J -28054320.77 -28054320.63 -28054320.49 0.1577 0.1026

Moon -81522-06-16 22:47 J -28054320.68 -28054320.55 -28054320.41 0.1577 0.0999 *

Mercury -81515-06-07 11:44 J -28051773.03 -28051773.01 -28051772.98 0.1799 0.1732

Mercury -81514-07-17 21:49 J -28051367.73 -28051367.59 -28051367.44 0.1768 0.0661

Mercury -81513-05-13 00:42 J -28051067.56 -28051067.47 -28051067.38 0.1765 0.1178

Venus -81510-03-18 00:28 J -28050028.56 -28050028.48 -28050028.40 0.1709 0.1500

Mercury -81505-12-06 22:18 J -28047937.72 -28047937.57 -28047937.42 0.1759 0.0383
 Mercury -81504-10-03 09:20 J -28047637.22 -28047637.11 -28047636.99 0.1774 0.0481
 Earth -81499-12-22 15:49 J -28045730.95 -28045730.84 -28045730.72 0.1964 0.1605
 Moon -81499-12-23 00:56 J -28045730.60 -28045730.46 -28045730.33 0.1964 0.1397
 Mercury -81495-04-28 22:18 J -28044507.66 -28044507.57 -28044507.48 0.1750 0.1445
 Mercury -81494-02-23 18:13 J -28044206.86 -28044206.74 -28044206.62 0.1782 0.0222
 Mercury -81485-07-16 03:06 J -28040776.47 -28040776.37 -28040776.27 0.1790 0.0924
 Venus -81478-03-17 07:54 J -28038341.31 -28038341.17 -28038341.04 0.1722 0.1155
 Mercury -81476-12-06 11:44 J -28037346.05 -28037346.01 -28037345.96 0.1799 0.1644
 Moon -81475-06-11 06:13 J -28037159.41 -28037159.24 -28037159.06 0.1579 0.0172
 Earth -81475-06-11 08:52 J -28037159.31 -28037159.13 -28037158.94 0.1579 0.0321 *
 Mercury -81474-01-15 22:32 J -28036940.70 -28036940.56 -28036940.42 0.1769 0.0796
 Mercury -81474-11-12 00:42 J -28036640.55 -28036640.47 -28036640.38 0.1765 0.1272
 Venus -81472-08-30 09:06 J -28035983.25 -28035983.12 -28035983.00 0.1820 0.1185
 Mercury -81465-06-06 22:47 J -28033510.71 -28033510.55 -28033510.39 0.1759 0.0260
 Mercury -81464-04-03 09:20 J -28033210.22 -28033210.11 -28033209.99 0.1774 0.0572
 Mercury -81456-10-27 23:01 J -28030080.64 -28030080.54 -28030080.44 0.1751 0.1308
 Mercury -81455-08-24 18:13 J -28029779.86 -28029779.74 -28029779.62 0.1782 0.0145
 Mercury -81445-01-15 03:06 J -28026349.48 -28026349.37 -28026349.27 0.1790 0.0840
 Mercury -81436-06-06 11:59 J -28022919.06 -28022919.00 -28022918.94 0.1799 0.1546
 Mercury -81435-07-16 23:01 J -28022513.68 -28022513.54 -28022513.41 0.1768 0.0921
 Mercury -81434-05-13 00:42 J -28022213.54 -28022213.47 -28022213.39 0.1765 0.1360
 Mercury -81426-12-06 23:16 J -28019083.69 -28019083.53 -28019083.37 0.1760 0.0138
 Mercury -81425-10-02 09:35 J -28018783.21 -28018783.10 -28018782.99 0.1773 0.0671
 Mercury -81416-04-27 23:44 J -28015653.63 -28015653.51 -28015653.40 0.1751 0.1176
 Mercury -81415-02-22 18:13 J -28015352.86 -28015352.74 -28015352.61 0.1782 0.0082
 Venus -81412-01-11 15:35 J -28014299.01 -28014298.85 -28014298.68 0.1718 0.0733
 Venus -81406-06-27 17:01 J -28011940.95 -28011940.79 -28011940.64 0.1824 0.0693
 Mercury -81406-07-16 03:06 J -28011922.47 -28011922.37 -28011922.26 0.1790 0.0747
 Mercury -81397-12-05 11:59 J -28008492.07 -28008492.00 -28008491.93 0.1799 0.1464

Moon -81396-06-13 02:08 J -28008302.60 -28008302.41 -28008302.22 0.1579 0.0103
 Earth -81396-06-13 08:08 J -28008302.34 -28008302.16 -28008301.97 0.1579 0.0278 *
 Mercury -81395-01-14 23:30 J -28008086.64 -28008086.52 -28008086.39 0.1769 0.1054
 Mercury -81395-11-11 00:56 J -28007786.53 -28007786.46 -28007786.40 0.1765 0.1457
 Mercury -81386-06-06 23:59 J -28004656.66 -28004656.50 -28004656.34 0.1760 0.0018
 Mercury -81385-04-02 09:35 J -28004356.21 -28004356.10 -28004355.99 0.1773 0.0753
 Mercury -81377-10-27 00:13 J -28001226.62 -28001226.49 -28001226.37 0.1751 0.1051
 Mercury -81376-08-23 18:28 J -28000925.85 -28000925.73 -28000925.61 0.1782 0.0057
 Mercury -81366-01-14 03:20 J -27997495.47 -27997495.36 -27997495.25 0.1790 0.0654
 Mercury -81357-06-05 11:59 J -27994065.07 -27994065.00 -27994064.92 0.1799 0.1372
 Mercury -81356-07-15 23:59 J -27993659.61 -27993659.50 -27993659.38 0.1769 0.1181
 Mercury -81355-05-12 00:56 J -27993359.52 -27993359.46 -27993359.40 0.1764 0.1548
 Moon -81349-06-07 17:01 J -27991140.95 -27991140.79 -27991140.63 0.1583 0.0904
 Earth -81349-06-07 20:23 J -27991140.78 -27991140.65 -27991140.51 0.1582 0.1072 *
 Venus -81347-11-08 23:59 J -27990256.68 -27990256.50 -27990256.32 0.1714 0.0331
 Mercury -81347-12-06 00:42 J -27990229.63 -27990229.47 -27990229.32 0.1760 0.0142
 Mercury -81346-10-02 09:35 J -27989929.20 -27989929.10 -27989928.99 0.1773 0.0854
 Venus -81340-04-24 00:28 J -27987898.65 -27987898.48 -27987898.32 0.1829 0.0181
 Mercury -81337-04-27 00:42 J -27986799.60 -27986799.47 -27986799.33 0.1751 0.0921
 Mercury -81336-02-21 18:28 J -27986498.85 -27986498.73 -27986498.61 0.1781 0.0145
 Mercury -81327-07-15 03:20 J -27983068.48 -27983068.36 -27983068.25 0.1790 0.0569
 Mercury -81318-12-05 12:13 J -27979638.08 -27979637.99 -27979637.91 0.1798 0.1276
 Moon -81317-06-15 06:42 J -27979445.38 -27979445.22 -27979445.06 0.1578 0.0964
 Earth -81317-06-15 07:54 J -27979445.33 -27979445.17 -27979445.01 0.1578 0.0871 *
 Mercury -81316-01-14 00:42 J -27979232.57 -27979232.47 -27979232.37 0.1769 0.1316
 Mercury -81316-11-10 00:56 J -27978932.50 -27978932.46 -27978932.42 0.1765 0.1643
 Mercury -81307-06-06 00:56 J -27975802.62 -27975802.46 -27975802.31 0.1760 0.0250
 Mercury -81306-04-02 09:49 J -27975502.19 -27975502.09 -27975501.99 0.1773 0.0947
 Mercury -81298-10-27 01:25 J -27972372.58 -27972372.44 -27972372.30 0.1752 0.0783
 Mercury -81297-08-22 18:28 J -27972071.85 -27972071.73 -27972071.61 0.1781 0.0239

Moon -81294-12-16 15:20 J -27970861.01 -27970860.86 -27970860.71 0.1960 0.1265
 Earth -81294-12-17 00:13 J -27970860.65 -27970860.49 -27970860.32 0.1961 0.1220
 Mercury -81287-01-13 03:20 J -27968641.48 -27968641.36 -27968641.24 0.1790 0.0471
 Venus -81281-09-05 08:08 J -27966214.34 -27966214.16 -27966213.98 0.1710 0.0074
 Mercury -81278-06-05 12:13 J -27965211.08 -27965210.99 -27965210.90 0.1798 0.1190
 Mercury -81277-07-15 01:11 J -27964805.54 -27964805.45 -27964805.36 0.1769 0.1438
 Mercury -81276-05-11 01:11 J -27964505.47 -27964505.45 -27964505.44 0.1764 0.1737
 Venus -81274-02-19 07:54 J -27963856.33 -27963856.17 -27963856.00 0.1834 0.0344
 Earth -81270-06-10 19:54 J -27962283.85 -27962283.67 -27962283.49 0.1581 0.0478
 Moon -81270-06-11 00:28 J -27962283.66 -27962283.48 -27962283.30 0.1581 0.0640 *
 Mercury -81268-12-05 01:40 J -27961375.58 -27961375.43 -27961375.27 0.1760 0.0397
 Mercury -81267-10-01 09:49 J -27961075.19 -27961075.09 -27961074.99 0.1773 0.1033
 Mercury -81258-04-27 01:54 J -27957945.57 -27957945.42 -27957945.28 0.1751 0.0665
 Mercury -81257-02-21 18:42 J -27957644.84 -27957644.72 -27957644.61 0.1781 0.0336
 Mercury -81249-09-16 02:08 J -27954515.44 -27954515.41 -27954515.38 0.1743 0.1705
 Mercury -81248-07-14 03:35 J -27954214.47 -27954214.35 -27954214.24 0.1789 0.0380
 Mercury -81239-12-04 12:13 J -27950784.09 -27950783.99 -27950783.90 0.1798 0.1100
 Earth -81238-06-18 06:56 J -27950588.28 -27950588.21 -27950588.15 0.1577 0.1466
 Moon -81238-06-18 12:13 J -27950588.07 -27950587.99 -27950587.92 0.1577 0.1450
 Mercury -81237-01-14 01:54 J -27950378.49 -27950378.42 -27950378.35 0.1770 0.1576
 Mercury -81228-06-05 02:08 J -27946948.56 -27946948.41 -27946948.26 0.1761 0.0523
 Mercury -81227-04-01 09:49 J -27946648.18 -27946648.09 -27946648.00 0.1773 0.1128
 Mercury -81219-10-26 02:37 J -27943518.54 -27943518.39 -27943518.24 0.1752 0.0525
 Mercury -81218-08-22 18:42 J -27943217.84 -27943217.72 -27943217.60 0.1781 0.0426
 Venus -81215-07-03 16:32 J -27942171.98 -27942171.81 -27942171.64 0.1706 0.0471
 Moon -81215-12-21 02:37 J -27942001.60 -27942001.39 -27942001.18 0.1963 0.0803
 Earth -81215-12-21 05:01 J -27942001.47 -27942001.29 -27942001.12 0.1963 0.1036 *
 Mercury -81209-03-17 02:52 J -27940088.45 -27940088.38 -27940088.31 0.1743 0.1569
 Venus -81209-12-16 15:35 J -27939814.00 -27939813.85 -27939813.70 0.1839 0.0867
 Mercury -81208-01-12 03:20 J -27939787.48 -27939787.36 -27939787.24 0.1790 0.0294

Mercury -81199-06-04 12:13 J -27936357.08 -27936356.99 -27936356.89 0.1798 0.1002

Mercury -81198-07-15 02:23 J -27935951.44 -27935951.40 -27935951.36 0.1770 0.1698

Earth -81191-06-12 18:56 J -27933426.90 -27933426.71 -27933426.52 0.1580 0.0113

Moon -81191-06-13 00:56 J -27933426.64 -27933426.46 -27933426.28 0.1580 0.0337 *

Mercury -81190-10-25 21:06 J -27932926.65 -27932926.62 -27932926.59 0.1806 0.1729

Mercury -81189-12-04 02:37 J -27932521.53 -27932521.39 -27932521.24 0.1761 0.0649

Mercury -81188-09-30 10:04 J -27932221.17 -27932221.08 -27932220.99 0.1772 0.1230

Mercury -81179-04-26 03:20 J -27929091.52 -27929091.36 -27929091.21 0.1752 0.0393

Mercury -81178-02-20 18:42 J -27928790.83 -27928790.72 -27928790.60 0.1781 0.0515

Mercury -81170-09-16 03:20 J -27925661.44 -27925661.36 -27925661.27 0.1743 0.1441

Mercury -81169-07-13 03:35 J -27925360.47 -27925360.35 -27925360.23 0.1789 0.0196

Mercury -81160-12-03 12:13 J -27921930.09 -27921929.99 -27921929.89 0.1798 0.0917

Mercury -81150-04-25 21:06 J -27918499.67 -27918499.62 -27918499.58 0.1807 0.1640

Venus -81149-04-30 00:42 J -27918129.62 -27918129.47 -27918129.31 0.1702 0.0864

Mercury -81149-06-04 03:20 J -27918094.50 -27918094.36 -27918094.22 0.1761 0.0786

Mercury -81148-03-31 10:04 J -27917794.16 -27917794.08 -27917794.00 0.1772 0.1315

Earth -81144-06-07 07:25 J -27916265.30 -27916265.19 -27916265.07 0.1585 0.1240

Moon -81144-06-07 09:06 J -27916265.20 -27916265.12 -27916265.03 0.1585 0.1389 *

Venus -81143-10-13 23:01 J -27915771.64 -27915771.54 -27915771.43 0.1843 0.1398

Mercury -81140-10-25 03:35 J -27914664.50 -27914664.35 -27914664.19 0.1752 0.0272

Mercury -81139-08-21 18:56 J -27914363.83 -27914363.71 -27914363.60 0.1781 0.0618

Mercury -81130-03-17 03:49 J -27911234.44 -27911234.34 -27911234.23 0.1744 0.1316

Mercury -81129-01-12 03:35 J -27910933.47 -27910933.35 -27910933.23 0.1789 0.0102

Mercury -81120-06-03 12:28 J -27907503.09 -27907502.98 -27907502.88 0.1798 0.0824

Earth -81112-06-14 18:42 J -27904569.89 -27904569.72 -27904569.56 0.1579 0.0717

Moon -81112-06-14 19:40 J -27904569.85 -27904569.68 -27904569.52 0.1579 0.0596 *

Venus -81111-10-13 07:25 J -27904084.25 -27904084.19 -27904084.12 0.1828 0.1688

Mercury -81111-10-24 21:06 J -27904072.68 -27904072.62 -27904072.56 0.1806 0.1546

Mercury -81110-12-04 04:04 J -27903667.46 -27903667.33 -27903667.20 0.1761 0.0919

Mercury -81109-09-29 10:04 J -27903367.15 -27903367.08 -27903367.01 0.1772 0.1414

Mercury -81100-04-25 04:18 J -27900237.48 -27900237.32 -27900237.16 0.1752 0.0136
 Mercury -81099-02-19 18:56 J -27899936.82 -27899936.71 -27899936.60 0.1780 0.0705
 Mercury -81091-09-15 04:47 J -27896807.42 -27896807.30 -27896807.19 0.1744 0.1175
 Mercury -81090-07-13 03:35 J -27896506.47 -27896506.35 -27896506.23 0.1789 0.0026
 Venus -81083-02-25 09:35 J -27894087.22 -27894087.10 -27894086.98 0.1698 0.1244
 Mercury -81081-12-02 12:28 J -27893076.09 -27893075.98 -27893075.87 0.1797 0.0724
 Mercury -81071-04-24 21:06 J -27889645.69 -27889645.62 -27889645.55 0.1806 0.1458
 Mercury -81070-06-04 04:18 J -27889240.44 -27889240.32 -27889240.19 0.1762 0.1034
 Mercury -81069-03-30 10:18 J -27888940.13 -27888940.07 -27888940.01 0.1772 0.1510
 Moon -81065-06-09 02:08 J -27887408.58 -27887408.41 -27887408.24 0.1584 0.0472
 Earth -81065-06-09 06:56 J -27887408.39 -27887408.21 -27887408.04 0.1584 0.0646 *
 Mercury -81061-10-24 05:01 J -27885810.45 -27885810.29 -27885810.13 0.1753 0.0033
 Mercury -81060-08-20 18:56 J -27885509.82 -27885509.71 -27885509.60 0.1780 0.0798
 Venus -81051-02-24 15:35 J -27882399.96 -27882399.85 -27882399.74 0.1711 0.1350
 Mercury -81051-03-16 05:16 J -27882380.41 -27882380.28 -27882380.15 0.1744 0.1047
 Mercury -81050-01-11 03:49 J -27882079.46 -27882079.34 -27882079.22 0.1789 0.0107
 Venus -81045-08-09 15:35 J -27880041.98 -27880041.85 -27880041.72 0.1832 0.1195
 Mercury -81041-06-02 12:28 J -27878649.09 -27878648.98 -27878648.87 0.1797 0.0638
 Moon -81033-06-16 12:56 J -27875713.05 -27875712.96 -27875712.87 0.1578 0.1364
 Earth -81033-06-16 18:13 J -27875712.85 -27875712.74 -27875712.64 0.1578 0.1312
 Mercury -81032-10-23 21:06 J -27875218.69 -27875218.62 -27875218.54 0.1806 0.1366
 Mercury -81031-12-03 05:16 J -27874813.40 -27874813.28 -27874813.17 0.1762 0.1182
 Mercury -81030-09-29 10:18 J -27874513.12 -27874513.07 -27874513.02 0.1772 0.1599
 Mercury -81021-04-24 05:30 J -27871383.43 -27871383.27 -27871383.12 0.1753 0.0128
 Mercury -81020-02-18 18:56 J -27871082.81 -27871082.71 -27871082.60 0.1780 0.0898
 Venus -81018-12-23 18:13 J -27870044.79 -27870044.74 -27870044.68 0.1694 0.1610
 Mercury -81012-09-14 05:44 J -27867953.39 -27867953.26 -27867953.12 0.1744 0.0918
 Mercury -81011-07-12 03:49 J -27867652.46 -27867652.34 -27867652.22 0.1788 0.0183
 Earth -81010-12-15 13:54 J -27867131.00 -27867130.92 -27867130.84 0.1957 0.1801
 Moon -81010-12-15 23:44 J -27867130.60 -27867130.51 -27867130.43 0.1958 0.1755

Mercury -81002-12-02 12:28 J -27864222.09 -27864221.98 -27864221.86 0.1797 0.0546

81ST MILLENNIUM BCE

This is a list of transits visible from Mars in the 81st millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -80992-04-23 21:20 J | -27860791.70 | -27860791.61 | -27860791.53 | 0.1806 | 0.1273 | | |
| Mercury | -80991-06-03 05:44 J | -27860386.36 | -27860386.26 | -27860386.16 | 0.1762 | 0.1307 | | |
| Mercury | -80990-03-30 10:18 J | -27860086.10 | -27860086.07 | -27860086.04 | 0.1771 | 0.1696 | | |
| Moon | -80986-06-12 00:13 J | -27858551.68 | -27858551.49 | -27858551.30 | 0.1582 | 0.0264 | | |
| Earth | -80986-06-12 06:28 J | -27858551.42 | -27858551.23 | -27858551.04 | 0.1582 | 0.0050 | * | |
| Venus | -80986-12-22 23:44 J | -27858357.66 | -27858357.51 | -27858357.36 | 0.1707 | 0.0942 | | |
| Mercury | -80982-10-24 06:13 J | -27856956.40 | -27856956.24 | -27856956.08 | 0.1753 | 0.0264 | | |
| Mercury | -80981-08-19 19:11 J | -27856655.80 | -27856655.70 | -27856655.60 | 0.1780 | 0.0989 | | |
| Venus | -80979-06-06 22:47 J | -27855999.70 | -27855999.55 | -27855999.39 | 0.1837 | 0.0675 | | |
| Mercury | -80972-03-15 06:28 J | -27853526.37 | -27853526.23 | -27853526.09 | 0.1744 | 0.0784 | | |
| Mercury | -80971-01-10 03:49 J | -27853225.46 | -27853225.34 | -27853225.22 | 0.1789 | 0.0271 | | |
| Mercury | -80962-06-02 12:42 J | -27849795.09 | -27849794.97 | -27849794.86 | 0.1797 | 0.0444 | | |
| Mercury | -80953-10-22 21:20 J | -27846364.70 | -27846364.61 | -27846364.52 | 0.1805 | 0.1179 | | |
| Mercury | -80952-12-02 06:13 J | -27845959.33 | -27845959.24 | -27845959.15 | 0.1762 | 0.1434 | | |
| Mercury | -80942-04-24 06:42 J | -27842529.37 | -27842529.22 | -27842529.06 | 0.1753 | 0.0399 | | |
| Mercury | -80941-02-18 19:11 J | -27842228.80 | -27842228.70 | -27842228.61 | 0.1780 | 0.1080 | | |
| Moon | -80939-06-06 16:32 J | -27841389.92 | -27841389.81 | -27841389.69 | 0.1588 | 0.1289 | | |
| Earth | -80939-06-06 18:13 J | -27841389.82 | -27841389.74 | -27841389.65 | 0.1588 | 0.1424 | * | |

Mercury -80933-09-13 06:56 J -27839099.35 -27839099.21 -27839099.06 0.1744 0.0656

Mercury -80932-07-11 03:49 J -27838798.45 -27838798.34 -27838798.22 0.1788 0.0373

Moon -80931-12-19 14:23 J -27838272.09 -27838271.90 -27838271.72 0.1960 0.0509

Earth -80931-12-19 17:44 J -27838271.96 -27838271.76 -27838271.56 0.1960 0.0442 *

Mercury -80923-02-03 07:25 J -27835669.23 -27835669.19 -27835669.16 0.1736 0.1689

Mercury -80923-12-01 12:42 J -27835368.09 -27835367.97 -27835367.86 0.1797 0.0362

Venus -80920-10-19 08:37 J -27834315.31 -27834315.14 -27834314.97 0.1703 0.0563

Venus -80913-04-03 05:59 J -27831957.41 -27831957.25 -27831957.08 0.1842 0.0135

Mercury -80913-04-22 21:20 J -27831937.70 -27831937.61 -27831937.51 0.1806 0.1087

Mercury -80912-06-02 06:56 J -27831532.28 -27831532.21 -27831532.14 0.1762 0.1571

Earth -80907-06-14 05:30 J -27829694.44 -27829694.27 -27829694.09 0.1581 0.0551

Moon -80907-06-14 05:44 J -27829694.44 -27829694.26 -27829694.08 0.1581 0.0702 *

Mercury -80903-10-23 07:11 J -27828102.35 -27828102.20 -27828102.05 0.1753 0.0518

Mercury -80902-08-19 19:11 J -27827801.79 -27827801.70 -27827801.61 0.1780 0.1181

Mercury -80893-03-14 07:40 J -27824672.33 -27824672.18 -27824672.03 0.1745 0.0523

Mercury -80892-01-09 04:04 J -27824371.45 -27824371.33 -27824371.22 0.1788 0.0464

Mercury -80884-08-04 07:54 J -27821242.23 -27821242.17 -27821242.10 0.1736 0.1558

Mercury -80883-06-01 12:42 J -27820941.09 -27820940.97 -27820940.85 0.1797 0.0263

Mercury -80874-10-22 21:20 J -27817510.71 -27817510.61 -27817510.51 0.1805 0.0995

Mercury -80873-12-01 07:25 J -27817105.22 -27817105.19 -27817105.15 0.1762 0.1703

Mercury -80864-03-14 06:13 J -27814080.28 -27814080.24 -27814080.21 0.1814 0.1736

Mercury -80863-04-23 07:54 J -27813675.32 -27813675.17 -27813675.02 0.1754 0.0655

Mercury -80862-02-17 19:11 J -27813374.78 -27813374.70 -27813374.61 0.1779 0.1271

Earth -80860-06-08 17:44 J -27812532.92 -27812532.76 -27812532.60 0.1586 0.0818

Moon -80860-06-08 22:47 J -27812532.70 -27812532.55 -27812532.40 0.1586 0.0964 *

Venus -80854-08-16 17:01 J -27810272.97 -27810272.79 -27810272.61 0.1699 0.0176

Mercury -80854-09-13 08:23 J -27810245.31 -27810245.15 -27810245.00 0.1745 0.0388

Mercury -80853-07-10 04:04 J -27809944.45 -27809944.33 -27809944.22 0.1788 0.0555

Venus -80847-01-29 13:25 J -27807915.11 -27807914.94 -27807914.78 0.1847 0.0412

Mercury -80844-02-02 08:23 J -27806815.24 -27806815.15 -27806815.06 0.1736 0.1438

Mercury -80844-11-30 12:56 J -27806514.08 -27806513.96 -27806513.85 0.1796 0.0180
 Mercury -80834-04-22 21:20 J -27803083.71 -27803083.61 -27803083.50 0.1805 0.0907
 Earth -80828-06-16 05:01 J -27800837.42 -27800837.29 -27800837.17 0.1580 0.1160
 Moon -80828-06-16 11:01 J -27800837.18 -27800837.04 -27800836.89 0.1580 0.1027 *
 Mercury -80825-09-12 06:13 J -27799653.29 -27799653.24 -27799653.19 0.1814 0.1636
 Mercury -80824-10-22 08:37 J -27799248.28 -27799248.14 -27799248.00 0.1754 0.0796
 Mercury -80823-08-18 19:25 J -27798947.77 -27798947.69 -27798947.62 0.1779 0.1366
 Mercury -80814-03-14 08:52 J -27795818.29 -27795818.13 -27795817.97 0.1745 0.0259
 Mercury -80813-01-09 04:04 J -27795517.44 -27795517.33 -27795517.22 0.1788 0.0651
 Mercury -80805-08-03 09:06 J -27792388.22 -27792388.12 -27792388.01 0.1736 0.1299
 Mercury -80804-05-31 12:42 J -27792087.09 -27792086.97 -27792086.85 0.1796 0.0093
 Mercury -80795-10-21 21:35 J -27788656.71 -27788656.60 -27788656.49 0.1805 0.0806
 Venus -80788-06-13 01:40 J -27786230.60 -27786230.43 -27786230.25 0.1695 0.0213
 Mercury -80785-03-13 06:13 J -27785226.30 -27785226.24 -27785226.18 0.1813 0.1544
 Mercury -80784-04-22 08:52 J -27784821.26 -27784821.13 -27784820.99 0.1754 0.0912
 Mercury -80783-02-16 19:25 J -27784520.75 -27784520.69 -27784520.62 0.1779 0.1466
 Venus -80782-11-26 20:23 J -27783872.79 -27783872.65 -27783872.50 0.1851 0.0966
 Earth -80781-06-10 17:16 J -27783675.96 -27783675.78 -27783675.59 0.1585 0.0215
 Moon -80781-06-10 22:18 J -27783675.75 -27783675.57 -27783675.39 0.1585 0.0031 *
 Mercury -80775-09-12 09:35 J -27781391.26 -27781391.10 -27781390.95 0.1746 0.0136
 Mercury -80774-07-10 04:04 J -27781090.43 -27781090.33 -27781090.22 0.1787 0.0749
 Mercury -80765-02-02 09:49 J -27777961.21 -27777961.09 -27777960.97 0.1737 0.1163
 Mercury -80765-11-29 12:56 J -27777660.08 -27777659.96 -27777659.84 0.1796 0.0048
 Mercury -80755-04-21 21:35 J -27774229.71 -27774229.60 -27774229.49 0.1805 0.0716
 Mercury -80746-09-12 06:13 J -27770799.31 -27770799.24 -27770799.17 0.1813 0.1457
 Mercury -80745-10-21 09:49 J -27770394.22 -27770394.09 -27770393.97 0.1754 0.1053
 Mercury -80744-08-17 19:25 J -27770093.74 -27770093.69 -27770093.63 0.1779 0.1555
 Mercury -80735-03-13 10:04 J -27766964.24 -27766964.08 -27766963.92 0.1745 0.0005
 Mercury -80734-01-08 04:04 J -27766663.43 -27766663.33 -27766663.22 0.1788 0.0840
 Mercury -80726-08-03 10:18 J -27763534.20 -27763534.07 -27763533.95 0.1737 0.1045

Mercury -80725-05-30 12:56 J -27763233.08 -27763232.96 -27763232.84 0.1796 0.0125

Venus -80722-04-10 10:32 J -27762188.23 -27762188.06 -27762187.89 0.1691 0.0582

Venus -80716-09-23 03:35 J -27759830.44 -27759830.35 -27759830.26 0.1856 0.1525

Mercury -80716-10-20 21:35 J -27759802.71 -27759802.60 -27759802.49 0.1804 0.0624

Mercury -80706-03-13 06:13 J -27756372.31 -27756372.24 -27756372.16 0.1813 0.1364

Mercury -80705-04-21 10:18 J -27755967.18 -27755967.07 -27755966.95 0.1754 0.1185

Mercury -80704-02-15 19:25 J -27755666.73 -27755666.69 -27755666.64 0.1779 0.1649

Moon -80702-06-13 14:52 J -27754819.06 -27754818.88 -27754818.70 0.1583 0.0197

Earth -80702-06-13 16:32 J -27754818.99 -27754818.81 -27754818.63 0.1583 0.0391 *

Mercury -80696-09-11 10:47 J -27752537.21 -27752537.05 -27752536.90 0.1746 0.0143

Mercury -80695-07-09 04:18 J -27752236.42 -27752236.32 -27752236.22 0.1787 0.0936

Mercury -80686-02-01 11:01 J -27749107.17 -27749107.04 -27749106.90 0.1737 0.0900

Mercury -80686-11-29 12:56 J -27748806.08 -27748805.96 -27748805.84 0.1796 0.0204

Venus -80684-09-22 13:11 J -27748143.01 -27748142.95 -27748142.88 0.1840 0.1679

Mercury -80676-04-20 21:35 J -27745375.71 -27745375.60 -27745375.48 0.1805 0.0531

Mercury -80667-09-11 06:28 J -27741945.31 -27741945.23 -27741945.15 0.1813 0.1265

Mercury -80666-10-21 10:47 J -27741540.16 -27741540.05 -27741539.95 0.1755 0.1306

Mercury -80665-08-16 19:40 J -27741239.70 -27741239.68 -27741239.66 0.1779 0.1752

Venus -80656-02-04 19:25 J -27738145.83 -27738145.69 -27738145.54 0.1688 0.0953

Mercury -80656-03-12 11:16 J -27738110.19 -27738110.03 -27738109.87 0.1746 0.0269

Mercury -80655-01-07 04:18 J -27737809.42 -27737809.32 -27737809.22 0.1787 0.1030

Moon -80655-06-07 23:01 J -27737657.69 -27737657.54 -27737657.39 0.1590 0.0909

Earth -80655-06-08 04:18 J -27737657.46 -27737657.32 -27737657.17 0.1590 0.1006 *

Mercury -80647-08-02 11:30 J -27734680.16 -27734680.02 -27734679.87 0.1737 0.0774

Earth -80647-12-18 06:13 J -27734542.45 -27734542.24 -27734542.04 0.1957 0.0175

Moon -80647-12-18 16:18 J -27734542.04 -27734541.82 -27734541.61 0.1957 0.0210 *

Mercury -80646-05-30 12:56 J -27734379.08 -27734378.96 -27734378.84 0.1796 0.0303

Mercury -80637-10-19 21:49 J -27730948.71 -27730948.59 -27730948.48 0.1804 0.0438

Mercury -80627-03-12 06:28 J -27727518.32 -27727518.23 -27727518.14 0.1813 0.1180

Mercury -80626-04-21 11:30 J -27727113.11 -27727113.02 -27727112.94 0.1755 0.1445

Venus -80624-02-04 00:28 J -27726458.54 -27726458.48 -27726458.42 0.1700 0.1585
 Moon -80623-06-15 09:35 J -27725962.22 -27725962.10 -27725961.97 0.1582 0.1138
 Earth -80623-06-15 16:04 J -27725961.97 -27725961.83 -27725961.68 0.1582 0.0990 *
 Venus -80618-07-20 20:52 J -27724100.76 -27724100.63 -27724100.50 0.1845 0.1154
 Mercury -80617-09-10 11:44 J -27723683.16 -27723683.01 -27723682.85 0.1746 0.0402
 Mercury -80616-07-08 04:18 J -27723382.41 -27723382.32 -27723382.22 0.1787 0.1124
 Mercury -80607-01-31 11:59 J -27720253.14 -27720253.00 -27720252.85 0.1737 0.0650
 Mercury -80607-11-28 13:11 J -27719952.07 -27719951.95 -27719951.83 0.1795 0.0399
 Mercury -80598-06-23 12:28 J -27716823.01 -27716822.98 -27716822.94 0.1729 0.1674
 Mercury -80597-04-19 21:49 J -27716521.71 -27716521.59 -27716521.48 0.1804 0.0346
 Venus -80591-12-03 04:32 J -27714103.42 -27714103.31 -27714103.20 0.1684 0.1307
 Mercury -80588-09-10 06:28 J -27713091.32 -27713091.23 -27713091.13 0.1813 0.1081
 Mercury -80587-10-20 11:59 J -27712686.06 -27712686.00 -27712685.93 0.1755 0.1583
 Mercury -80577-03-11 12:28 J -27709256.13 -27709255.98 -27709255.83 0.1746 0.0529
 Mercury -80576-01-06 04:32 J -27708955.40 -27708955.31 -27708955.23 0.1787 0.1218
 Moon -80576-06-09 23:16 J -27708800.71 -27708800.53 -27708800.35 0.1588 0.0591
 Earth -80576-06-10 03:49 J -27708800.52 -27708800.34 -27708800.16 0.1588 0.0396 *
 Mercury -80568-08-01 12:42 J -27705826.12 -27705825.97 -27705825.81 0.1738 0.0511
 Moon -80568-12-22 12:28 J -27705683.02 -27705682.98 -27705682.94 0.1960 0.1903
 Mercury -80567-05-29 13:11 J -27705525.07 -27705524.95 -27705524.84 0.1795 0.0488
 Venus -80559-12-02 08:37 J -27702416.26 -27702416.14 -27702416.01 0.1696 0.1191
 Mercury -80559-12-22 12:56 J -27702396.02 -27702395.96 -27702395.89 0.1729 0.1548
 Mercury -80558-10-19 21:49 J -27702094.71 -27702094.59 -27702094.47 0.1804 0.0246
 Venus -80552-05-17 03:49 J -27700058.50 -27700058.34 -27700058.18 0.1850 0.0602
 Mercury -80548-03-11 06:28 J -27698664.32 -27698664.23 -27698664.13 0.1812 0.0991
 Mercury -80547-04-20 12:28 J -27698259.02 -27698258.98 -27698258.95 0.1755 0.1695
 Moon -80544-06-17 11:01 J -27697105.10 -27697105.04 -27697104.97 0.1581 0.1476
 Mercury -80539-08-01 15:06 J -27695233.90 -27695233.87 -27695233.83 0.1821 0.1740
 Mercury -80538-09-10 12:56 J -27694829.10 -27694828.96 -27694828.81 0.1747 0.0665
 Mercury -80537-07-07 04:32 J -27694528.39 -27694528.31 -27694528.23 0.1786 0.1313

Mercury -80528-01-30 13:25 J -27691399.09 -27691398.94 -27691398.78 0.1738 0.0375

Mercury -80528-11-27 13:11 J -27691098.06 -27691097.95 -27691097.84 0.1795 0.0584

Venus -80525-09-29 13:25 J -27690060.95 -27690060.94 -27690060.93 0.1680 0.1672

Mercury -80519-06-22 13:40 J -27687969.02 -27687968.93 -27687968.84 0.1729 0.1416

Mercury -80518-04-19 21:49 J -27687667.71 -27687667.59 -27687667.47 0.1804 0.0157

Mercury -80509-09-09 06:28 J -27684237.33 -27684237.23 -27684237.12 0.1813 0.0900

Mercury -80499-01-30 15:20 J -27680806.91 -27680806.86 -27680806.81 0.1821 0.1642

Mercury -80498-03-11 13:40 J -27680402.07 -27680401.93 -27680401.79 0.1746 0.0794

Mercury -80497-01-06 04:32 J -27680101.38 -27680101.31 -27680101.24 0.1787 0.1408

Earth -80497-06-12 03:20 J -27679943.55 -27679943.36 -27679943.18 0.1586 0.0215

Moon -80497-06-12 05:16 J -27679943.47 -27679943.28 -27679943.09 0.1586 0.0420 *

Venus -80493-09-28 17:59 J -27678373.91 -27678373.75 -27678373.60 0.1692 0.0822

Mercury -80489-07-31 13:54 J -27676972.08 -27676971.92 -27676971.76 0.1738 0.0258

Mercury -80488-05-28 13:25 J -27676671.05 -27676670.94 -27676670.83 0.1795 0.0685

Venus -80486-03-14 10:18 J -27676016.23 -27676016.07 -27676015.90 0.1855 0.0049

Mercury -80480-12-21 14:23 J -27673542.00 -27673541.90 -27673541.79 0.1729 0.1277

Mercury -80479-10-18 21:49 J -27673240.71 -27673240.59 -27673240.47 0.1804 0.0076

Mercury -80469-03-10 06:42 J -27669810.33 -27669810.22 -27669810.12 0.1812 0.0805

Mercury -80460-07-31 15:20 J -27666379.92 -27666379.86 -27666379.80 0.1821 0.1556

Mercury -80459-09-09 14:08 J -27665975.04 -27665974.91 -27665974.77 0.1747 0.0925

Mercury -80458-07-07 04:32 J -27665674.37 -27665674.31 -27665674.24 0.1786 0.1507

Earth -80450-06-07 14:52 J -27662782.01 -27662781.88 -27662781.76 0.1594 0.1195

Moon -80450-06-07 21:06 J -27662781.74 -27662781.62 -27662781.50 0.1593 0.1228

Mercury -80449-01-30 14:37 J -27662545.05 -27662544.89 -27662544.73 0.1738 0.0113

Mercury -80449-11-26 13:11 J -27662244.06 -27662243.95 -27662243.84 0.1795 0.0770

Mercury -80440-06-21 14:37 J -27659115.00 -27659114.89 -27659114.77 0.1729 0.1162

Mercury -80439-04-18 22:04 J -27658813.70 -27658813.58 -27658813.46 0.1804 0.0061

Mercury -80430-09-09 06:42 J -27655383.33 -27655383.22 -27655383.11 0.1812 0.0707

Venus -80427-07-27 02:37 J -27654331.56 -27654331.39 -27654331.21 0.1688 0.0445

Venus -80420-01-08 17:16 J -27651973.94 -27651973.78 -27651973.62 0.1859 0.0552

Mercury -80420-01-29 15:20 J -27651952.93 -27651952.86 -27651952.79 0.1821 0.1463

Mercury -80419-03-10 14:52 J -27651548.01 -27651547.88 -27651547.76 0.1747 0.1058

Mercury -80418-01-05 04:47 J -27651247.36 -27651247.30 -27651247.25 0.1786 0.1598

Earth -80418-06-15 02:08 J -27651086.57 -27651086.41 -27651086.25 0.1584 0.0821

Moon -80418-06-15 08:23 J -27651086.32 -27651086.15 -27651085.98 0.1584 0.0661 *

Mercury -80410-07-31 15:06 J -27648118.03 -27648117.87 -27648117.71 0.1738 0.0015

Mercury -80409-05-27 13:25 J -27647817.05 -27647816.94 -27647816.84 0.1795 0.0869

Mercury -80401-12-20 15:35 J -27644687.98 -27644687.85 -27644687.72 0.1730 0.1017

Mercury -80400-10-17 22:04 J -27644386.70 -27644386.58 -27644386.46 0.1803 0.0131

Mercury -80390-03-10 06:42 J -27640956.33 -27640956.22 -27640956.11 0.1812 0.0620

Mercury -80381-07-30 15:20 J -27637525.93 -27637525.86 -27637525.78 0.1821 0.1364

Mercury -80380-09-08 15:06 J -27637120.98 -27637120.87 -27637120.75 0.1747 0.1184

Mercury -80379-07-06 04:47 J -27636820.34 -27636820.30 -27636820.27 0.1786 0.1694

Earth -80371-06-09 13:40 J -27633925.10 -27633924.93 -27633924.76 0.1592 0.0590

Moon -80371-06-09 17:59 J -27633924.92 -27633924.75 -27633924.57 0.1591 0.0418 *

Mercury -80370-01-29 15:35 J -27633691.01 -27633690.85 -27633690.69 0.1739 0.0145

Mercury -80370-11-26 13:25 J -27633390.04 -27633389.94 -27633389.84 0.1794 0.0967

Moon -80363-12-16 07:11 J -27630813.40 -27630813.20 -27630812.99 0.1952 0.0560

Earth -80363-12-16 18:13 J -27630812.93 -27630812.74 -27630812.54 0.1952 0.0792

Venus -80361-05-23 11:30 J -27630289.20 -27630289.02 -27630288.84 0.1685 0.0080

Mercury -80361-06-20 16:04 J -27630260.96 -27630260.83 -27630260.69 0.1730 0.0887

Mercury -80360-04-17 22:04 J -27629959.70 -27629959.58 -27629959.46 0.1803 0.0222

Venus -80355-11-05 23:44 J -27627931.65 -27627931.51 -27627931.38 0.1864 0.1145

Mercury -80351-09-08 06:42 J -27626529.33 -27626529.22 -27626529.10 0.1812 0.0522

Mercury -80341-01-29 15:20 J -27623098.94 -27623098.86 -27623098.78 0.1821 0.1281

Mercury -80340-03-09 15:49 J -27622693.94 -27622693.84 -27622693.74 0.1747 0.1316

Earth -80339-06-17 01:25 J -27622229.51 -27622229.44 -27622229.36 0.1583 0.1426

Mercury -80331-07-30 16:18 J -27619263.98 -27619263.82 -27619263.66 0.1739 0.0277

Mercury -80330-05-27 13:25 J -27618963.04 -27618962.94 -27618962.84 0.1794 0.1055

Mercury -80322-12-20 16:32 J -27615833.95 -27615833.81 -27615833.66 0.1730 0.0764

Mercury -80321-10-16 22:04 J -27615532.69 -27615532.58 -27615532.46 0.1803 0.0326

Mercury -80311-03-09 06:42 J -27612102.33 -27612102.22 -27612102.10 0.1811 0.0432

Mercury -80302-07-30 15:20 J -27608671.95 -27608671.86 -27608671.77 0.1820 0.1183

Mercury -80301-09-07 16:32 J -27608266.90 -27608266.81 -27608266.73 0.1748 0.1452

Venus -80295-03-20 20:37 J -27606246.82 -27606246.64 -27606246.46 0.1681 0.0287

Moon -80292-06-11 11:01 J -27605068.22 -27605068.04 -27605067.86 0.1590 0.0159

Earth -80292-06-11 13:11 J -27605068.13 -27605067.95 -27605067.76 0.1590 0.0049 *

Mercury -80291-01-28 17:01 J -27604836.95 -27604836.79 -27604836.64 0.1739 0.0412

Mercury -80291-11-25 13:25 J -27604536.03 -27604535.94 -27604535.85 0.1794 0.1154

Venus -80289-09-02 06:13 J -27603889.30 -27603889.24 -27603889.18 0.1869 0.1741

Earth -80284-12-20 19:54 J -27601953.81 -27601953.67 -27601953.53 0.1956 0.1444

Moon -80284-12-20 23:16 J -27601953.72 -27601953.53 -27601953.34 0.1956 0.1138 *

Mercury -80282-06-20 17:16 J -27601406.93 -27601406.78 -27601406.63 0.1730 0.0630

Mercury -80281-04-16 22:04 J -27601105.70 -27601105.58 -27601105.46 0.1803 0.0407

Mercury -80273-11-09 17:44 J -27597976.80 -27597976.76 -27597976.72 0.1722 0.1654

Mercury -80272-09-07 06:42 J -27597675.33 -27597675.22 -27597675.10 0.1812 0.0341

Mercury -80262-01-28 15:35 J -27594244.95 -27594244.85 -27594244.76 0.1820 0.1085

Mercury -80261-03-08 17:01 J -27593839.86 -27593839.79 -27593839.73 0.1748 0.1576

Venus -80257-09-01 17:16 J -27592201.86 -27592201.78 -27592201.69 0.1853 0.1585

Mercury -80252-07-29 17:16 J -27590409.93 -27590409.78 -27590409.63 0.1739 0.0529

Mercury -80251-05-26 13:40 J -27590109.02 -27590108.93 -27590108.85 0.1794 0.1251

Moon -80245-06-05 17:44 J -27587906.85 -27587906.76 -27587906.67 0.1598 0.1379

Earth -80245-06-05 23:59 J -27587906.59 -27587906.50 -27587906.42 0.1598 0.1415

Mercury -80243-12-19 17:59 J -27586979.90 -27586979.75 -27586979.60 0.1730 0.0490

Mercury -80242-10-16 22:04 J -27586678.69 -27586678.58 -27586678.46 0.1803 0.0508

Mercury -80233-05-10 18:13 J -27583549.81 -27583549.74 -27583549.67 0.1722 0.1527

Mercury -80232-03-08 06:56 J -27583248.33 -27583248.21 -27583248.10 0.1811 0.0249

Venus -80229-01-16 05:44 J -27582204.42 -27582204.26 -27582204.09 0.1677 0.0647

Mercury -80223-07-29 15:20 J -27579817.95 -27579817.86 -27579817.76 0.1820 0.1002

Mercury -80222-09-07 17:30 J -27579412.80 -27579412.77 -27579412.74 0.1748 0.1708

Mercury -80214-12-20 00:13 J -27576387.52 -27576387.49 -27576387.46 0.1829 0.1757

Moon -80213-06-13 06:42 J -27576211.38 -27576211.22 -27576211.06 0.1588 0.0802

Earth -80213-06-13 12:42 J -27576211.14 -27576210.97 -27576210.80 0.1588 0.0639 *

Mercury -80212-01-27 17:59 J -27575982.89 -27575982.75 -27575982.60 0.1739 0.0673

Mercury -80212-11-24 13:25 J -27575682.01 -27575681.94 -27575681.86 0.1794 0.1340

Mercury -80203-06-19 18:13 J -27572552.89 -27572552.74 -27572552.58 0.1730 0.0376

Mercury -80202-04-16 22:18 J -27572251.68 -27572251.57 -27572251.46 0.1803 0.0605

Mercury -80194-11-09 18:56 J -27569122.80 -27569122.71 -27569122.62 0.1722 0.1393

Mercury -80193-09-06 06:56 J -27568821.33 -27568821.21 -27568821.09 0.1811 0.0146

Venus -80191-06-30 00:28 J -27568159.62 -27568159.48 -27568159.34 0.1858 0.1032

Mercury -80183-01-27 15:35 J -27565390.96 -27565390.85 -27565390.75 0.1820 0.0907

Mercury -80174-06-20 00:13 J -27561960.54 -27561960.49 -27561960.44 0.1828 0.1663

Mercury -80173-07-28 18:28 J -27561555.87 -27561555.73 -27561555.58 0.1739 0.0799

Mercury -80172-05-25 13:40 J -27561255.00 -27561254.93 -27561254.86 0.1794 0.1438

Moon -80166-06-08 19:54 J -27559049.83 -27559049.67 -27559049.51 0.1596 0.0921

Earth -80166-06-08 23:44 J -27559049.67 -27559049.51 -27559049.35 0.1596 0.0788 *

Venus -80164-11-12 15:06 J -27558162.01 -27558161.87 -27558161.73 0.1674 0.0992

Mercury -80164-12-18 19:11 J -27558125.86 -27558125.70 -27558125.54 0.1731 0.0231

Mercury -80163-10-15 22:18 J -27557824.68 -27557824.57 -27557824.46 0.1802 0.0695

Mercury -80154-05-10 19:25 J -27554695.80 -27554695.69 -27554695.58 0.1722 0.1267

Mercury -80153-03-07 06:56 J -27554394.33 -27554394.21 -27554394.09 0.1811 0.0080

Mercury -80144-07-28 15:35 J -27550963.95 -27550963.85 -27550963.74 0.1820 0.0804

Mercury -80135-12-19 00:13 J -27547533.55 -27547533.49 -27547533.43 0.1828 0.1574

Moon -80134-06-16 09:49 J -27547354.24 -27547354.09 -27547353.94 0.1586 0.1048

Earth -80134-06-16 11:16 J -27547354.14 -27547354.03 -27547353.91 0.1586 0.1253 *

Mercury -80133-01-27 19:11 J -27547128.84 -27547128.70 -27547128.57 0.1740 0.0929

Mercury -80133-11-23 13:40 J -27546827.99 -27546827.93 -27546827.87 0.1793 0.1538

Venus -80132-11-11 18:13 J -27546474.83 -27546474.74 -27546474.65 0.1685 0.1451

Venus -80125-04-26 06:42 J -27544117.38 -27544117.22 -27544117.06 0.1863 0.0439

Mercury -80124-06-18 19:40 J -27543698.84 -27543698.68 -27543698.52 0.1731 0.0102

Mercury -80123-04-15 22:18 J -27543397.68 -27543397.57 -27543397.46 0.1802 0.0787

Mercury -80115-11-08 20:08 J -27540268.78 -27540268.66 -27540268.54 0.1722 0.1133

Mercury -80114-09-06 06:56 J -27539967.33 -27539967.21 -27539967.09 0.1811 0.0043

Mercury -80104-01-26 15:35 J -27536536.96 -27536536.85 -27536536.74 0.1820 0.0721

Venus -80098-09-10 00:13 J -27534119.59 -27534119.49 -27534119.39 0.1670 0.1348

Mercury -80095-06-19 00:13 J -27533106.56 -27533106.49 -27533106.42 0.1828 0.1475

Mercury -80094-07-28 19:40 J -27532701.80 -27532701.68 -27532701.55 0.1740 0.1061

Mercury -80093-05-24 13:40 J -27532400.98 -27532400.93 -27532400.88 0.1794 0.1625

Earth -80087-06-10 22:32 J -27530192.75 -27530192.56 -27530192.37 0.1594 0.0176

Moon -80087-06-11 02:37 J -27530192.59 -27530192.39 -27530192.19 0.1594 0.0037 *

Mercury -80085-12-17 20:08 J -27529271.82 -27529271.66 -27529271.50 0.1731 0.0033

Mercury -80084-10-14 22:18 J -27528970.67 -27528970.57 -27528970.46 0.1802 0.0892

Earth -80079-12-15 05:59 J -27527083.39 -27527083.25 -27527083.11 0.1946 0.1421

Moon -80079-12-15 11:16 J -27527083.18 -27527083.03 -27527082.87 0.1946 0.1123 *

Mercury -80075-05-09 20:37 J -27525841.77 -27525841.64 -27525841.51 0.1723 0.1002

Mercury -80074-03-07 06:56 J -27525540.33 -27525540.21 -27525540.09 0.1811 0.0137

Venus -80066-09-09 03:35 J -27522432.49 -27522432.35 -27522432.22 0.1682 0.1094

Mercury -80065-07-27 15:35 J -27522109.96 -27522109.85 -27522109.74 0.1819 0.0620

Venus -80059-02-21 12:56 J -27520075.13 -27520074.96 -27520074.80 0.1868 0.0172

Mercury -80056-12-18 00:13 J -27518679.56 -27518679.49 -27518679.41 0.1828 0.1387

Mercury -80054-01-26 20:23 J -27518274.77 -27518274.65 -27518274.54 0.1740 0.1193

Mercury -80054-11-23 13:40 J -27517973.96 -27517973.93 -27517973.90 0.1793 0.1725

Mercury -80045-06-17 20:52 J -27514844.79 -27514844.63 -27514844.48 0.1731 0.0164

Mercury -80044-04-14 22:18 J -27514543.67 -27514543.57 -27514543.47 0.1802 0.0977

Moon -80040-06-05 14:37 J -27513030.91 -27513030.89 -27513030.87 0.1603 0.1589

Mercury -80036-11-07 21:20 J -27511414.75 -27511414.61 -27511414.48 0.1723 0.0870

Mercury -80035-09-05 06:56 J -27511113.33 -27511113.21 -27511113.09 0.1811 0.0234

Mercury -80025-01-26 15:49 J -27507682.96 -27507682.84 -27507682.73 0.1819 0.0528

Mercury -80016-06-18 00:13 J -27504252.57 -27504252.49 -27504252.41 0.1828 0.1294

Mercury -80015-07-27 20:37 J -27503847.74 -27503847.64 -27503847.53 0.1740 0.1315

Earth -80008-06-12 22:04 J -27501335.76 -27501335.58 -27501335.40 0.1592 0.0448

Moon -80008-06-13 04:04 J -27501335.51 -27501335.33 -27501335.14 0.1592 0.0292 *

Mercury -80006-12-17 21:35 J -27500417.76 -27500417.60 -27500417.45 0.1731 0.0300

Mercury -80005-10-13 22:18 J -27500116.66 -27500116.57 -27500116.47 0.1802 0.1078

80TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 80th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|---|--------------|--------------|--------------|--------|--------|---|
| Venus | -80000-07-06 12:42 J | | -27498390.13 | -27498389.97 | -27498389.81 | 0.1678 | 0.0726 | |
| Moon | -80000-12-18 21:20 J | | -27498224.80 | -27498224.61 | -27498224.41 | 0.1951 | 0.0357 | |
| Earth | -80000-12-19 06:56 J | | -27498224.40 | -27498224.21 | -27498224.02 | 0.1951 | 0.0790 | |
| Mercury | -79996-05-08 21:49 J | | -27496987.74 | -27496987.59 | -27496987.45 | 0.1723 | 0.0742 | |
| Mercury | -79995-03-06 06:56 J | | -27496686.32 | -27496686.21 | -27496686.09 | 0.1810 | 0.0333 | |
| Venus | -79994-12-19 19:11 J | | -27496032.85 | -27496032.70 | -27496032.54 | 0.1872 | 0.0778 | |
| Mercury | -79986-07-27 15:35 J | | -27493255.96 | -27493255.85 | -27493255.73 | 0.1819 | 0.0437 | |
| Mercury | -79977-12-17 00:13 J | | -27489825.57 | -27489825.49 | -27489825.40 | 0.1828 | 0.1198 | |
| Mercury | -79975-01-25 21:20 J | | -27489420.69 | -27489420.61 | -27489420.52 | 0.1740 | 0.1459 | |
| Mercury | -79966-06-17 21:49 J | | -27485990.75 | -27485990.59 | -27485990.44 | 0.1731 | 0.0412 | |
| Mercury | -79965-04-13 22:32 J | | -27485689.65 | -27485689.56 | -27485689.47 | 0.1802 | 0.1176 | |
| Earth | -79961-06-07 08:23 J | | -27484174.30 | -27484174.15 | -27484174.01 | 0.1601 | 0.1016 | |
| Moon | -79961-06-07 10:32 J | | -27484174.20 | -27484174.06 | -27484173.92 | 0.1601 | 0.0975 | * |
| Mercury | -79957-11-06 22:32 J | | -27482560.71 | -27482560.56 | -27482560.41 | 0.1723 | 0.0606 | |
| Mercury | -79956-09-04 07:11 J | | -27482259.32 | -27482259.20 | -27482259.09 | 0.1810 | 0.0425 | |

Mercury -79947-03-29 22:47 J -27479130.59 -27479130.55 -27479130.50 0.1715 0.1630

Mercury -79946-01-25 15:35 J -27478828.96 -27478828.85 -27478828.73 0.1819 0.0346

Mercury -79937-06-17 00:13 J -27475398.58 -27475398.49 -27475398.39 0.1828 0.1106

Mercury -79936-07-26 21:49 J -27474993.65 -27474993.59 -27474993.52 0.1740 0.1583

Venus -79934-05-03 21:49 J -27474347.77 -27474347.59 -27474347.42 0.1675 0.0370

Earth -79929-06-14 21:49 J -27472478.73 -27472478.59 -27472478.45 0.1590 0.1063

Moon -79929-06-14 23:16 J -27472478.64 -27472478.53 -27472478.43 0.1590 0.1272 *

Venus -79928-10-16 01:11 J -27471990.56 -27471990.45 -27471990.34 0.1877 0.1409

Mercury -79927-12-16 22:32 J -27471563.71 -27471563.56 -27471563.41 0.1732 0.0556

Mercury -79926-10-13 22:32 J -27471262.65 -27471262.56 -27471262.48 0.1801 0.1266

Mercury -79917-05-07 23:01 J -27468133.70 -27468133.54 -27468133.39 0.1723 0.0483

Mercury -79916-03-05 07:11 J -27467832.32 -27467832.20 -27467832.09 0.1810 0.0518

Mercury -79908-09-27 23:16 J -27464703.60 -27464703.53 -27464703.45 0.1715 0.1505

Mercury -79907-07-26 15:49 J -27464401.96 -27464401.84 -27464401.72 0.1819 0.0237

Mercury -79898-12-17 00:13 J -27460971.58 -27460971.49 -27460971.39 0.1828 0.1015

Mercury -79896-01-24 22:32 J -27460566.58 -27460566.56 -27460566.54 0.1741 0.1715

Mercury -79888-05-08 08:52 J -27457541.15 -27457541.13 -27457541.10 0.1836 0.1784

Mercury -79887-06-16 23:01 J -27457136.68 -27457136.54 -27457136.39 0.1732 0.0685

Mercury -79886-04-13 22:32 J -27456835.64 -27456835.56 -27456835.49 0.1801 0.1360

Moon -79882-06-10 04:04 J -27455317.50 -27455317.33 -27455317.16 0.1598 0.0522

Earth -79882-06-10 08:23 J -27455317.34 -27455317.15 -27455316.97 0.1598 0.0382 *

Mercury -79878-11-06 23:44 J -27453706.67 -27453706.51 -27453706.36 0.1723 0.0347

Mercury -79877-09-03 07:11 J -27453405.31 -27453405.20 -27453405.09 0.1810 0.0614

Venus -79868-02-28 07:25 J -27450305.37 -27450305.19 -27450305.01 0.1671 0.0028

Mercury -79868-03-28 23:59 J -27450276.59 -27450276.50 -27450276.40 0.1715 0.1365

Mercury -79867-01-24 15:49 J -27449974.96 -27449974.84 -27449974.73 0.1819 0.0164

Mercury -79858-06-17 00:28 J -27446544.58 -27446544.48 -27446544.38 0.1828 0.0912

Moon -79850-06-17 15:35 J -27443621.90 -27443621.85 -27443621.79 0.1588 0.1494

Mercury -79849-11-06 09:06 J -27443114.17 -27443114.12 -27443114.08 0.1836 0.1689

Mercury -79848-12-15 23:30 J -27442709.66 -27442709.52 -27442709.38 0.1732 0.0810

Mercury -79847-10-12 22:47 J -27442408.62 -27442408.55 -27442408.49 0.1801 0.1468

Mercury -79838-05-08 00:13 J -27439279.65 -27439279.49 -27439279.33 0.1724 0.0211

Mercury -79837-03-04 07:11 J -27438978.31 -27438978.20 -27438978.09 0.1810 0.0706

Venus -79830-08-12 19:54 J -27436260.77 -27436260.67 -27436260.56 0.1866 0.1423

Mercury -79829-09-27 00:42 J -27435849.58 -27435849.47 -27435849.36 0.1715 0.1234

Mercury -79828-07-25 15:49 J -27435547.96 -27435547.84 -27435547.72 0.1819 0.0051

Mercury -79819-12-16 00:28 J -27432117.59 -27432117.48 -27432117.38 0.1827 0.0825

Mercury -79809-05-07 08:52 J -27428687.18 -27428687.13 -27428687.07 0.1836 0.1601

Mercury -79808-06-16 00:13 J -27428282.62 -27428282.49 -27428282.36 0.1732 0.0948

Mercury -79807-04-12 22:32 J -27427981.62 -27427981.56 -27427981.50 0.1801 0.1553

Moon -79803-06-12 01:11 J -27426460.63 -27426460.45 -27426460.26 0.1596 0.0398

Earth -79803-06-12 07:25 J -27426460.37 -27426460.19 -27426460.00 0.1596 0.0246 *

Venus -79803-12-26 16:47 J -27426262.98 -27426262.80 -27426262.63 0.1668 0.0323

Mercury -79799-11-06 00:42 J -27424852.63 -27424852.47 -27424852.31 0.1724 0.0086

Mercury -79798-09-03 07:11 J -27424551.30 -27424551.20 -27424551.09 0.1810 0.0806

Mercury -79789-03-28 01:11 J -27421422.58 -27421422.45 -27421422.33 0.1716 0.1114

Mercury -79788-01-23 15:49 J -27421120.96 -27421120.84 -27421120.72 0.1818 0.0061

Mercury -79779-06-16 00:28 J -27417690.59 -27417690.48 -27417690.37 0.1827 0.0728

Mercury -79770-11-06 09:06 J -27414260.19 -27414260.12 -27414260.06 0.1836 0.1500

Mercury -79769-12-15 00:56 J -27413855.58 -27413855.46 -27413855.34 0.1732 0.1086

Mercury -79768-10-11 22:47 J -27413554.60 -27413554.55 -27413554.51 0.1801 0.1654

Venus -79764-06-09 02:23 J -27412218.55 -27412218.40 -27412218.25 0.1871 0.0836

Mercury -79759-05-07 01:25 J -27410425.60 -27410425.44 -27410425.28 0.1724 0.0064

Mercury -79758-03-04 07:11 J -27410124.30 -27410124.20 -27410124.09 0.1810 0.0900

Moon -79756-06-06 14:37 J -27409299.01 -27409298.89 -27409298.77 0.1606 0.1260

Earth -79756-06-06 17:01 J -27409298.91 -27409298.79 -27409298.68 0.1606 0.1248 *

Mercury -79750-09-27 01:54 J -27406995.55 -27406995.42 -27406995.29 0.1716 0.0968

Mercury -79749-07-24 15:49 J -27406693.96 -27406693.84 -27406693.72 0.1818 0.0136

Mercury -79740-12-15 00:28 J -27403263.59 -27403263.48 -27403263.37 0.1827 0.0628

Venus -79737-10-23 02:23 J -27402220.56 -27402220.40 -27402220.23 0.1664 0.0655

Mercury -79730-05-07 09:06 J -27399833.19 -27399833.12 -27399833.05 0.1836 0.1408

Mercury -79729-06-15 01:11 J -27399428.56 -27399428.45 -27399428.34 0.1733 0.1199

Mercury -79728-04-11 22:47 J -27399127.57 -27399127.55 -27399127.53 0.1801 0.1753

Moon -79724-06-14 06:28 J -27397603.41 -27397603.23 -27397603.05 0.1594 0.0694

Earth -79724-06-14 06:56 J -27397603.37 -27397603.21 -27397603.06 0.1594 0.0871 *

Mercury -79720-11-05 02:08 J -27395998.57 -27395998.41 -27395998.25 0.1724 0.0192

Mercury -79719-09-02 07:25 J -27395697.29 -27395697.19 -27395697.10 0.1809 0.0997

Earth -79716-12-17 18:28 J -27394494.93 -27394494.73 -27394494.52 0.1945 0.0145

Moon -79716-12-18 05:01 J -27394494.49 -27394494.29 -27394494.09 0.1945 0.0246

Mercury -79710-03-28 02:23 J -27392568.54 -27392568.40 -27392568.26 0.1716 0.0840

Mercury -79709-01-23 15:49 J -27392266.95 -27392266.84 -27392266.72 0.1818 0.0244

Mercury -79700-06-15 00:28 J -27388836.59 -27388836.48 -27388836.36 0.1827 0.0537

Venus -79698-04-06 08:23 J -27388176.32 -27388176.15 -27388175.99 0.1876 0.0207

Mercury -79691-11-05 09:06 J -27385406.20 -27385406.12 -27385406.04 0.1836 0.1318

Mercury -79690-12-15 02:08 J -27385001.51 -27385001.41 -27385001.32 0.1733 0.1347

Mercury -79680-05-06 02:23 J -27381571.55 -27381571.40 -27381571.24 0.1724 0.0315

Mercury -79679-03-03 07:25 J -27381270.29 -27381270.19 -27381270.10 0.1810 0.1094

Earth -79677-06-08 16:47 J -27380441.97 -27380441.80 -27380441.63 0.1604 0.0610

Moon -79677-06-08 21:20 J -27380441.80 -27380441.61 -27380441.43 0.1603 0.0513 *

Venus -79671-08-20 11:59 J -27378178.14 -27378178.00 -27378177.86 0.1661 0.0993

Mercury -79671-09-26 03:06 J -27378141.52 -27378141.37 -27378141.23 0.1716 0.0713

Mercury -79670-07-24 16:04 J -27377839.95 -27377839.83 -27377839.71 0.1818 0.0337

Mercury -79661-12-14 00:28 J -27374409.59 -27374409.48 -27374409.36 0.1827 0.0445

Mercury -79651-05-06 09:06 J -27370979.21 -27370979.12 -27370979.03 0.1835 0.1218

Mercury -79650-06-15 02:37 J -27370574.47 -27370574.39 -27370574.31 0.1733 0.1476

Earth -79645-06-16 06:42 J -27368746.28 -27368746.22 -27368746.16 0.1592 0.1492

Mercury -79641-11-04 03:06 J -27367144.52 -27367144.37 -27367144.21 0.1725 0.0453

Mercury -79640-09-01 07:25 J -27366843.28 -27366843.19 -27366843.10 0.1809 0.1192

Venus -79639-08-19 14:23 J -27366491.00 -27366490.90 -27366490.81 0.1672 0.1402

Venus -79632-01-31 14:23 J -27364134.07 -27364133.90 -27364133.74 0.1881 0.0424

Mercury -79631-03-27 03:49 J -27363714.50 -27363714.34 -27363714.19 0.1716 0.0575

Mercury -79630-01-22 16:04 J -27363412.95 -27363412.83 -27363412.72 0.1818 0.0428

Mercury -79622-08-17 04:04 J -27360284.39 -27360284.33 -27360284.28 0.1708 0.1601

Mercury -79621-06-14 00:42 J -27359982.59 -27359982.47 -27359982.36 0.1827 0.0341

Mercury -79612-11-04 09:06 J -27356552.21 -27356552.12 -27356552.02 0.1835 0.1123

Mercury -79611-12-14 03:06 J -27356147.43 -27356147.37 -27356147.31 0.1733 0.1602

Venus -79605-06-16 21:49 J -27354135.69 -27354135.59 -27354135.48 0.1657 0.1313

Mercury -79601-05-05 03:49 J -27352717.49 -27352717.34 -27352717.19 0.1725 0.0584

Mercury -79600-03-02 07:25 J -27352416.27 -27352416.19 -27352416.11 0.1809 0.1285

Earth -79598-06-11 16:47 J -27351584.98 -27351584.80 -27351584.61 0.1601 0.0047

Moon -79598-06-11 22:04 J -27351584.76 -27351584.58 -27351584.40 0.1601 0.0064 *

Mercury -79592-09-25 04:18 J -27349287.47 -27349287.32 -27349287.16 0.1716 0.0441

Mercury -79591-07-23 16:04 J -27348985.94 -27348985.83 -27348985.72 0.1818 0.0526

Mercury -79582-02-15 04:47 J -27345857.38 -27345857.30 -27345857.22 0.1708 0.1458

Mercury -79582-12-14 00:42 J -27345555.59 -27345555.47 -27345555.36 0.1826 0.0257

Venus -79573-06-15 23:30 J -27342448.66 -27342448.52 -27342448.38 0.1668 0.1043

Mercury -79572-05-05 09:06 J -27342125.21 -27342125.12 -27342125.02 0.1835 0.1030

Venus -79567-11-28 20:08 J -27340091.79 -27340091.66 -27340091.52 0.1885 0.1062

Mercury -79563-09-25 17:44 J -27338694.78 -27338694.76 -27338694.74 0.1844 0.1809

Mercury -79562-11-04 04:18 J -27338290.47 -27338290.32 -27338290.17 0.1725 0.0711

Mercury -79561-08-31 07:25 J -27337989.26 -27337989.19 -27337989.11 0.1809 0.1388

Mercury -79552-03-26 04:47 J -27334860.46 -27334860.30 -27334860.14 0.1717 0.0316

Mercury -79551-01-21 16:04 J -27334558.94 -27334558.83 -27334558.71 0.1817 0.0628

Earth -79551-06-06 01:11 J -27334423.52 -27334423.45 -27334423.38 0.1612 0.1497

Moon -79551-06-06 02:52 J -27334423.43 -27334423.38 -27334423.33 0.1612 0.1530 *

Mercury -79543-08-16 05:30 J -27331430.37 -27331430.27 -27331430.17 0.1708 0.1321

Mercury -79542-06-14 00:42 J -27331128.59 -27331128.47 -27331128.35 0.1826 0.0155

Venus -79539-04-14 07:25 J -27330093.21 -27330093.19 -27330093.17 0.1654 0.1639

Mercury -79533-11-03 09:20 J -27327698.21 -27327698.11 -27327698.01 0.1835 0.0932

Mercury -79523-03-26 17:44 J -27324267.80 -27324267.76 -27324267.72 0.1844 0.1727

Mercury -79522-05-05 05:01 J -27323863.43 -27323863.29 -27323863.15 0.1725 0.0846

Mercury -79521-03-01 07:25 J -27323562.25 -27323562.19 -27323562.12 0.1809 0.1483

Moon -79519-06-13 15:20 J -27322728.01 -27322727.86 -27322727.71 0.1599 0.0819

Earth -79519-06-13 16:32 J -27322727.98 -27322727.81 -27322727.64 0.1598 0.0667 *

Mercury -79513-09-24 05:30 J -27320433.43 -27320433.27 -27320433.11 0.1717 0.0177

Mercury -79512-07-22 16:04 J -27320131.94 -27320131.83 -27320131.72 0.1817 0.0718

Venus -79507-04-13 09:20 J -27318406.27 -27318406.11 -27318405.95 0.1665 0.0711

Mercury -79503-02-14 05:59 J -27317003.37 -27317003.25 -27317003.14 0.1708 0.1201

Mercury -79503-12-13 00:42 J -27316701.59 -27316701.47 -27316701.35 0.1826 0.0064

Venus -79501-09-25 01:40 J -27316049.49 -27316049.43 -27316049.36 0.1890 0.1724

Mercury -79493-05-04 09:20 J -27313271.22 -27313271.11 -27313271.01 0.1835 0.0840

Mercury -79484-09-24 17:44 J -27309840.81 -27309840.76 -27309840.70 0.1844 0.1624

Mercury -79483-11-03 05:44 J -27309436.39 -27309436.26 -27309436.13 0.1725 0.0988

Mercury -79482-08-31 07:40 J -27309135.24 -27309135.18 -27309135.13 0.1808 0.1580

Mercury -79473-03-25 06:13 J -27306006.40 -27306006.24 -27306006.08 0.1717 0.0049

Mercury -79472-01-20 16:18 J -27305704.93 -27305704.82 -27305704.72 0.1817 0.0820

Moon -79472-06-07 20:23 J -27305566.80 -27305566.65 -27305566.50 0.1609 0.0877

Earth -79472-06-08 01:40 J -27305566.59 -27305566.43 -27305566.28 0.1609 0.0846 *

Venus -79469-09-24 15:35 J -27304361.88 -27304361.85 -27304361.81 0.1874 0.1835

Mercury -79464-08-15 06:42 J -27302576.35 -27302576.22 -27302576.10 0.1709 0.1060

Mercury -79463-06-13 00:42 J -27302274.59 -27302274.47 -27302274.35 0.1826 0.0042

Mercury -79454-11-03 09:20 J -27298844.22 -27298844.11 -27298844.00 0.1835 0.0741

Mercury -79444-03-25 17:59 J -27295413.82 -27295413.75 -27295413.69 0.1843 0.1525

Mercury -79443-05-04 05:59 J -27295009.37 -27295009.25 -27295009.12 0.1725 0.1110

Mercury -79442-03-01 07:40 J -27294708.22 -27294708.18 -27294708.14 0.1809 0.1681

Venus -79441-02-08 19:25 J -27294363.87 -27294363.69 -27294363.52 0.1662 0.0382

Moon -79440-06-15 10:04 J -27293871.21 -27293871.08 -27293870.94 0.1596 0.1071

Earth -79440-06-15 16:18 J -27293870.92 -27293870.82 -27293870.71 0.1596 0.1307

Mercury -79434-09-24 06:42 J -27291579.38 -27291579.22 -27291579.06 0.1717 0.0088

Mercury -79433-07-21 16:18 J -27291277.92 -27291277.82 -27291277.72 0.1817 0.0919

Moon -79432-12-16 03:06 J -27290765.59 -27290765.37 -27290765.14 0.1937 0.0349
 Earth -79432-12-16 09:20 J -27290765.32 -27290765.11 -27290764.91 0.1938 0.0451 *
 Mercury -79424-02-13 07:25 J -27288149.33 -27288149.19 -27288149.06 0.1709 0.0923
 Mercury -79424-12-12 00:42 J -27287847.59 -27287847.47 -27287847.35 0.1826 0.0141
 Mercury -79414-05-04 09:20 J -27284417.22 -27284417.11 -27284417.00 0.1835 0.0642
 Mercury -79405-09-23 17:44 J -27280986.83 -27280986.76 -27280986.68 0.1843 0.1437
 Mercury -79404-11-02 06:42 J -27280582.32 -27280582.22 -27280582.11 0.1726 0.1250
 Venus -79403-07-22 21:49 J -27280319.72 -27280319.59 -27280319.46 0.1879 0.1215
 Mercury -79403-08-30 07:40 J -27280281.19 -27280281.18 -27280281.16 0.1808 0.1779
 Mercury -79394-03-25 07:25 J -27277152.35 -27277152.19 -27277152.03 0.1717 0.0226
 Mercury -79393-01-20 16:18 J -27276850.92 -27276850.82 -27276850.72 0.1817 0.1009
 Moon -79393-06-09 20:37 J -27276709.84 -27276709.64 -27276709.45 0.1607 0.0150
 Earth -79393-06-10 01:40 J -27276709.62 -27276709.43 -27276709.25 0.1607 0.0197 *
 Mercury -79385-08-14 07:54 J -27273722.32 -27273722.17 -27273722.03 0.1709 0.0802
 Mercury -79384-06-12 00:56 J -27273420.58 -27273420.46 -27273420.34 0.1826 0.0245
 Venus -79376-12-06 05:01 J -27270321.47 -27270321.29 -27270321.11 0.1658 0.0050
 Mercury -79375-11-02 09:20 J -27269990.22 -27269990.11 -27269989.99 0.1834 0.0546
 Mercury -79365-03-24 17:59 J -27266559.83 -27266559.75 -27266559.67 0.1843 0.1340
 Mercury -79364-05-03 07:25 J -27266155.28 -27266155.19 -27266155.10 0.1726 0.1384
 Mercury -79355-09-23 08:08 J -27262725.32 -27262725.16 -27262725.01 0.1717 0.0363
 Mercury -79354-07-21 16:18 J -27262423.91 -27262423.82 -27262423.72 0.1817 0.1115
 Earth -79353-12-20 11:44 J -27261906.08 -27261906.01 -27261905.94 0.1944 0.1818
 Moon -79353-12-20 21:20 J -27261905.69 -27261905.61 -27261905.54 0.1944 0.1816
 Mercury -79345-02-13 08:37 J -27259295.29 -27259295.14 -27259294.99 0.1709 0.0656
 Mercury -79345-12-11 00:56 J -27258993.58 -27258993.46 -27258993.35 0.1825 0.0338
 Venus -79337-05-19 03:49 J -27256277.50 -27256277.34 -27256277.18 0.1884 0.0603
 Mercury -79336-07-05 08:52 J -27255865.15 -27255865.13 -27255865.10 0.1701 0.1677
 Mercury -79335-05-03 09:20 J -27255563.22 -27255563.11 -27255562.99 0.1835 0.0452
 Mercury -79326-09-23 17:59 J -27252132.83 -27252132.75 -27252132.66 0.1843 0.1234
 Mercury -79325-11-01 07:54 J -27251728.24 -27251728.17 -27251728.09 0.1726 0.1511

Mercury -79315-03-24 08:37 J -27248298.30 -27248298.14 -27248297.99 0.1718 0.0490

Mercury -79314-01-19 16:32 J -27247996.90 -27247996.81 -27247996.73 0.1816 0.1214

Earth -79314-06-13 01:54 J -27247852.60 -27247852.42 -27247852.24 0.1604 0.0453

Moon -79314-06-13 03:06 J -27247852.56 -27247852.37 -27247852.17 0.1604 0.0320 *

Venus -79310-10-03 15:06 J -27246279.04 -27246278.87 -27246278.69 0.1655 0.0271

Mercury -79306-08-14 09:20 J -27244868.27 -27244868.11 -27244867.96 0.1709 0.0522

Mercury -79305-06-11 00:56 J -27244566.58 -27244566.46 -27244566.34 0.1825 0.0434

Mercury -79296-01-03 09:49 J -27241438.16 -27241438.09 -27241438.03 0.1701 0.1538

Mercury -79296-11-01 09:35 J -27241136.22 -27241136.10 -27241135.99 0.1834 0.0356

Mercury -79286-03-24 17:59 J -27237705.84 -27237705.75 -27237705.66 0.1843 0.1149

Mercury -79285-05-02 08:37 J -27237301.18 -27237301.14 -27237301.10 0.1726 0.1648

Mercury -79276-09-22 09:20 J -27233871.26 -27233871.11 -27233870.96 0.1718 0.0631

Mercury -79275-07-20 16:32 J -27233569.90 -27233569.81 -27233569.73 0.1817 0.1309

Venus -79271-03-16 09:20 J -27232235.27 -27232235.11 -27232234.94 0.1888 0.0078

Earth -79267-06-07 09:20 J -27230691.24 -27230691.11 -27230690.97 0.1616 0.1101

Moon -79267-06-07 15:35 J -27230690.99 -27230690.85 -27230690.72 0.1615 0.1139 *

Mercury -79266-02-12 09:35 J -27230441.25 -27230441.10 -27230440.94 0.1709 0.0402

Mercury -79266-12-11 00:56 J -27230139.57 -27230139.46 -27230139.34 0.1825 0.0539

Mercury -79257-07-04 10:18 J -27227011.16 -27227011.07 -27227010.98 0.1702 0.1406

Mercury -79256-05-02 09:35 J -27226709.22 -27226709.10 -27226708.99 0.1834 0.0260

Mercury -79247-09-22 17:59 J -27223278.84 -27223278.75 -27223278.65 0.1843 0.1044

Venus -79244-07-31 00:56 J -27222236.62 -27222236.46 -27222236.29 0.1652 0.0597

Mercury -79237-02-13 02:37 J -27219848.40 -27219848.39 -27219848.39 0.1851 0.1848

Mercury -79236-03-23 09:49 J -27219444.23 -27219444.09 -27219443.95 0.1718 0.0760

Mercury -79235-01-18 16:32 J -27219142.89 -27219142.81 -27219142.74 0.1816 0.1408

Earth -79235-06-15 01:54 J -27218995.55 -27218995.42 -27218995.28 0.1601 0.1096

Moon -79235-06-15 07:54 J -27218995.27 -27218995.17 -27218995.06 0.1601 0.1308

Mercury -79227-08-13 10:32 J -27216014.22 -27216014.06 -27216013.90 0.1710 0.0257

Mercury -79226-06-11 00:56 J -27215712.57 -27215712.46 -27215712.35 0.1825 0.0630

Mercury -79217-01-03 11:01 J -27212584.15 -27212584.04 -27212583.93 0.1702 0.1269

Mercury -79217-10-31 09:35 J -27212282.22 -27212282.10 -27212281.98 0.1834 0.0154
 Mercury -79207-03-23 18:13 J -27208851.84 -27208851.74 -27208851.64 0.1842 0.0946
 Venus -79205-01-11 15:06 J -27208193.03 -27208192.87 -27208192.71 0.1893 0.0717
 Mercury -79198-08-14 02:37 J -27205421.43 -27205421.39 -27205421.36 0.1851 0.1751
 Mercury -79197-09-21 10:32 J -27205017.20 -27205017.06 -27205016.93 0.1718 0.0894
 Mercury -79196-07-19 16:32 J -27204715.87 -27204715.81 -27204715.74 0.1816 0.1510
 Earth -79188-06-09 10:04 J -27201834.26 -27201834.08 -27201833.90 0.1613 0.0436
 Moon -79188-06-09 15:06 J -27201834.04 -27201833.87 -27201833.70 0.1612 0.0451 *
 Mercury -79187-02-11 11:16 J -27201587.19 -27201587.03 -27201586.87 0.1710 0.0121
 Mercury -79187-12-10 01:11 J -27201285.56 -27201285.45 -27201285.35 0.1825 0.0732
 Venus -79178-05-28 11:16 J -27198194.18 -27198194.03 -27198193.88 0.1649 0.0905
 Mercury -79178-07-04 11:30 J -27198157.14 -27198157.02 -27198156.90 0.1702 0.1140
 Mercury -79177-05-01 09:35 J -27197855.22 -27197855.10 -27197854.98 0.1834 0.0059
 Mercury -79168-09-21 17:59 J -27194424.85 -27194424.75 -27194424.64 0.1842 0.0856
 Mercury -79158-02-12 02:37 J -27190994.44 -27190994.39 -27190994.34 0.1851 0.1649
 Mercury -79157-03-22 11:01 J -27190590.16 -27190590.04 -27190589.91 0.1718 0.1031
 Mercury -79156-01-17 16:32 J -27190288.86 -27190288.81 -27190288.75 0.1816 0.1603
 Moon -79156-06-17 04:32 J -27190138.32 -27190138.31 -27190138.30 0.1599 0.1591
 Mercury -79148-08-12 11:30 J -27187160.18 -27187160.02 -27187159.85 0.1710 0.0038
 Moon -79148-12-15 02:08 J -27187035.58 -27187035.41 -27187035.23 0.1930 0.0650
 Earth -79148-12-15 02:37 J -27187035.57 -27187035.39 -27187035.21 0.1930 0.0978 *
 Mercury -79147-06-10 01:11 J -27186858.55 -27186858.45 -27186858.34 0.1825 0.0836
 Venus -79146-05-27 11:59 J -27186507.09 -27186507.00 -27186506.91 0.1659 0.1412
 Venus -79140-11-07 20:37 J -27184150.76 -27184150.64 -27184150.53 0.1897 0.1388
 Mercury -79138-01-02 12:28 J -27183730.11 -27183729.98 -27183729.85 0.1702 0.0998
 Mercury -79138-10-31 09:35 J -27183428.22 -27183428.10 -27183427.98 0.1833 0.0059
 Mercury -79128-03-22 18:13 J -27179997.85 -27179997.74 -27179997.64 0.1842 0.0757
 Mercury -79119-08-13 02:37 J -27176567.45 -27176567.39 -27176567.33 0.1851 0.1554
 Mercury -79118-09-21 11:44 J -27176163.13 -27176163.01 -27176162.89 0.1718 0.1165
 Mercury -79117-07-18 16:47 J -27175861.84 -27175861.80 -27175861.77 0.1816 0.1709

Venus -79112-03-24 21:20 J -27174151.73 -27174151.61 -27174151.49 0.1645 0.1213

Moon -79109-06-11 08:52 J -27172977.30 -27172977.13 -27172976.95 0.1610 0.0313

Earth -79109-06-11 10:47 J -27172977.24 -27172977.05 -27172976.87 0.1610 0.0228 *

Mercury -79108-02-10 12:28 J -27172733.14 -27172732.98 -27172732.82 0.1710 0.0150

Mercury -79108-12-09 01:11 J -27172431.55 -27172431.45 -27172431.35 0.1825 0.0924

Mercury -79099-07-03 12:42 J -27169303.10 -27169302.97 -27169302.83 0.1702 0.0876

Mercury -79098-05-01 09:35 J -27169001.21 -27169001.10 -27169000.98 0.1834 0.0149

Mercury -79089-09-20 18:13 J -27165570.85 -27165570.74 -27165570.63 0.1842 0.0650

Venus -79080-03-23 22:18 J -27162464.71 -27162464.57 -27162464.44 0.1656 0.1096

Mercury -79079-02-11 02:37 J -27162140.46 -27162140.39 -27162140.32 0.1851 0.1460

Mercury -79078-03-22 12:13 J -27161736.09 -27161735.99 -27161735.88 0.1719 0.1297

Mercury -79077-01-17 16:47 J -27161434.81 -27161434.80 -27161434.79 0.1815 0.1806

Mercury -79069-08-11 12:56 J -27158306.12 -27158305.96 -27158305.80 0.1710 0.0283

Moon -79069-12-18 17:01 J -27158176.98 -27158176.79 -27158176.59 0.1936 0.0760

Earth -79069-12-19 03:06 J -27158176.53 -27158176.37 -27158176.21 0.1936 0.1232

Mercury -79068-06-09 01:11 J -27158004.55 -27158004.45 -27158004.35 0.1824 0.1026

Moon -79062-06-06 11:16 J -27155816.13 -27155816.03 -27155815.93 0.1623 0.1337

Earth -79062-06-06 17:01 J -27155815.89 -27155815.79 -27155815.69 0.1623 0.1370

Mercury -79059-01-01 13:40 J -27154876.08 -27154875.93 -27154875.79 0.1702 0.0731

Mercury -79059-10-30 09:49 J -27154574.21 -27154574.09 -27154573.97 0.1833 0.0242

Mercury -79049-03-21 18:13 J -27151143.85 -27151143.74 -27151143.63 0.1842 0.0563

Venus -79046-01-20 08:08 J -27150109.23 -27150109.16 -27150109.09 0.1643 0.1500

Venus -79042-09-04 17:16 J -27148420.87 -27148420.78 -27148420.70 0.1887 0.1612

Mercury -79040-08-12 02:52 J -27147713.46 -27147713.38 -27147713.30 0.1851 0.1355

Mercury -79039-09-20 12:56 J -27147309.05 -27147308.96 -27147308.87 0.1719 0.1432

Moon -79030-06-14 04:32 J -27144120.47 -27144120.31 -27144120.14 0.1607 0.0709

Earth -79030-06-14 10:47 J -27144120.21 -27144120.05 -27144119.89 0.1607 0.0880 *

Mercury -79029-02-10 13:25 J -27143879.09 -27143878.94 -27143878.78 0.1711 0.0409

Mercury -79029-12-08 01:25 J -27143577.53 -27143577.44 -27143577.35 0.1824 0.1132

Mercury -79020-07-02 14:08 J -27140449.06 -27140448.91 -27140448.75 0.1703 0.0599

Mercury -79019-04-30 09:49 J -27140147.21 -27140147.09 -27140146.98 0.1833 0.0337

Venus -79014-01-19 08:23 J -27138422.31 -27138422.15 -27138421.99 0.1653 0.0775

Mercury -79011-11-22 14:52 J -27137018.93 -27137018.88 -27137018.83 0.1695 0.1601

Mercury -79010-09-20 18:13 J -27136716.85 -27136716.74 -27136716.62 0.1842 0.0460

79TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 79th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -79000-02-10 02:37 J | -27133286.47 | -27133286.39 | -27133286.30 | 0.1850 | 0.1268 | | |
| Mercury | -78999-03-21 13:25 J | -27132882.00 | -27132881.94 | -27132881.87 | 0.1719 | 0.1565 | | |
| Mercury | -78990-08-11 14:23 J | -27129452.06 | -27129451.90 | -27129451.75 | 0.1711 | 0.0553 | | |
| Mercury | -78989-06-08 01:25 J | -27129150.53 | -27129150.44 | -27129150.36 | 0.1824 | 0.1225 | | |
| Moon | -78983-06-08 12:56 J | -27126959.13 | -27126958.96 | -27126958.78 | 0.1619 | 0.0713 | | |
| Earth | -78983-06-08 17:30 J | -27126958.93 | -27126958.77 | -27126958.60 | 0.1619 | 0.0699 | * | |
| Mercury | -78981-12-31 14:52 J | -27126022.04 | -27126021.88 | -27126021.73 | 0.1703 | 0.0466 | | |
| Mercury | -78980-10-29 09:49 J | -27125720.20 | -27125720.09 | -27125719.97 | 0.1833 | 0.0441 | | |
| Venus | -78976-07-01 22:47 J | -27124378.70 | -27124378.55 | -27124378.41 | 0.1892 | 0.0962 | | |
| Mercury | -78971-05-23 15:20 J | -27122591.94 | -27122591.86 | -27122591.78 | 0.1695 | 0.1478 | | |
| Mercury | -78970-03-21 18:13 J | -27122289.85 | -27122289.74 | -27122289.62 | 0.1841 | 0.0366 | | |
| Mercury | -78961-08-11 02:52 J | -27118859.47 | -27118859.38 | -27118859.29 | 0.1850 | 0.1167 | | |
| Mercury | -78960-09-19 14:08 J | -27118454.93 | -27118454.91 | -27118454.89 | 0.1719 | 0.1701 | | |
| Earth | -78951-06-16 11:01 J | -27115263.09 | -27115263.04 | -27115262.98 | 0.1604 | 0.1533 | | |
| Mercury | -78950-02-09 14:52 J | -27115025.02 | -27115024.88 | -27115024.73 | 0.1711 | 0.0689 | | |

Mercury -78950-12-08 01:25 J -27114723.52 -27114723.44 -27114723.36 0.1824 0.1325

Venus -78949-11-15 18:28 J -27114379.90 -27114379.73 -27114379.56 0.1650 0.0454

Mercury -78941-07-01 15:20 J -27111595.01 -27111594.86 -27111594.70 0.1703 0.0336

Mercury -78940-04-29 09:49 J -27111293.20 -27111293.09 -27111292.98 0.1833 0.0534

Mercury -78932-11-21 16:04 J -27108164.93 -27108164.83 -27108164.73 0.1695 0.1332

Mercury -78931-09-19 18:13 J -27107862.85 -27107862.74 -27107862.62 0.1842 0.0272

Mercury -78921-02-10 02:52 J -27104432.47 -27104432.38 -27104432.28 0.1850 0.1062

Mercury -78911-08-10 15:20 J -27100598.00 -27100597.86 -27100597.72 0.1711 0.0809

Venus -78910-04-29 04:32 J -27100336.48 -27100336.31 -27100336.15 0.1896 0.0314

Mercury -78910-06-08 01:25 J -27100296.51 -27100296.44 -27100296.36 0.1824 0.1432

Earth -78904-06-10 18:28 J -27098101.92 -27098101.73 -27098101.55 0.1616 0.0039

Moon -78904-06-10 22:04 J -27098101.78 -27098101.58 -27098101.39 0.1616 0.0026 *

Mercury -78902-12-31 16:18 J -27097167.98 -27097167.82 -27097167.66 0.1703 0.0194

Mercury -78901-10-28 09:49 J -27096866.20 -27096866.09 -27096865.98 0.1832 0.0634

Mercury -78892-05-22 16:47 J -27093737.92 -27093737.80 -27093737.69 0.1695 0.1203

Mercury -78891-03-20 18:28 J -27093435.85 -27093435.73 -27093435.62 0.1841 0.0167

Venus -78883-09-13 04:47 J -27090337.48 -27090337.30 -27090337.12 0.1646 0.0146

Mercury -78882-08-11 02:52 J -27090005.48 -27090005.38 -27090005.28 0.1850 0.0970

Mercury -78873-12-31 11:16 J -27086575.06 -27086575.03 -27086575.00 0.1859 0.1784

Mercury -78871-02-08 16:04 J -27086170.96 -27086170.83 -27086170.69 0.1711 0.0955

Mercury -78871-12-07 01:25 J -27085869.50 -27085869.44 -27085869.38 0.1824 0.1519

Earth -78864-12-13 22:04 J -27083305.72 -27083305.58 -27083305.45 0.1921 0.1462

Moon -78864-12-14 06:56 J -27083305.40 -27083305.21 -27083305.03 0.1922 0.0990

Mercury -78862-07-01 16:32 J -27082740.97 -27082740.81 -27082740.65 0.1703 0.0075

Mercury -78861-04-28 10:04 J -27082439.19 -27082439.08 -27082438.98 0.1833 0.0737

Mercury -78853-11-20 17:16 J -27079310.90 -27079310.78 -27079310.65 0.1695 0.1070

Mercury -78852-09-18 18:28 J -27079008.85 -27079008.73 -27079008.61 0.1841 0.0066

Venus -78844-02-23 09:35 J -27076294.27 -27076294.10 -27076293.94 0.1901 0.0387

Mercury -78842-02-09 02:52 J -27075578.48 -27075578.38 -27075578.28 0.1850 0.0875

Mercury -78833-07-01 11:30 J -27072148.07 -27072148.02 -27072147.98 0.1858 0.1681

Mercury -78832-08-09 16:47 J -27071743.93 -27071743.80 -27071743.68 0.1711 0.1087

Mercury -78831-06-07 01:25 J -27071442.49 -27071442.44 -27071442.38 0.1824 0.1626

Earth -78825-06-12 19:25 J -27069244.86 -27069244.69 -27069244.52 0.1613 0.0651

Moon -78825-06-13 01:40 J -27069244.59 -27069244.43 -27069244.26 0.1613 0.0778 *

Mercury -78823-12-30 17:30 J -27068313.93 -27068313.77 -27068313.61 0.1703 0.0080

Mercury -78822-10-28 10:04 J -27068012.19 -27068012.08 -27068011.98 0.1832 0.0834

Venus -78817-07-10 14:52 J -27066295.06 -27066294.88 -27066294.70 0.1643 0.0175

Mercury -78813-05-21 17:59 J -27064883.88 -27064883.75 -27064883.61 0.1695 0.0933

Mercury -78812-03-19 18:28 J -27064581.85 -27064581.73 -27064581.61 0.1841 0.0042

Mercury -78803-08-10 03:06 J -27061151.48 -27061151.37 -27061151.27 0.1850 0.0769

Mercury -78794-12-31 11:30 J -27057721.08 -27057721.02 -27057720.96 0.1858 0.1587

Mercury -78792-02-07 17:16 J -27057316.89 -27057316.78 -27057316.67 0.1712 0.1215

Mercury -78792-12-06 01:40 J -27057015.46 -27057015.43 -27057015.39 0.1823 0.1729

Earth -78785-12-17 19:54 J -27054446.86 -27054446.67 -27054446.47 0.1928 0.0676

Moon -78785-12-18 01:54 J -27054446.61 -27054446.42 -27054446.23 0.1928 0.0396 *

Mercury -78783-06-30 17:59 J -27053886.91 -27053886.75 -27053886.59 0.1704 0.0211

Mercury -78782-04-28 10:04 J -27053585.18 -27053585.08 -27053584.98 0.1832 0.0929

Venus -78779-12-21 14:52 J -27052252.02 -27052251.88 -27052251.74 0.1905 0.1073

Earth -78778-06-08 00:28 J -27052083.62 -27052083.48 -27052083.33 0.1626 0.0981

Moon -78778-06-08 03:35 J -27052083.50 -27052083.35 -27052083.20 0.1626 0.0879 *

Mercury -78774-11-20 18:42 J -27050456.86 -27050456.72 -27050456.58 0.1696 0.0799

Mercury -78773-09-17 18:28 J -27050154.85 -27050154.73 -27050154.61 0.1841 0.0141

Mercury -78763-02-08 02:52 J -27046724.49 -27046724.38 -27046724.27 0.1850 0.0681

Mercury -78754-07-01 11:30 J -27043294.09 -27043294.02 -27043293.95 0.1858 0.1488

Mercury -78753-08-08 17:59 J -27042889.85 -27042889.75 -27042889.65 0.1712 0.1356

Mercury -78752-06-06 01:40 J -27042588.43 -27042588.43 -27042588.43 0.1823 0.1820

Venus -78751-05-08 01:25 J -27042252.62 -27042252.44 -27042252.27 0.1640 0.0473

Earth -78746-06-15 19:11 J -27040387.80 -27040387.70 -27040387.59 0.1610 0.1308

Moon -78746-06-15 21:06 J -27040387.74 -27040387.62 -27040387.50 0.1610 0.1165 *

Mercury -78744-12-29 18:28 J -27039459.88 -27039459.73 -27039459.57 0.1704 0.0340

Mercury -78743-10-27 10:04 J -27039158.17 -27039158.08 -27039157.98 0.1832 0.1036

Mercury -78734-05-21 19:11 J -27036029.85 -27036029.70 -27036029.55 0.1696 0.0670

Mercury -78733-03-18 18:28 J -27035727.84 -27035727.73 -27035727.61 0.1841 0.0243

Mercury -78725-10-10 20:08 J -27032599.69 -27032599.66 -27032599.64 0.1688 0.1657

Mercury -78724-08-09 03:06 J -27032297.49 -27032297.37 -27032297.26 0.1849 0.0579

Mercury -78715-12-30 11:30 J -27028867.10 -27028867.02 -27028866.94 0.1858 0.1390

Mercury -78713-02-07 18:42 J -27028462.80 -27028462.72 -27028462.65 0.1712 0.1491

Venus -78713-10-17 19:40 J -27028209.74 -27028209.68 -27028209.62 0.1909 0.1786

Mercury -78704-06-29 19:11 J -27025032.85 -27025032.70 -27025032.54 0.1704 0.0473

Mercury -78703-04-27 10:04 J -27024731.17 -27024731.08 -27024730.99 0.1832 0.1128

Moon -78699-06-09 21:35 J -27023226.78 -27023226.60 -27023226.43 0.1623 0.0331

Earth -78699-06-10 01:11 J -27023226.64 -27023226.45 -27023226.27 0.1623 0.0297 *

Mercury -78695-11-19 19:54 J -27021602.82 -27021602.67 -27021602.51 0.1696 0.0528

Mercury -78694-09-17 18:28 J -27021300.84 -27021300.73 -27021300.61 0.1841 0.0335

Venus -78685-03-04 11:44 J -27018210.17 -27018210.01 -27018209.85 0.1637 0.0774

Mercury -78685-04-10 20:23 J -27018172.71 -27018172.65 -27018172.58 0.1688 0.1538

Mercury -78684-02-07 03:06 J -27017870.48 -27017870.37 -27017870.26 0.1849 0.0472

Mercury -78675-06-30 11:30 J -27014440.10 -27014440.02 -27014439.94 0.1858 0.1294

Mercury -78674-08-08 18:56 J -27014035.76 -27014035.71 -27014035.66 0.1712 0.1612

Mercury -78665-12-28 19:54 J -27010605.82 -27010605.67 -27010605.52 0.1704 0.0619

Mercury -78664-10-26 10:04 J -27010304.16 -27010304.08 -27010303.99 0.1832 0.1231

Mercury -78655-05-20 20:37 J -27007175.80 -27007175.64 -27007175.49 0.1696 0.0400

Mercury -78654-03-18 18:42 J -27006873.84 -27006873.72 -27006873.61 0.1840 0.0434

Venus -78653-03-03 11:44 J -27006523.08 -27006523.01 -27006522.94 0.1647 0.1497

Mercury -78646-10-10 21:20 J -27003745.70 -27003745.61 -27003745.52 0.1688 0.1392

Mercury -78645-08-08 03:06 J -27003443.49 -27003443.37 -27003443.26 0.1849 0.0384

Mercury -78636-12-29 11:30 J -27000013.11 -27000013.02 -27000012.93 0.1858 0.1197

Mercury -78625-06-28 20:23 J -26996178.80 -26996178.65 -26996178.51 0.1704 0.0736

Mercury -78624-04-26 10:18 J -26995877.15 -26995877.07 -26995876.99 0.1832 0.1334

Moon -78620-06-11 19:40 J -26994369.86 -26994369.68 -26994369.49 0.1620 0.0255

Earth -78620-06-12 02:08 J -26994369.59 -26994369.41 -26994369.23 0.1620 0.0387 *
 Venus -78620-12-30 22:32 J -26994167.69 -26994167.56 -26994167.42 0.1635 0.1056
 Mercury -78616-11-18 21:06 J -26992748.78 -26992748.62 -26992748.46 0.1696 0.0267
 Venus -78615-08-14 17:16 J -26992479.90 -26992479.78 -26992479.66 0.1899 0.1311
 Mercury -78615-09-16 18:42 J -26992446.83 -26992446.72 -26992446.61 0.1840 0.0532
 Mercury -78606-04-10 21:49 J -26989318.69 -26989318.59 -26989318.48 0.1689 0.1261
 Mercury -78605-02-07 03:06 J -26989016.49 -26989016.37 -26989016.26 0.1849 0.0286
 Mercury -78596-06-29 11:30 J -26985586.11 -26985586.02 -26985585.92 0.1857 0.1096
 Venus -78588-12-29 22:04 J -26982480.71 -26982480.58 -26982480.46 0.1644 0.1183
 Mercury -78586-12-28 21:06 J -26981751.75 -26981751.62 -26981751.48 0.1704 0.0882
 Mercury -78585-10-25 10:18 J -26981450.14 -26981450.07 -26981450.00 0.1831 0.1430
 Moon -78580-12-12 07:54 J -26979576.19 -26979576.17 -26979576.15 0.1911 0.1900
 Mercury -78576-05-19 21:49 J -26978321.75 -26978321.59 -26978321.43 0.1696 0.0132
 Mercury -78575-03-17 18:42 J -26978019.83 -26978019.72 -26978019.61 0.1840 0.0626
 Moon -78573-06-06 01:54 J -26977208.52 -26977208.42 -26977208.33 0.1635 0.1422
 Earth -78573-06-06 05:16 J -26977208.39 -26977208.28 -26977208.17 0.1635 0.1299 *
 Mercury -78567-10-09 22:18 J -26974891.69 -26974891.57 -26974891.45 0.1689 0.1135
 Mercury -78566-08-08 03:20 J -26974589.48 -26974589.36 -26974589.25 0.1849 0.0187
 Mercury -78557-12-28 11:30 J -26971159.12 -26971159.02 -26971158.92 0.1857 0.1002
 Venus -78554-10-28 09:06 J -26970125.21 -26970125.12 -26970125.02 0.1632 0.1347
 Venus -78549-06-10 22:04 J -26968437.74 -26968437.58 -26968437.42 0.1904 0.0618
 Mercury -78547-05-20 19:54 J -26967728.69 -26967728.67 -26967728.64 0.1866 0.1826
 Mercury -78546-06-28 21:49 J -26967324.72 -26967324.59 -26967324.47 0.1705 0.1014
 Mercury -78545-04-25 10:18 J -26967023.14 -26967023.07 -26967023.01 0.1831 0.1525
 Moon -78541-06-14 02:08 J -26965512.55 -26965512.41 -26965512.27 0.1616 0.1165
 Earth -78541-06-14 03:06 J -26965512.51 -26965512.37 -26965512.23 0.1616 0.1065 *
 Mercury -78537-11-17 22:32 J -26963894.73 -26963894.56 -26963894.40 0.1697 0.0036
 Mercury -78536-09-15 18:42 J -26963592.83 -26963592.72 -26963592.61 0.1840 0.0731
 Mercury -78527-04-09 23:16 J -26960464.66 -26960464.53 -26960464.40 0.1689 0.0992
 Mercury -78526-02-06 03:06 J -26960162.49 -26960162.37 -26960162.25 0.1849 0.0088

Venus -78522-10-27 08:23 J -26958438.30 -26958438.15 -26958438.00 0.1641 0.0872

Mercury -78517-06-28 11:30 J -26956732.12 -26956732.02 -26956731.91 0.1858 0.0903

Mercury -78508-11-18 20:08 J -26953301.70 -26953301.66 -26953301.62 0.1866 0.1725

Mercury -78507-12-27 22:18 J -26952897.69 -26952897.57 -26952897.46 0.1705 0.1141

Mercury -78506-10-25 10:18 J -26952596.12 -26952596.07 -26952596.02 0.1831 0.1634

Earth -78501-12-16 14:08 J -26950717.12 -26950716.91 -26950716.70 0.1919 0.0148

Moon -78501-12-16 15:06 J -26950717.10 -26950716.87 -26950716.64 0.1919 0.0040 *

Mercury -78497-05-18 23:01 J -26949467.70 -26949467.54 -26949467.38 0.1697 0.0137

Mercury -78496-03-16 18:42 J -26949165.82 -26949165.72 -26949165.61 0.1840 0.0829

Earth -78494-06-09 07:11 J -26948351.37 -26948351.20 -26948351.02 0.1631 0.0593

Moon -78494-06-09 11:01 J -26948351.22 -26948351.04 -26948350.85 0.1630 0.0516 *

Venus -78488-08-24 20:08 J -26946082.67 -26946082.66 -26946082.65 0.1629 0.1623

Mercury -78488-10-08 23:44 J -26946037.65 -26946037.51 -26946037.37 0.1689 0.0858

Mercury -78487-08-07 03:06 J -26945735.48 -26945735.37 -26945735.25 0.1849 0.0059

Venus -78483-04-08 03:20 J -26944395.53 -26944395.36 -26944395.20 0.1908 0.0092

Mercury -78478-12-28 11:30 J -26942305.12 -26942305.02 -26942304.91 0.1857 0.0807

Mercury -78468-05-19 19:54 J -26938874.72 -26938874.67 -26938874.61 0.1866 0.1636

Mercury -78467-06-27 22:47 J -26938470.65 -26938470.55 -26938470.44 0.1705 0.1278

Mercury -78466-04-25 10:18 J -26938169.11 -26938169.07 -26938169.03 0.1831 0.1726

Mercury -78458-11-17 23:44 J -26935040.67 -26935040.51 -26935040.35 0.1697 0.0276

Mercury -78457-09-14 18:42 J -26934738.82 -26934738.72 -26934738.62 0.1840 0.0926

Venus -78456-08-23 18:56 J -26934395.88 -26934395.71 -26934395.55 0.1638 0.0573

Mercury -78448-04-09 00:13 J -26931610.64 -26931610.49 -26931610.34 0.1689 0.0737

Mercury -78447-02-05 03:20 J -26931308.48 -26931308.36 -26931308.25 0.1848 0.0127

Mercury -78438-06-28 11:44 J -26927878.12 -26927878.01 -26927877.91 0.1857 0.0711

Mercury -78429-11-17 20:08 J -26924447.73 -26924447.66 -26924447.60 0.1866 0.1532

Mercury -78428-12-26 23:30 J -26924043.60 -26924043.52 -26924043.43 0.1705 0.1421

Mercury -78427-10-24 10:18 J -26923742.07 -26923742.07 -26923742.06 0.1831 0.1827

Mercury -78418-05-19 00:13 J -26920613.65 -26920613.49 -26920613.33 0.1697 0.0404

Venus -78417-02-03 07:54 J -26920353.32 -26920353.17 -26920353.02 0.1913 0.0803

Mercury -78417-03-15 18:42 J -26920311.81 -26920311.72 -26920311.62 0.1840 0.1030

Earth -78415-06-11 07:54 J -26919494.36 -26919494.17 -26919493.98 0.1627 0.0101

Moon -78415-06-11 13:40 J -26919494.11 -26919493.93 -26919493.75 0.1627 0.0137 *

Mercury -78409-10-08 01:11 J -26917183.61 -26917183.45 -26917183.30 0.1689 0.0593

Mercury -78408-08-06 03:06 J -26916881.48 -26916881.37 -26916881.25 0.1848 0.0217

Mercury -78399-02-28 01:40 J -26913753.48 -26913753.43 -26913753.38 0.1682 0.1590

Mercury -78399-12-27 11:44 J -26913451.12 -26913451.01 -26913450.90 0.1857 0.0608

Venus -78390-06-21 05:01 J -26910353.47 -26910353.29 -26910353.11 0.1635 0.0255

Mercury -78389-05-18 20:08 J -26910020.73 -26910020.66 -26910020.59 0.1865 0.1430

Mercury -78388-06-26 23:59 J -26909616.57 -26909616.50 -26909616.44 0.1705 0.1536

Mercury -78379-11-17 00:56 J -26906186.61 -26906186.46 -26906186.31 0.1697 0.0541

Mercury -78378-09-14 18:56 J -26905884.81 -26905884.71 -26905884.62 0.1839 0.1127

Mercury -78369-04-08 01:40 J -26902756.59 -26902756.43 -26902756.27 0.1689 0.0458

Mercury -78368-02-04 03:20 J -26902454.48 -26902454.36 -26902454.25 0.1848 0.0317

Earth -78368-06-05 09:20 J -26902333.11 -26902333.11 -26902333.11 0.1643 0.1643

Moon -78368-06-05 12:13 J -26902333.05 -26902332.99 -26902332.92 0.1643 0.1502

Mercury -78360-08-29 02:23 J -26899326.48 -26899326.40 -26899326.32 0.1682 0.1453

Mercury -78359-06-27 11:44 J -26899024.12 -26899024.01 -26899023.90 0.1857 0.0507

Venus -78352-11-30 12:28 J -26896311.08 -26896310.98 -26896310.88 0.1917 0.1535

Mercury -78350-11-17 19:54 J -26895593.74 -26895593.67 -26895593.59 0.1866 0.1346

Mercury -78349-12-26 00:42 J -26895189.49 -26895189.47 -26895189.45 0.1705 0.1682

Mercury -78339-05-18 01:25 J -26891759.59 -26891759.44 -26891759.29 0.1697 0.0672

Mercury -78338-03-15 18:56 J -26891457.80 -26891457.71 -26891457.63 0.1840 0.1224

Moon -78336-06-13 08:23 J -26890637.30 -26890637.15 -26890636.99 0.1624 0.0742

Earth -78336-06-13 08:52 J -26890637.29 -26890637.13 -26890636.97 0.1624 0.0795 *

Mercury -78330-10-08 02:08 J -26888329.57 -26888329.41 -26888329.25 0.1690 0.0332

Mercury -78329-08-05 03:20 J -26888027.47 -26888027.36 -26888027.24 0.1848 0.0421

Venus -78324-04-17 15:35 J -26886311.03 -26886310.85 -26886310.67 0.1632 0.0046

Mercury -78320-02-27 03:06 J -26884899.47 -26884899.37 -26884899.27 0.1682 0.1317

Mercury -78320-12-26 11:44 J -26884597.13 -26884597.01 -26884596.90 0.1857 0.0416

Mercury -78310-05-18 20:08 J -26881166.75 -26881166.66 -26881166.58 0.1865 0.1239

Mercury -78300-11-16 02:08 J -26877332.55 -26877332.41 -26877332.27 0.1697 0.0809

Mercury -78299-09-13 18:56 J -26877030.79 -26877030.71 -26877030.63 0.1839 0.1329

Mercury -78290-04-08 02:52 J -26873902.54 -26873902.38 -26873902.22 0.1690 0.0192

Mercury -78289-02-04 03:20 J -26873600.48 -26873600.36 -26873600.25 0.1848 0.0509

Moon -78289-06-07 06:28 J -26873476.36 -26873476.23 -26873476.10 0.1639 0.1062

Earth -78289-06-07 11:01 J -26873476.20 -26873476.04 -26873475.89 0.1639 0.0924 *

Mercury -78281-08-28 03:35 J -26870472.47 -26870472.35 -26870472.24 0.1682 0.1192

Mercury -78280-06-26 11:44 J -26870170.13 -26870170.01 -26870169.90 0.1857 0.0309

Mercury -78271-11-16 20:08 J -26866739.75 -26866739.66 -26866739.57 0.1865 0.1138

Mercury -78260-05-17 02:37 J -26862905.52 -26862905.39 -26862905.25 0.1698 0.0942

Mercury -78259-03-14 18:56 J -26862603.78 -26862603.71 -26862603.64 0.1839 0.1424

Venus -78258-02-13 02:23 J -26862268.58 -26862268.40 -26862268.22 0.1630 0.0329

Moon -78257-06-15 04:04 J -26861780.35 -26861780.33 -26861780.30 0.1620 0.1601

Earth -78257-06-15 10:04 J -26861780.15 -26861780.08 -26861780.00 0.1620 0.1481

Venus -78254-09-27 09:49 J -26860581.18 -26860581.09 -26860581.00 0.1907 0.1587

Mercury -78251-10-07 03:35 J -26859475.51 -26859475.35 -26859475.19 0.1690 0.0060

Mercury -78250-08-05 03:20 J -26859173.47 -26859173.36 -26859173.25 0.1848 0.0610

Mercury -78241-02-27 04:18 J -26856045.45 -26856045.32 -26856045.20 0.1682 0.1055

Mercury -78241-12-25 11:44 J -26855743.13 -26855743.01 -26855742.89 0.1856 0.0213

Mercury -78231-05-17 20:08 J -26852312.76 -26852312.66 -26852312.57 0.1865 0.1049

Mercury -78221-11-15 03:20 J -26848478.49 -26848478.36 -26848478.24 0.1698 0.1075

Mercury -78220-09-12 18:56 J -26848176.77 -26848176.71 -26848176.65 0.1839 0.1524

Moon -78217-12-15 01:11 J -26846987.63 -26846987.45 -26846987.26 0.1909 0.0490

Earth -78217-12-15 09:35 J -26846987.30 -26846987.10 -26846986.90 0.1910 0.0355 *

Mercury -78211-04-07 03:49 J -26845048.50 -26845048.34 -26845048.17 0.1690 0.0082

Mercury -78210-02-03 03:20 J -26844746.47 -26844746.36 -26844746.25 0.1848 0.0717

Moon -78210-06-10 07:11 J -26844619.39 -26844619.20 -26844619.01 0.1635 0.0196

Earth -78210-06-10 12:56 J -26844619.14 -26844618.96 -26844618.77 0.1635 0.0214 *

Mercury -78202-08-28 05:01 J -26841618.43 -26841618.29 -26841618.16 0.1683 0.0916

Mercury -78201-06-25 11:44 J -26841316.13 -26841316.01 -26841315.89 0.1856 0.0114

Venus -78193-12-10 13:11 J -26838226.11 -26838225.95 -26838225.78 0.1627 0.0609

Mercury -78192-11-15 20:08 J -26837885.76 -26837885.66 -26837885.56 0.1865 0.0943

Venus -78188-07-24 15:20 J -26836539.01 -26836538.86 -26836538.71 0.1911 0.0908

Mercury -78182-04-08 04:18 J -26834455.35 -26834455.32 -26834455.28 0.1873 0.1794

Mercury -78181-05-16 03:49 J -26834051.45 -26834051.34 -26834051.23 0.1698 0.1205

Mercury -78180-03-13 18:56 J -26833749.76 -26833749.71 -26833749.66 0.1839 0.1625

Mercury -78172-10-06 04:47 J -26830621.46 -26830621.30 -26830621.14 0.1690 0.0212

Mercury -78171-08-04 03:20 J -26830319.47 -26830319.36 -26830319.25 0.1847 0.0807

Mercury -78162-02-26 05:30 J -26827191.42 -26827191.27 -26827191.13 0.1682 0.0792

Mercury -78162-12-25 11:44 J -26826889.13 -26826889.01 -26826888.89 0.1856 0.0033

Venus -78161-12-09 11:44 J -26826539.04 -26826539.01 -26826538.97 0.1636 0.1595

Mercury -78152-05-16 20:08 J -26823458.76 -26823458.66 -26823458.55 0.1865 0.0845

Mercury -78143-10-07 04:32 J -26820028.36 -26820028.31 -26820028.27 0.1873 0.1691

Mercury -78142-11-15 04:32 J -26819624.41 -26819624.31 -26819624.21 0.1698 0.1345

Mercury -78141-09-11 18:56 J -26819322.74 -26819322.71 -26819322.67 0.1838 0.1727

Moon -78138-12-19 20:52 J -26818128.75 -26818128.63 -26818128.50 0.1917 0.1580

Earth -78138-12-20 04:32 J -26818128.39 -26818128.31 -26818128.22 0.1917 0.1726

Mercury -78132-04-06 05:16 J -26816194.43 -26816194.28 -26816194.12 0.1690 0.0347

Mercury -78131-02-02 03:20 J -26815892.46 -26815892.36 -26815892.26 0.1847 0.0911

Earth -78131-06-12 14:08 J -26815762.08 -26815761.91 -26815761.73 0.1631 0.0500

Moon -78131-06-12 14:23 J -26815762.08 -26815761.90 -26815761.71 0.1631 0.0533 *

Venus -78127-10-07 23:59 J -26814183.64 -26814183.50 -26814183.35 0.1624 0.0894

Mercury -78123-08-27 06:13 J -26812764.39 -26812764.24 -26812764.09 0.1683 0.0654

Venus -78122-05-21 19:40 J -26812496.85 -26812496.68 -26812496.51 0.1916 0.0174

Mercury -78122-06-25 11:44 J -26812462.12 -26812462.01 -26812461.89 0.1856 0.0097

Mercury -78113-01-17 06:56 J -26809334.24 -26809334.21 -26809334.18 0.1675 0.1639

Mercury -78113-11-14 20:08 J -26809031.77 -26809031.66 -26809031.55 0.1865 0.0753

Mercury -78103-04-07 04:32 J -26805601.37 -26805601.31 -26805601.25 0.1873 0.1586

Mercury -78102-05-16 05:01 J -26805197.37 -26805197.29 -26805197.21 0.1698 0.1474

Mercury -78101-03-12 18:56 J -26804895.72 -26804895.71 -26804895.70 0.1839 0.1825
 Venus -78095-10-06 22:32 J -26802496.67 -26802496.56 -26802496.46 0.1633 0.1295
 Mercury -78093-10-05 05:44 J -26801767.41 -26801767.26 -26801767.10 0.1691 0.0472
 Mercury -78092-08-03 03:35 J -26801465.45 -26801465.35 -26801465.25 0.1847 0.1018
 Earth -78084-06-06 14:08 J -26798601.02 -26798600.91 -26798600.79 0.1648 0.1288
 Moon -78084-06-06 19:40 J -26798600.82 -26798600.68 -26798600.53 0.1648 0.1082 *
 Mercury -78083-02-25 06:42 J -26798337.37 -26798337.22 -26798337.06 0.1683 0.0518
 Mercury -78083-12-24 11:44 J -26798035.13 -26798035.01 -26798034.89 0.1856 0.0181
 Mercury -78074-07-18 07:25 J -26794907.26 -26794907.19 -26794907.12 0.1675 0.1510
 Mercury -78073-05-15 20:08 J -26794604.77 -26794604.66 -26794604.55 0.1864 0.0649
 Mercury -78064-10-06 04:32 J -26791174.38 -26791174.31 -26791174.24 0.1873 0.1494
 Mercury -78063-11-14 05:44 J -26790770.31 -26790770.26 -26790770.21 0.1698 0.1611
 Venus -78061-08-04 11:16 J -26790141.15 -26790141.03 -26790140.90 0.1622 0.1160
 Venus -78056-03-18 00:13 J -26788454.65 -26788454.49 -26788454.32 0.1920 0.0564
 Mercury -78053-04-05 06:28 J -26787340.38 -26787340.23 -26787340.07 0.1691 0.0613
 Mercury -78052-02-01 03:20 J -26787038.45 -26787038.36 -26787038.26 0.1847 0.1105
 Earth -78052-06-14 15:06 J -26786904.99 -26786904.87 -26786904.74 0.1628 0.1203
 Moon -78052-06-14 21:06 J -26786904.75 -26786904.62 -26786904.49 0.1628 0.1138 *
 Mercury -78044-08-26 07:11 J -26783910.36 -26783910.20 -26783910.04 0.1683 0.0392
 Mercury -78043-06-24 11:59 J -26783608.12 -26783608.00 -26783607.89 0.1856 0.0296
 Mercury -78034-01-16 08:08 J -26780480.25 -26780480.16 -26780480.07 0.1676 0.1375
 Mercury -78034-11-14 20:08 J -26780177.77 -26780177.66 -26780177.54 0.1864 0.0551
 Venus -78029-08-03 09:20 J -26778454.25 -26778454.11 -26778453.97 0.1630 0.1004
 Mercury -78024-04-06 04:32 J -26776747.39 -26776747.31 -26776747.24 0.1873 0.1398
 Mercury -78014-10-05 07:11 J -26772913.34 -26772913.20 -26772913.05 0.1691 0.0746
 Mercury -78013-08-02 03:35 J -26772611.44 -26772611.35 -26772611.27 0.1847 0.1213
 Earth -78005-06-08 16:04 J -26769744.00 -26769743.83 -26769743.65 0.1644 0.0549
 Moon -78005-06-08 22:04 J -26769743.75 -26769743.58 -26769743.41 0.1644 0.0593 *
 Mercury -78004-02-24 08:08 J -26769483.33 -26769483.16 -26769483.00 0.1683 0.0254
 Mercury -78004-12-23 11:44 J -26769181.12 -26769181.01 -26769180.89 0.1855 0.0391

78TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 78th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Venus | -77995-06-01 22:04 J | -26766098.65 | -26766098.58 | -26766098.50 | 0.1619 | 0.1442 | | |
| Mercury | -77995-07-17 08:37 J | -26766053.24 | -26766053.14 | -26766053.03 | 0.1676 | 0.1242 | | |
| Mercury | -77994-05-15 20:08 J | -26765750.77 | -26765750.66 | -26765750.55 | 0.1864 | 0.0455 | | |
| Venus | -77990-01-13 04:32 J | -26764412.43 | -26764412.31 | -26764412.19 | 0.1924 | 0.1322 | | |
| Mercury | -77985-10-05 04:32 J | -26762320.39 | -26762320.31 | -26762320.22 | 0.1873 | 0.1290 | | |
| Mercury | -77974-04-05 07:40 J | -26758486.32 | -26758486.18 | -26758486.04 | 0.1691 | 0.0871 | | |
| Mercury | -77973-02-01 03:35 J | -26758184.43 | -26758184.35 | -26758184.27 | 0.1847 | 0.1317 | | |
| Mercury | -77965-08-25 08:37 J | -26755056.30 | -26755056.14 | -26755055.97 | 0.1683 | 0.0118 | | |
| Mercury | -77964-06-23 11:59 J | -26754754.12 | -26754754.00 | -26754753.89 | 0.1855 | 0.0489 | | |
| Venus | -77963-05-31 19:25 J | -26754411.85 | -26754411.69 | -26754411.52 | 0.1628 | 0.0694 | | |
| Mercury | -77955-01-15 09:20 J | -26751626.23 | -26751626.11 | -26751625.98 | 0.1676 | 0.1107 | | |
| Mercury | -77955-11-13 20:08 J | -26751323.77 | -26751323.66 | -26751323.54 | 0.1864 | 0.0356 | | |
| Mercury | -77945-04-05 04:32 J | -26747893.40 | -26747893.31 | -26747893.22 | 0.1873 | 0.1202 | | |
| Mercury | -77935-10-04 08:23 J | -26744059.27 | -26744059.15 | -26744059.02 | 0.1691 | 0.1018 | | |
| Mercury | -77934-08-02 03:35 J | -26743757.43 | -26743757.35 | -26743757.28 | 0.1847 | 0.1411 | | |
| Earth | -77933-12-14 06:56 J | -26743257.39 | -26743257.21 | -26743257.02 | 0.1899 | 0.0807 | | |
| Moon | -77933-12-14 16:47 J | -26743257.00 | -26743256.80 | -26743256.61 | 0.1900 | 0.0481 | | |
| Moon | -77926-06-11 17:30 J | -26740886.94 | -26740886.77 | -26740886.59 | 0.1640 | 0.0181 | | |
| Earth | -77926-06-11 18:13 J | -26740886.92 | -26740886.74 | -26740886.55 | 0.1640 | 0.0174 | * | |

Mercury -77925-02-24 09:06 J -26740629.28 -26740629.12 -26740628.96 0.1683 0.0020
 Mercury -77925-12-22 11:59 J -26740327.11 -26740327.00 -26740326.89 0.1856 0.0589
 Mercury -77916-07-16 09:49 J -26737199.22 -26737199.09 -26737198.95 0.1676 0.0980
 Mercury -77915-05-14 20:23 J -26736896.77 -26736896.65 -26736896.54 0.1864 0.0258
 Mercury -77906-10-05 04:32 J -26733466.40 -26733466.31 -26733466.21 0.1873 0.1097
 Venus -77897-03-28 06:42 J -26730369.39 -26730369.22 -26730369.05 0.1625 0.0421
 Mercury -77895-04-04 09:06 J -26729632.24 -26729632.12 -26729632.00 0.1691 0.1148
 Mercury -77894-01-31 03:35 J -26729330.42 -26729330.35 -26729330.28 0.1847 0.1514
 Venus -77893-11-09 02:37 J -26728682.42 -26728682.39 -26728682.36 0.1915 0.1872
 Mercury -77886-08-25 09:49 J -26726202.25 -26726202.09 -26726201.92 0.1684 0.0153
 Mercury -77885-06-22 11:59 J -26725900.11 -26725900.00 -26725899.89 0.1855 0.0687
 Mercury -77876-01-14 10:47 J -26722772.19 -26722772.05 -26722771.91 0.1676 0.0836
 Mercury -77876-11-12 20:08 J -26722469.77 -26722469.66 -26722469.54 0.1864 0.0169
 Mercury -77866-04-05 04:32 J -26719039.40 -26719039.31 -26719039.21 0.1872 0.0995
 Mercury -77857-08-25 12:56 J -26715608.98 -26715608.96 -26715608.94 0.1880 0.1851
 Mercury -77856-10-03 09:35 J -26715205.21 -26715205.10 -26715205.00 0.1692 0.1276
 Mercury -77855-08-01 03:35 J -26714903.40 -26714903.35 -26714903.29 0.1846 0.1622
 Moon -77854-12-18 22:04 J -26714398.73 -26714398.58 -26714398.42 0.1907 0.1047
 Earth -77854-12-19 00:13 J -26714398.65 -26714398.49 -26714398.33 0.1907 0.1208 *
 Moon -77847-06-13 13:54 J -26712030.07 -26712029.92 -26712029.76 0.1636 0.0899
 Earth -77847-06-13 20:08 J -26712029.81 -26712029.66 -26712029.50 0.1636 0.0900 *
 Mercury -77846-02-23 10:32 J -26711775.22 -26711775.06 -26711774.90 0.1684 0.0292
 Mercury -77846-12-22 11:59 J -26711473.11 -26711473.00 -26711472.90 0.1855 0.0785
 Mercury -77837-07-15 11:16 J -26708345.18 -26708345.03 -26708344.88 0.1676 0.0706
 Mercury -77836-05-13 20:23 J -26708042.77 -26708042.65 -26708042.54 0.1864 0.0064
 Venus -77831-01-23 17:30 J -26706326.95 -26706326.77 -26706326.59 0.1622 0.0132
 Venus -77827-09-06 07:11 J -26704640.34 -26704640.20 -26704640.07 0.1919 0.1141
 Mercury -77827-10-04 04:32 J -26704612.41 -26704612.31 -26704612.21 0.1872 0.0901
 Mercury -77817-02-24 12:56 J -26701182.00 -26701181.96 -26701181.92 0.1881 0.1752
 Mercury -77816-04-03 10:18 J -26700778.16 -26700778.07 -26700777.98 0.1691 0.1417

Mercury -77815-01-30 03:35 J -26700476.39 -26700476.35 -26700476.31 0.1846 0.1711

Mercury -77807-08-24 11:01 J -26697348.20 -26697348.04 -26697347.88 0.1684 0.0416

Mercury -77806-06-22 11:59 J -26697046.10 -26697046.00 -26697045.89 0.1855 0.0898

Moon -77800-06-07 13:11 J -26694869.11 -26694868.95 -26694868.78 0.1654 0.0867

Earth -77800-06-07 18:56 J -26694868.87 -26694868.71 -26694868.56 0.1653 0.0926 *

Mercury -77797-01-14 11:59 J -26693918.15 -26693918.00 -26693917.85 0.1677 0.0568

Mercury -77797-11-11 20:23 J -26693615.77 -26693615.65 -26693615.53 0.1863 0.0053

Mercury -77788-06-05 12:42 J -26690488.02 -26690487.97 -26690487.91 0.1669 0.1550

Mercury -77787-04-04 04:32 J -26690185.41 -26690185.31 -26690185.20 0.1872 0.0801

Mercury -77778-08-25 12:56 J -26686755.01 -26686754.96 -26686754.91 0.1880 0.1650

Mercury -77777-10-02 11:01 J -26686351.10 -26686351.04 -26686350.98 0.1692 0.1554

Mercury -77776-07-31 03:49 J -26686049.36 -26686049.34 -26686049.33 0.1846 0.1822

Moon -77768-06-15 18:28 J -26683172.81 -26683172.73 -26683172.65 0.1632 0.1484

Earth -77768-06-15 21:35 J -26683172.61 -26683172.60 -26683172.58 0.1632 0.1621

Mercury -77767-02-22 11:44 J -26682921.16 -26682921.01 -26682920.85 0.1684 0.0559

Mercury -77767-12-21 11:59 J -26682619.10 -26682619.00 -26682618.90 0.1855 0.0989

Venus -77766-11-21 04:47 J -26682284.48 -26682284.30 -26682284.12 0.1620 0.0138

Venus -77761-07-03 12:13 J -26680598.16 -26680597.99 -26680597.83 0.1923 0.0427

Mercury -77758-07-15 12:28 J -26679491.14 -26679490.98 -26679490.82 0.1676 0.0439

Mercury -77757-05-12 20:23 J -26679188.77 -26679188.65 -26679188.54 0.1864 0.0157

Mercury -77749-12-04 13:25 J -26676061.03 -26676060.94 -26676060.86 0.1669 0.1420

Mercury -77748-10-03 04:47 J -26675758.41 -26675758.30 -26675758.19 0.1872 0.0690

Mercury -77738-02-23 12:56 J -26672328.02 -26672327.96 -26672327.90 0.1880 0.1554

Mercury -77737-04-02 11:30 J -26671924.04 -26671924.02 -26671924.01 0.1692 0.1681

Mercury -77728-08-23 12:28 J -26668494.13 -26668493.98 -26668493.83 0.1684 0.0695

Mercury -77727-06-21 11:59 J -26668192.09 -26668192.00 -26668191.90 0.1855 0.1091

Earth -77721-06-09 21:20 J -26666011.80 -26666011.61 -26666011.43 0.1649 0.0169

Moon -77721-06-09 23:30 J -26666011.71 -26666011.52 -26666011.32 0.1649 0.0242 *

Mercury -77718-01-13 13:11 J -26665064.11 -26665063.95 -26665063.78 0.1677 0.0301

Mercury -77718-11-11 20:23 J -26664761.77 -26664761.65 -26664761.53 0.1863 0.0255

Mercury -77709-06-04 14:08 J -26661634.01 -26661633.91 -26661633.81 0.1669 0.1279

Mercury -77708-04-03 04:32 J -26661331.42 -26661331.31 -26661331.20 0.1872 0.0604

Venus -77700-09-17 15:49 J -26658242.01 -26658241.84 -26658241.66 0.1617 0.0411

Mercury -77699-08-24 12:56 J -26657901.03 -26657900.96 -26657900.88 0.1880 0.1449

Venus -77695-04-30 16:18 J -26656555.99 -26656555.82 -26656555.66 0.1927 0.0339

Mercury -77688-02-21 12:56 J -26654067.10 -26654066.96 -26654066.82 0.1684 0.0820

Mercury -77688-12-20 12:13 J -26653765.08 -26653764.99 -26653764.90 0.1855 0.1199

Mercury -77679-07-14 13:54 J -26650637.08 -26650636.92 -26650636.76 0.1677 0.0167

Mercury -77678-05-12 20:23 J -26650334.76 -26650334.65 -26650334.53 0.1863 0.0356

Mercury -77670-12-04 14:52 J -26647207.00 -26647206.88 -26647206.76 0.1670 0.1141

Mercury -77669-10-02 04:47 J -26646904.42 -26646904.30 -26646904.19 0.1872 0.0495

Mercury -77659-02-22 12:56 J -26643474.04 -26643473.96 -26643473.88 0.1880 0.1354

Mercury -77649-08-22 13:40 J -26639640.06 -26639639.93 -26639639.80 0.1685 0.0963

Moon -77649-12-13 02:37 J -26639527.58 -26639527.39 -26639527.19 0.1888 0.0928

Earth -77649-12-13 08:08 J -26639527.32 -26639527.16 -26639527.00 0.1889 0.1186 *

Mercury -77648-06-20 12:13 J -26639338.08 -26639337.99 -26639337.91 0.1854 0.1296

Earth -77642-06-12 23:30 J -26637154.69 -26637154.52 -26637154.34 0.1645 0.0567

Moon -77642-06-13 06:13 J -26637154.41 -26637154.24 -26637154.07 0.1644 0.0630 *

Mercury -77639-01-12 14:37 J -26636210.06 -26636209.89 -26636209.73 0.1677 0.0036

Mercury -77639-11-10 20:23 J -26635907.76 -26635907.65 -26635907.53 0.1863 0.0456

Venus -77634-07-16 03:20 J -26634199.52 -26634199.36 -26634199.20 0.1615 0.0673

Mercury -77630-06-04 15:20 J -26632779.99 -26632779.86 -26632779.73 0.1670 0.1020

Venus -77629-02-25 20:37 J -26632513.78 -26632513.64 -26632513.50 0.1931 0.1103

Mercury -77629-04-02 04:47 J -26632477.41 -26632477.30 -26632477.19 0.1871 0.0390

Mercury -77620-08-23 12:56 J -26629047.04 -26629046.96 -26629046.87 0.1880 0.1253

Mercury -77609-02-21 14:23 J -26625213.02 -26625212.90 -26625212.78 0.1685 0.1103

Mercury -77609-12-19 12:13 J -26624911.07 -26624910.99 -26624910.92 0.1854 0.1397

Venus -77602-07-15 00:28 J -26622512.55 -26622512.48 -26622512.40 0.1623 0.1463

Mercury -77600-07-13 15:06 J -26621783.03 -26621782.87 -26621782.70 0.1677 0.0105

Mercury -77599-05-11 20:23 J -26621480.76 -26621480.65 -26621480.53 0.1863 0.0562

Earth -77595-06-06 19:40 J -26619993.79 -26619993.68 -26619993.58 0.1663 0.1340
 Moon -77595-06-06 23:59 J -26619993.57 -26619993.50 -26619993.42 0.1663 0.1492
 Mercury -77591-12-03 16:04 J -26618352.97 -26618352.83 -26618352.69 0.1670 0.0873
 Mercury -77590-10-02 04:47 J -26618050.42 -26618050.30 -26618050.19 0.1871 0.0300
 Mercury -77580-02-21 13:11 J -26614620.04 -26614619.95 -26614619.86 0.1880 0.1149
 Mercury -77570-08-22 14:52 J -26610785.99 -26610785.88 -26610785.77 0.1685 0.1226
 Earth -77570-12-17 23:59 J -26610668.69 -26610668.50 -26610668.31 0.1897 0.0783
 Moon -77570-12-18 08:23 J -26610668.36 -26610668.15 -26610667.94 0.1898 0.0567 *
 Mercury -77569-06-19 12:13 J -26610484.05 -26610483.99 -26610483.92 0.1854 0.1510
 Venus -77568-05-12 14:23 J -26610157.05 -26610156.90 -26610156.76 0.1612 0.0946
 Venus -77564-12-23 00:42 J -26608471.51 -26608471.47 -26608471.44 0.1935 0.1890
 Earth -77563-06-15 01:54 J -26608297.53 -26608297.42 -26608297.31 0.1641 0.1303
 Moon -77563-06-15 05:01 J -26608297.37 -26608297.29 -26608297.20 0.1640 0.1412 *
 Mercury -77560-01-11 15:49 J -26607356.00 -26607355.84 -26607355.68 0.1678 0.0246
 Mercury -77560-11-09 20:37 J -26607053.75 -26607053.64 -26607053.54 0.1863 0.0664
 Mercury -77551-06-03 16:47 J -26603925.95 -26603925.80 -26603925.65 0.1670 0.0740
 Mercury -77550-04-02 04:47 J -26603623.42 -26603623.30 -26603623.18 0.1871 0.0192
 Mercury -77541-08-22 13:11 J -26600193.05 -26600192.95 -26600192.86 0.1879 0.1048
 Venus -77536-05-11 11:01 J -26598470.16 -26598470.04 -26598469.91 0.1620 0.1168
 Mercury -77530-02-20 15:35 J -26596358.94 -26596358.85 -26596358.76 0.1685 0.1370
 Mercury -77530-12-19 12:13 J -26596057.05 -26596056.99 -26596056.93 0.1854 0.1600
 Mercury -77521-07-12 16:18 J -26592928.98 -26592928.82 -26592928.66 0.1677 0.0375
 Mercury -77520-05-10 20:23 J -26592626.75 -26592626.65 -26592626.54 0.1863 0.0764
 Moon -77516-06-08 21:06 J -26591136.79 -26591136.62 -26591136.45 0.1659 0.0468
 Earth -77516-06-08 23:16 J -26591136.71 -26591136.53 -26591136.36 0.1659 0.0561 *
 Mercury -77512-12-02 17:16 J -26589498.93 -26589498.78 -26589498.62 0.1670 0.0609
 Mercury -77511-10-01 05:01 J -26589196.41 -26589196.29 -26589196.18 0.1871 0.0100
 Venus -77502-03-10 02:08 J -26586114.53 -26586114.41 -26586114.29 0.1610 0.1199
 Mercury -77502-04-24 18:28 J -26586068.78 -26586068.73 -26586068.68 0.1663 0.1575
 Mercury -77501-02-21 13:11 J -26585766.05 -26585765.95 -26585765.85 0.1879 0.0952

Mercury -77492-07-13 21:20 J -26582335.64 -26582335.61 -26582335.58 0.1888 0.1810
 Mercury -77491-08-21 16:18 J -26581931.89 -26581931.82 -26581931.75 0.1685 0.1507
 Mercury -77490-06-19 12:13 J -26581630.03 -26581629.99 -26581629.94 0.1854 0.1705
 Mercury -77481-01-11 17:16 J -26578501.94 -26578501.78 -26578501.63 0.1678 0.0518
 Mercury -77481-11-08 20:37 J -26578199.74 -26578199.64 -26578199.54 0.1862 0.0868
 Mercury -77472-06-02 17:59 J -26575071.90 -26575071.75 -26575071.59 0.1670 0.0469
 Mercury -77471-04-01 04:47 J -26574769.42 -26574769.30 -26574769.18 0.1871 0.0010
 Venus -77470-03-08 22:47 J -26574427.70 -26574427.55 -26574427.40 0.1618 0.0905
 Venus -77466-10-19 23:30 J -26572741.63 -26572741.52 -26572741.40 0.1926 0.1409
 Mercury -77463-10-23 18:56 J -26571641.79 -26571641.71 -26571641.63 0.1663 0.1446
 Mercury -77462-08-22 13:11 J -26571339.05 -26571338.95 -26571338.85 0.1880 0.0841
 Mercury -77452-01-11 21:20 J -26567908.65 -26567908.61 -26567908.56 0.1887 0.1712
 Mercury -77451-02-19 16:47 J -26567504.84 -26567504.80 -26567504.77 0.1685 0.1634
 Mercury -77451-12-18 12:28 J -26567203.00 -26567202.98 -26567202.96 0.1854 0.1816
 Mercury -77442-07-12 17:44 J -26564074.91 -26564074.76 -26564074.61 0.1678 0.0650
 Mercury -77441-05-09 20:37 J -26563772.74 -26563772.64 -26563772.54 0.1862 0.0967
 Moon -77437-06-10 20:08 J -26562279.84 -26562279.66 -26562279.48 0.1654 0.0170
 Earth -77437-06-11 02:37 J -26562279.57 -26562279.39 -26562279.21 0.1654 0.0218 *
 Venus -77436-01-04 13:40 J -26562072.01 -26562071.93 -26562071.86 0.1608 0.1455
 Mercury -77433-12-01 18:42 J -26560644.88 -26560644.72 -26560644.56 0.1671 0.0332
 Mercury -77432-09-30 05:01 J -26560342.41 -26560342.29 -26560342.18 0.1871 0.0136
 Mercury -77423-04-23 19:40 J -26557214.78 -26557214.68 -26557214.58 0.1664 0.1307
 Mercury -77422-02-20 13:11 J -26556912.06 -26556911.95 -26556911.85 0.1879 0.0747
 Mercury -77413-07-12 21:20 J -26553481.66 -26553481.61 -26553481.55 0.1888 0.1613
 Venus -77404-01-03 09:35 J -26550385.26 -26550385.10 -26550384.93 0.1615 0.0626
 Mercury -77402-01-10 18:28 J -26549647.88 -26549647.73 -26549647.59 0.1678 0.0786
 Mercury -77402-11-08 20:37 J -26549345.73 -26549345.64 -26549345.54 0.1862 0.1072
 Venus -77400-08-16 03:49 J -26548699.50 -26548699.34 -26548699.18 0.1930 0.0646
 Mercury -77393-06-01 19:11 J -26546217.86 -26546217.70 -26546217.53 0.1671 0.0207
 Mercury -77392-03-31 05:01 J -26545915.41 -26545915.29 -26545915.18 0.1871 0.0225

Moon -77390-06-05 14:52 J -26545118.93 -26545118.88 -26545118.84 0.1674 0.1620
 Mercury -77384-10-22 20:23 J -26542787.76 -26542787.65 -26542787.53 0.1664 0.1165
 Mercury -77383-08-21 13:11 J -26542485.06 -26542484.95 -26542484.84 0.1879 0.0643
 Mercury -77373-01-11 21:35 J -26539054.67 -26539054.60 -26539054.54 0.1887 0.1508
 Moon -77365-12-12 10:18 J -26535797.21 -26535797.07 -26535796.93 0.1878 0.1237
 Earth -77365-12-12 11:59 J -26535797.12 -26535797.00 -26535796.88 0.1878 0.1503 *
 Mercury -77363-07-11 18:56 J -26535220.84 -26535220.71 -26535220.57 0.1678 0.0919
 Mercury -77362-05-09 20:37 J -26534918.73 -26534918.64 -26534918.55 0.1862 0.1173
 Moon -77358-06-14 02:23 J -26533422.56 -26533422.40 -26533422.23 0.1650 0.0912
 Earth -77358-06-14 05:01 J -26533422.44 -26533422.29 -26533422.14 0.1650 0.0967 *
 Mercury -77354-12-01 20:08 J -26531790.82 -26531790.66 -26531790.50 0.1671 0.0056
 Mercury -77353-09-29 05:01 J -26531488.41 -26531488.29 -26531488.18 0.1871 0.0324
 Mercury -77344-04-22 20:52 J -26528360.76 -26528360.63 -26528360.50 0.1664 0.1041
 Mercury -77343-02-19 13:11 J -26528058.06 -26528057.95 -26528057.83 0.1879 0.0539
 Venus -77339-10-31 21:20 J -26526342.79 -26526342.61 -26526342.44 0.1613 0.0368
 Venus -77334-06-13 08:37 J -26524657.31 -26524657.14 -26524656.98 0.1933 0.0112
 Mercury -77334-07-12 21:35 J -26524627.68 -26524627.60 -26524627.53 0.1887 0.1405
 Mercury -77323-01-09 19:54 J -26520793.80 -26520793.67 -26520793.55 0.1678 0.1063
 Mercury -77323-11-07 20:37 J -26520491.72 -26520491.64 -26520491.55 0.1862 0.1278
 Mercury -77314-06-01 20:37 J -26517363.80 -26517363.64 -26517363.47 0.1671 0.0086
 Mercury -77313-03-30 05:01 J -26517061.41 -26517061.29 -26517061.18 0.1871 0.0425
 Earth -77311-06-07 23:30 J -26516261.67 -26516261.52 -26516261.37 0.1669 0.0982
 Moon -77311-06-08 01:40 J -26516261.58 -26516261.43 -26516261.28 0.1669 0.1091 *
 Mercury -77305-10-21 21:49 J -26513933.73 -26513933.59 -26513933.46 0.1664 0.0897
 Mercury -77304-08-20 13:11 J -26513631.06 -26513630.95 -26513630.83 0.1879 0.0441
 Mercury -77294-01-10 21:20 J -26510200.69 -26510200.61 -26510200.52 0.1887 0.1313
 Moon -77286-12-16 17:59 J -26506938.96 -26506938.75 -26506938.54 0.1886 0.0039
 Earth -77286-12-17 03:20 J -26506938.56 -26506938.36 -26506938.16 0.1887 0.0428 *
 Mercury -77284-07-10 20:23 J -26506366.77 -26506366.65 -26506366.54 0.1678 0.1190
 Mercury -77283-05-08 20:37 J -26506064.71 -26506064.64 -26506064.56 0.1862 0.1383

Mercury -77275-11-30 21:20 J -26502936.77 -26502936.61 -26502936.45 0.1671 0.0209
 Mercury -77274-09-29 05:01 J -26502634.40 -26502634.29 -26502634.17 0.1870 0.0539
 Venus -77273-08-28 08:37 J -26502300.32 -26502300.14 -26502299.96 0.1611 0.0101
 Venus -77268-04-09 12:13 J -26500615.14 -26500614.99 -26500614.84 0.1937 0.0906
 Mercury -77265-04-21 22:18 J -26499506.71 -26499506.57 -26499506.42 0.1664 0.0762
 Mercury -77264-02-18 13:11 J -26499204.06 -26499203.95 -26499203.83 0.1879 0.0341
 Mercury -77255-07-11 21:35 J -26495773.69 -26495773.60 -26495773.51 0.1887 0.1200
 Mercury -77244-01-08 21:06 J -26491939.72 -26491939.62 -26491939.52 0.1679 0.1334
 Mercury -77244-11-06 20:52 J -26491637.70 -26491637.63 -26491637.56 0.1861 0.1487
 Mercury -77235-05-31 22:04 J -26488509.74 -26488509.58 -26488509.42 0.1671 0.0349
 Mercury -77234-03-30 05:01 J -26488207.40 -26488207.29 -26488207.18 0.1870 0.0624
 Earth -77232-06-10 03:20 J -26487404.55 -26487404.36 -26487404.18 0.1664 0.0197
 Moon -77232-06-10 09:35 J -26487404.29 -26487404.10 -26487403.92 0.1664 0.0062 *
 Mercury -77226-10-21 23:01 J -26485079.70 -26485079.54 -26485079.39 0.1664 0.0634
 Mercury -77225-08-19 13:25 J -26484777.06 -26484776.94 -26484776.83 0.1879 0.0227
 Mercury -77216-03-12 23:59 J -26481649.54 -26481649.50 -26481649.46 0.1658 0.1596
 Mercury -77215-01-09 21:35 J -26481346.69 -26481346.60 -26481346.51 0.1887 0.1101
 Venus -77207-06-25 20:23 J -26478257.83 -26478257.65 -26478257.48 0.1609 0.0159
 Mercury -77205-07-09 21:35 J -26477512.67 -26477512.60 -26477512.52 0.1679 0.1468
 Mercury -77204-05-07 20:52 J -26477210.69 -26477210.63 -26477210.57 0.1861 0.1585
 Venus -77202-02-04 16:18 J -26476572.90 -26476572.82 -26476572.74 0.1941 0.1694
 Mercury -77196-11-29 22:47 J -26474082.71 -26474082.55 -26474082.40 0.1671 0.0487
 Mercury -77195-09-28 05:01 J -26473780.39 -26473780.29 -26473780.18 0.1870 0.0739
 Mercury -77186-04-21 23:44 J -26470652.67 -26470652.51 -26470652.35 0.1664 0.0490
 Mercury -77185-02-18 13:25 J -26470350.06 -26470349.94 -26470349.83 0.1878 0.0144
 Mercury -77177-09-11 00:42 J -26467222.55 -26467222.47 -26467222.39 0.1657 0.1458
 Mercury -77176-07-10 21:35 J -26466919.70 -26466919.60 -26466919.50 0.1887 0.1000
 Mercury -77167-12-01 05:59 J -26463489.27 -26463489.25 -26463489.24 0.1895 0.1874
 Mercury -77165-01-08 22:18 J -26463085.62 -26463085.57 -26463085.53 0.1679 0.1601
 Mercury -77165-11-05 20:52 J -26462783.68 -26462783.63 -26462783.58 0.1862 0.1693

Mercury -77156-05-30 23:16 J -26459655.68 -26459655.53 -26459655.38 0.1672 0.0615

Mercury -77155-03-29 05:16 J -26459353.39 -26459353.28 -26459353.18 0.1870 0.0842

Earth -77153-06-12 07:25 J -26458547.36 -26458547.19 -26458547.02 0.1659 0.0607

Moon -77153-06-12 08:37 J -26458547.30 -26458547.14 -26458546.97 0.1659 0.0580 *

Mercury -77147-10-21 00:28 J -26456225.64 -26456225.48 -26456225.32 0.1665 0.0349

Mercury -77146-08-19 13:25 J -26455923.06 -26455922.94 -26455922.83 0.1878 0.0040

Venus -77141-04-22 07:40 J -26454215.36 -26454215.18 -26454215.01 0.1606 0.0420

Mercury -77137-03-12 01:25 J -26452795.54 -26452795.44 -26452795.35 0.1658 0.1326

Mercury -77136-01-08 21:35 J -26452492.70 -26452492.60 -26452492.50 0.1887 0.0897

Mercury -77127-06-01 05:44 J -26449062.29 -26449062.26 -26449062.22 0.1895 0.1783

Mercury -77125-05-06 20:52 J -26448356.66 -26448356.63 -26448356.60 0.1861 0.1794

Mercury -77117-11-28 23:59 J -26445228.64 -26445228.50 -26445228.35 0.1672 0.0763

Mercury -77116-09-27 05:01 J -26444926.39 -26444926.29 -26444926.18 0.1870 0.0941

Mercury -77107-04-21 00:56 J -26441798.63 -26441798.46 -26441798.30 0.1665 0.0228

Mercury -77106-02-17 13:25 J -26441496.05 -26441495.94 -26441495.82 0.1878 0.0087

Moon -77106-06-06 20:08 J -26441386.77 -26441386.66 -26441386.55 0.1680 0.1307

Earth -77106-06-06 23:01 J -26441386.63 -26441386.54 -26441386.45 0.1680 0.1445 *

Venus -77105-12-01 15:35 J -26440842.93 -26440842.85 -26440842.76 0.1933 0.1656

Mercury -77098-09-11 02:08 J -26438368.53 -26438368.41 -26438368.30 0.1658 0.1189

Mercury -77097-07-09 21:35 J -26438065.70 -26438065.60 -26438065.49 0.1886 0.0796

Mercury -77088-11-30 05:59 J -26434635.31 -26434635.25 -26434635.20 0.1895 0.1677

Earth -77081-12-11 17:59 J -26432066.81 -26432066.75 -26432066.69 0.1867 0.1772

Moon -77081-12-12 03:35 J -26432066.49 -26432066.35 -26432066.21 0.1868 0.1362

Mercury -77077-05-30 00:42 J -26430801.61 -26430801.47 -26430801.33 0.1672 0.0892

Mercury -77076-03-28 05:16 J -26430499.38 -26430499.28 -26430499.19 0.1870 0.1046

Venus -77075-02-17 19:25 J -26430172.85 -26430172.69 -26430172.53 0.1604 0.0670

Moon -77074-06-15 04:47 J -26429690.41 -26429690.30 -26429690.19 0.1655 0.1284

Earth -77074-06-15 09:49 J -26429690.19 -26429690.09 -26429689.98 0.1655 0.1371 *

Mercury -77068-10-20 01:40 J -26427371.59 -26427371.43 -26427371.26 0.1665 0.0085

Mercury -77067-08-18 13:25 J -26427069.06 -26427068.94 -26427068.82 0.1878 0.0178

Mercury -77058-03-12 02:37 J -26423941.51 -26423941.39 -26423941.26 0.1658 0.1053

Mercury -77057-01-08 21:35 J -26423638.70 -26423638.60 -26423638.49 0.1887 0.0697

Mercury -77048-05-31 05:59 J -26420208.31 -26420208.25 -26420208.19 0.1894 0.1565

Venus -77043-02-16 15:35 J -26418485.94 -26418485.85 -26418485.77 0.1611 0.1413

Venus -77039-09-28 19:40 J -26416800.83 -26416800.68 -26416800.53 0.1936 0.0884

Mercury -77038-11-29 01:11 J -26416374.57 -26416374.45 -26416374.32 0.1672 0.1027

Mercury -77037-09-26 05:16 J -26416072.37 -26416072.28 -26416072.19 0.1869 0.1153

Mercury -77028-04-20 02:23 J -26412944.56 -26412944.40 -26412944.24 0.1665 0.0056

Mercury -77027-02-16 13:25 J -26412642.06 -26412641.94 -26412641.82 0.1878 0.0279

Moon -77027-06-08 20:08 J -26412529.82 -26412529.66 -26412529.49 0.1675 0.0807

Earth -77027-06-09 02:52 J -26412529.55 -26412529.38 -26412529.20 0.1675 0.0629 *

Mercury -77019-09-10 03:20 J -26409514.49 -26409514.36 -26409514.22 0.1658 0.0916

Mercury -77018-07-09 21:49 J -26409211.70 -26409211.59 -26409211.48 0.1886 0.0586

Venus -77010-12-16 06:56 J -26406130.35 -26406130.21 -26406130.06 0.1602 0.0921

Mercury -77009-11-29 05:59 J -26405781.33 -26405781.25 -26405781.18 0.1894 0.1480

Earth -77002-12-16 08:23 J -26403208.35 -26403208.15 -26403207.94 0.1876 0.0108

Moon -77002-12-16 12:56 J -26403208.15 -26403207.96 -26403207.77 0.1877 0.0076 *

77TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 77th millennium BCE.

| PLANET | MAX- | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|--------------|-------|-------|--------------|--------------|--------------|--------|--------|
| TRANSIT | | | | | | | | |
| TIME | | | | | | | | |
| Mercury | -76998-05-30 | 01:54 | J | -26401947.53 | -26401947.42 | -26401947.30 | 0.1672 | 0.1165 |
| Mercury | -76997-03-27 | 05:16 | J | -26401645.37 | -26401645.28 | -26401645.20 | 0.1870 | 0.1246 |

Mercury -76989-10-19 02:52 J -26398517.54 -26398517.38 -26398517.21 0.1665 0.0186

Mercury -76988-08-17 13:40 J -26398215.05 -26398214.93 -26398214.82 0.1878 0.0397

Mercury -76979-03-11 04:04 J -26395087.48 -26395087.33 -26395087.18 0.1658 0.0780

Mercury -76978-01-07 21:49 J -26394784.71 -26394784.59 -26394784.48 0.1886 0.0490

Venus -76978-12-15 02:37 J -26394443.52 -26394443.39 -26394443.27 0.1609 0.1137

Venus -76973-07-25 23:44 J -26392758.68 -26392758.51 -26392758.35 0.1940 0.0098

Mercury -76969-05-30 05:59 J -26391354.33 -26391354.25 -26391354.17 0.1894 0.1370

Mercury -76959-11-28 02:37 J -26387520.49 -26387520.39 -26387520.29 0.1672 0.1303

Mercury -76958-09-26 05:16 J -26387218.36 -26387218.28 -26387218.20 0.1869 0.1360

Mercury -76949-04-19 03:35 J -26384090.51 -26384090.35 -26384090.18 0.1665 0.0330

Mercury -76948-02-15 13:25 J -26383788.05 -26383787.94 -26383787.83 0.1878 0.0488

Moon -76948-06-11 04:47 J -26383672.49 -26383672.30 -26383672.10 0.1670 0.0209

Earth -76948-06-11 06:56 J -26383672.40 -26383672.21 -26383672.03 0.1670 0.0179 *

Venus -76944-10-12 18:42 J -26382087.84 -26382087.72 -26382087.60 0.1600 0.1176

Mercury -76940-09-09 04:47 J -26380660.46 -26380660.30 -26380660.15 0.1658 0.0648

Mercury -76939-07-08 21:49 J -26380357.71 -26380357.59 -26380357.48 0.1886 0.0387

Mercury -76930-01-30 05:30 J -26377230.30 -26377230.27 -26377230.23 0.1652 0.1615

Mercury -76930-11-29 05:59 J -26376927.33 -26376927.25 -26376927.16 0.1894 0.1263

Mercury -76919-05-29 03:06 J -26373093.45 -26373093.37 -26373093.28 0.1673 0.1434

Mercury -76918-03-27 05:16 J -26372791.35 -26372791.28 -26372791.20 0.1869 0.1464

Venus -76912-10-11 14:23 J -26370401.05 -26370400.90 -26370400.75 0.1607 0.0884

Mercury -76910-10-19 04:18 J -26369663.47 -26369663.32 -26369663.16 0.1665 0.0468

Mercury -76909-08-16 13:25 J -26369361.05 -26369360.94 -26369360.82 0.1878 0.0597

Venus -76907-05-23 03:35 J -26368716.50 -26368716.35 -26368716.19 0.1943 0.0703

Mercury -76900-03-10 05:16 J -26366233.43 -26366233.28 -26366233.12 0.1659 0.0512

Mercury -76899-01-06 21:49 J -26365930.71 -26365930.59 -26365930.48 0.1886 0.0282

Mercury -76891-07-31 06:28 J -26362803.30 -26362803.23 -26362803.16 0.1652 0.1472

Mercury -76890-05-30 05:59 J -26362500.34 -26362500.25 -26362500.16 0.1894 0.1170

Mercury -76880-11-27 03:49 J -26358666.39 -26358666.34 -26358666.28 0.1673 0.1577

Mercury -76879-09-25 05:16 J -26358364.34 -26358364.28 -26358364.21 0.1869 0.1561

Venus -76878-08-10 06:42 J -26358045.30 -26358045.22 -26358045.14 0.1598 0.1413
 Mercury -76870-04-19 04:47 J -26355236.45 -26355236.30 -26355236.15 0.1665 0.0589
 Mercury -76869-02-15 13:40 J -26354934.04 -26354933.93 -26354933.82 0.1877 0.0702
 Earth -76869-06-13 11:16 J -26354815.18 -26354815.03 -26354814.88 0.1665 0.0986
 Moon -76869-06-13 16:32 J -26354814.96 -26354814.81 -26354814.66 0.1665 0.1020 *
 Mercury -76861-09-08 05:59 J -26351806.41 -26351806.25 -26351806.09 0.1659 0.0373
 Mercury -76860-07-07 21:49 J -26351503.71 -26351503.59 -26351503.47 0.1885 0.0177
 Mercury -76851-01-29 07:11 J -26348376.30 -26348376.20 -26348376.11 0.1652 0.1336
 Mercury -76851-11-28 05:59 J -26348073.34 -26348073.25 -26348073.15 0.1894 0.1062
 Venus -76846-08-09 01:54 J -26346358.59 -26346358.42 -26346358.26 0.1605 0.0625
 Venus -76841-03-19 06:42 J -26344674.32 -26344674.22 -26344674.12 0.1947 0.1552
 Mercury -76839-03-26 05:16 J -26343937.33 -26343937.28 -26343937.22 0.1869 0.1669
 Mercury -76831-10-18 05:44 J -26340809.41 -26340809.26 -26340809.12 0.1666 0.0737
 Mercury -76830-08-16 13:40 J -26340507.04 -26340506.93 -26340506.83 0.1877 0.0800
 Earth -76822-06-08 00:56 J -26337654.60 -26337654.46 -26337654.33 0.1686 0.1119
 Moon -76822-06-08 07:40 J -26337654.33 -26337654.18 -26337654.03 0.1686 0.0919 *
 Mercury -76821-03-09 06:42 J -26337379.39 -26337379.22 -26337379.06 0.1659 0.0239
 Mercury -76820-01-05 21:49 J -26337076.71 -26337076.59 -26337076.47 0.1886 0.0076
 Mercury -76812-07-30 07:40 J -26333949.29 -26333949.18 -26333949.07 0.1652 0.1210
 Mercury -76811-05-29 06:13 J -26333646.34 -26333646.24 -26333646.14 0.1894 0.0956
 Mercury -76802-10-19 14:08 J -26330215.93 -26330215.91 -26330215.89 0.1902 0.1859
 Mercury -76800-09-24 05:30 J -26329510.30 -26329510.27 -26329510.24 0.1868 0.1774
 Mercury -76791-04-18 06:13 J -26326382.38 -26326382.24 -26326382.10 0.1666 0.0873
 Mercury -76790-02-14 13:40 J -26326080.03 -26326079.93 -26326079.83 0.1877 0.0903
 Mercury -76782-09-08 07:25 J -26322952.36 -26322952.19 -26322952.03 0.1659 0.0104
 Mercury -76781-07-06 21:49 J -26322649.70 -26322649.59 -26322649.47 0.1885 0.0052
 Venus -76780-06-05 13:25 J -26322316.11 -26322315.94 -26322315.76 0.1603 0.0370
 Mercury -76772-01-28 08:23 J -26319522.27 -26319522.15 -26319522.02 0.1652 0.1066
 Mercury -76772-11-27 05:59 J -26319219.35 -26319219.25 -26319219.15 0.1894 0.0865
 Mercury -76762-04-19 14:08 J -26315788.95 -26315788.91 -26315788.87 0.1902 0.1752

Mercury -76752-10-17 06:42 J -26311955.35 -26311955.22 -26311955.09 0.1666 0.1000
 Mercury -76751-08-15 13:40 J -26311653.02 -26311652.93 -26311652.83 0.1877 0.1017
 Venus -76743-01-14 07:11 J -26308944.24 -26308944.20 -26308944.16 0.1940 0.1880
 Earth -76743-06-10 05:01 J -26308797.47 -26308797.29 -26308797.11 0.1681 0.0284
 Moon -76743-06-10 06:42 J -26308797.39 -26308797.22 -26308797.05 0.1681 0.0350 *
 Mercury -76742-03-09 08:08 J -26308525.33 -26308525.16 -26308525.00 0.1659 0.0059
 Mercury -76741-01-05 21:49 J -26308222.71 -26308222.59 -26308222.47 0.1885 0.0129
 Mercury -76733-07-29 09:06 J -26305095.26 -26305095.12 -26305094.99 0.1652 0.0933
 Mercury -76732-05-28 05:59 J -26304792.35 -26304792.25 -26304792.14 0.1894 0.0756
 Mercury -76723-10-18 14:08 J -26301361.96 -26301361.91 -26301361.85 0.1901 0.1653
 Earth -76718-12-15 15:20 J -26299478.06 -26299477.86 -26299477.65 0.1865 0.0172
 Moon -76718-12-15 20:23 J -26299477.87 -26299477.65 -26299477.43 0.1866 0.0235 *
 Venus -76714-04-03 01:11 J -26298273.63 -26298273.45 -26298273.27 0.1600 0.0118
 Mercury -76712-04-17 07:40 J -26297528.30 -26297528.18 -26297528.07 0.1666 0.1141
 Mercury -76711-02-13 13:40 J -26297226.03 -26297225.93 -26297225.84 0.1877 0.1106
 Mercury -76703-09-07 08:37 J -26294098.31 -26294098.14 -26294097.98 0.1659 0.0167
 Mercury -76702-07-06 21:49 J -26293795.70 -26293795.59 -26293795.47 0.1885 0.0239
 Mercury -76693-01-28 09:35 J -26290668.24 -26290668.10 -26290667.95 0.1653 0.0801
 Mercury -76693-11-26 06:13 J -26290365.35 -26290365.24 -26290365.13 0.1893 0.0649
 Mercury -76683-04-18 14:08 J -26286934.97 -26286934.91 -26286934.85 0.1901 0.1555
 Venus -76678-11-11 10:32 J -26284902.20 -26284902.06 -26284901.92 0.1943 0.1068
 Mercury -76673-10-16 08:08 J -26283101.26 -26283101.16 -26283101.05 0.1666 0.1279
 Mercury -76672-08-14 13:40 J -26282799.02 -26282798.93 -26282798.84 0.1877 0.1213
 Moon -76664-06-12 03:35 J -26279940.51 -26279940.35 -26279940.18 0.1677 0.0556
 Earth -76664-06-12 09:20 J -26279940.28 -26279940.11 -26279939.93 0.1676 0.0541 *
 Mercury -76663-03-08 09:20 J -26279671.27 -26279671.11 -26279670.95 0.1659 0.0305
 Mercury -76662-01-04 21:49 J -26279368.70 -26279368.59 -26279368.47 0.1885 0.0343
 Mercury -76654-07-29 10:18 J -26276241.22 -26276241.07 -26276240.92 0.1653 0.0661
 Mercury -76653-05-27 05:59 J -26275938.36 -26275938.25 -26275938.14 0.1893 0.0555
 Venus -76648-01-28 12:56 J -26274231.13 -26274230.96 -26274230.78 0.1599 0.0140

Mercury -76645-12-18 11:16 J -26272811.05 -26272811.03 -26272811.00 0.1646 0.1625
 Mercury -76644-10-17 14:08 J -26272507.98 -26272507.91 -26272507.83 0.1901 0.1446
 Earth -76639-12-19 03:20 J -26270619.44 -26270619.36 -26270619.27 0.1874 0.1692
 Mercury -76633-04-16 08:37 J -26268674.22 -26268674.14 -26268674.05 0.1666 0.1403
 Mercury -76632-02-12 13:40 J -26268372.01 -26268371.93 -26268371.84 0.1877 0.1326
 Mercury -76624-09-06 10:04 J -26265244.24 -26265244.08 -26265243.92 0.1660 0.0444
 Mercury -76623-07-05 21:49 J -26264941.70 -26264941.59 -26264941.47 0.1885 0.0447
 Earth -76617-06-05 19:25 J -26262779.71 -26262779.69 -26262779.66 0.1699 0.1678
 Mercury -76614-01-27 11:01 J -26261814.20 -26261814.04 -26261813.88 0.1653 0.0525
 Mercury -76614-11-26 05:59 J -26261511.36 -26261511.25 -26261511.13 0.1893 0.0452
 Venus -76612-09-07 14:23 J -26260860.07 -26260859.90 -26260859.73 0.1946 0.0256
 Mercury -76605-06-18 11:59 J -26258384.07 -26258384.00 -26258383.93 0.1646 0.1487
 Mercury -76604-04-17 14:08 J -26258080.99 -26258080.91 -26258080.83 0.1901 0.1351
 Mercury -76594-10-16 09:35 J -26254247.16 -26254247.10 -26254247.05 0.1667 0.1550
 Mercury -76593-08-13 13:40 J -26253945.00 -26253944.93 -26253944.85 0.1876 0.1420
 Moon -76585-06-14 08:52 J -26251083.24 -26251083.13 -26251083.02 0.1671 0.1356
 Earth -76585-06-14 13:54 J -26251083.02 -26251082.92 -26251082.81 0.1671 0.1361 *
 Mercury -76584-03-07 10:32 J -26250817.22 -26250817.06 -26250816.91 0.1659 0.0572
 Mercury -76583-01-03 21:49 J -26250514.70 -26250514.59 -26250514.47 0.1885 0.0550
 Venus -76583-11-26 00:42 J -26250188.64 -26250188.47 -26250188.30 0.1597 0.0383
 Mercury -76575-07-28 11:30 J -26247387.18 -26247387.02 -26247386.86 0.1653 0.0399
 Mercury -76574-05-27 06:13 J -26247084.36 -26247084.24 -26247084.13 0.1893 0.0343
 Mercury -76566-12-18 12:56 J -26243957.06 -26243956.96 -26243956.87 0.1647 0.1346
 Mercury -76565-10-16 14:08 J -26243653.99 -26243653.91 -26243653.82 0.1901 0.1247
 Mercury -76553-02-12 13:40 J -26239517.99 -26239517.93 -26239517.86 0.1876 0.1525
 Venus -76546-07-05 17:30 J -26236817.93 -26236817.77 -26236817.61 0.1949 0.0587
 Mercury -76545-09-05 11:16 J -26236390.18 -26236390.03 -26236389.88 0.1660 0.0710
 Mercury -76544-07-04 22:04 J -26236087.69 -26236087.58 -26236087.47 0.1885 0.0652
 Moon -76538-06-09 00:28 J -26233922.66 -26233922.48 -26233922.29 0.1693 0.0682
 Earth -76538-06-09 01:11 J -26233922.61 -26233922.45 -26233922.28 0.1693 0.0809 *

Mercury -76535-01-26 12:28 J -26232960.15 -26232959.98 -26232959.82 0.1653 0.0258
 Mercury -76535-11-25 05:59 J -26232657.36 -26232657.25 -26232657.13 0.1893 0.0250
 Mercury -76526-06-18 13:11 J -26229530.06 -26229529.95 -26229529.84 0.1646 0.1223
 Mercury -76525-04-16 14:23 J -26229227.00 -26229226.90 -26229226.81 0.1901 0.1139
 Venus -76517-09-22 12:28 J -26226146.14 -26226145.98 -26226145.82 0.1595 0.0635
 Mercury -76514-08-13 13:54 J -26225090.98 -26225090.92 -26225090.87 0.1876 0.1638
 Mercury -76505-03-06 11:59 J -26221963.14 -26221963.00 -26221962.86 0.1660 0.0849
 Mercury -76504-01-02 21:49 J -26221660.69 -26221660.59 -26221660.48 0.1884 0.0751
 Mercury -76496-07-27 12:56 J -26218533.12 -26218532.96 -26218532.79 0.1653 0.0122
 Mercury -76495-05-26 06:13 J -26218230.36 -26218230.24 -26218230.13 0.1893 0.0145
 Mercury -76487-12-17 14:08 J -26215103.03 -26215102.91 -26215102.79 0.1647 0.1077
 Mercury -76486-10-16 14:08 J -26214800.00 -26214799.91 -26214799.81 0.1901 0.1042
 Venus -76485-09-21 07:40 J -26214459.27 -26214459.18 -26214459.10 0.1601 0.1404
 Venus -76480-05-01 21:20 J -26212775.73 -26212775.61 -26212775.50 0.1952 0.1408
 Mercury -76474-02-11 13:40 J -26210663.97 -26210663.93 -26210663.89 0.1876 0.1728
 Mercury -76466-09-05 12:28 J -26207536.11 -26207535.98 -26207535.85 0.1660 0.0978
 Mercury -76465-07-03 22:04 J -26207233.69 -26207233.58 -26207233.48 0.1885 0.0859
 Earth -76459-06-11 06:28 J -26205065.42 -26205065.23 -26205065.05 0.1688 0.0062
 Moon -76459-06-11 12:42 J -26205065.16 -26205064.97 -26205064.78 0.1687 0.0036 *
 Mercury -76456-01-25 13:40 J -26204106.10 -26204105.93 -26204105.77 0.1653 0.0039
 Mercury -76456-11-24 06:13 J -26203803.36 -26203803.24 -26203803.13 0.1892 0.0041
 Venus -76451-07-21 00:28 J -26202103.62 -26202103.48 -26202103.33 0.1593 0.0873
 Mercury -76447-06-17 14:37 J -26200676.02 -26200675.89 -26200675.75 0.1647 0.0947
 Mercury -76446-04-16 14:08 J -26200373.01 -26200372.91 -26200372.81 0.1901 0.0942
 Mercury -76437-09-05 22:18 J -26196942.59 -26196942.57 -26196942.54 0.1908 0.1842
 Mercury -76435-08-12 13:54 J -26196236.94 -26196236.92 -26196236.90 0.1876 0.1839
 Moon -76434-12-14 14:52 J -26195748.08 -26195747.88 -26195747.69 0.1853 0.0408
 Earth -76434-12-14 23:59 J -26195747.70 -26195747.50 -26195747.30 0.1854 0.0419 *
 Mercury -76426-03-06 13:11 J -26193109.07 -26193108.95 -26193108.83 0.1660 0.1117
 Mercury -76425-01-02 22:04 J -26192806.68 -26192806.58 -26192806.48 0.1884 0.0960

Venus -76419-07-19 19:11 J -26190416.82 -26190416.70 -26190416.58 0.1599 0.1144

Mercury -76417-07-26 14:08 J -26189679.07 -26189678.91 -26189678.74 0.1653 0.0152

Mercury -76416-05-25 05:59 J -26189376.36 -26189376.25 -26189376.13 0.1893 0.0090

Mercury -76408-12-16 15:20 J -26186249.01 -26186248.86 -26186248.72 0.1647 0.0817

Mercury -76407-10-15 14:23 J -26185946.01 -26185945.90 -26185945.80 0.1901 0.0829

Mercury -76397-03-06 22:18 J -26182515.61 -26182515.57 -26182515.52 0.1908 0.1744

Mercury -76387-09-04 13:54 J -26178682.03 -26178681.92 -26178681.82 0.1660 0.1255

Mercury -76386-07-03 22:04 J -26178379.68 -26178379.58 -26178379.49 0.1884 0.1062

Venus -76385-05-17 11:59 J -26178061.13 -26178061.00 -26178060.88 0.1591 0.1132

Earth -76380-06-13 10:47 J -26176208.21 -26176208.05 -26176207.89 0.1683 0.0897

Moon -76380-06-13 16:04 J -26176207.98 -26176207.83 -26176207.68 0.1682 0.0918 *

Mercury -76377-01-25 14:52 J -26175252.04 -26175251.88 -26175251.72 0.1653 0.0285

Mercury -76377-11-23 06:13 J -26174949.36 -26174949.24 -26174949.13 0.1892 0.0182

Mercury -76368-06-16 16:04 J -26171821.98 -26171821.83 -26171821.68 0.1647 0.0676

Mercury -76367-04-15 14:08 J -26171519.01 -26171518.91 -26171518.80 0.1900 0.0737

Mercury -76359-11-06 17:16 J -26168391.80 -26168391.78 -26168391.77 0.1641 0.1627

Mercury -76358-09-05 22:18 J -26168088.62 -26168088.57 -26168088.51 0.1908 0.1640

Moon -76355-12-18 06:28 J -26166889.40 -26166889.23 -26166889.06 0.1862 0.1213

Earth -76355-12-18 10:04 J -26166889.21 -26166889.08 -26166888.94 0.1863 0.1386 *

Venus -76353-05-16 06:42 J -26166374.37 -26166374.22 -26166374.07 0.1597 0.0890

Mercury -76347-03-05 14:23 J -26164254.99 -26164254.90 -26164254.82 0.1660 0.1382

Mercury -76346-01-01 22:04 J -26163952.67 -26163952.58 -26163952.49 0.1884 0.1168

Mercury -76338-07-26 15:20 J -26160825.02 -26160824.86 -26160824.70 0.1654 0.0416

Mercury -76337-05-24 06:13 J -26160522.36 -26160522.24 -26160522.13 0.1892 0.0279

Earth -76333-06-06 18:42 J -26159047.83 -26159047.72 -26159047.62 0.1706 0.1390

Moon -76333-06-06 19:40 J -26159047.75 -26159047.68 -26159047.61 0.1706 0.1548 *

Mercury -76329-12-15 16:47 J -26157394.96 -26157394.80 -26157394.64 0.1647 0.0535

Mercury -76328-10-14 14:08 J -26157092.01 -26157091.91 -26157091.80 0.1900 0.0633

Venus -76319-03-15 00:13 J -26154018.58 -26154018.49 -26154018.40 0.1590 0.1357

Mercury -76319-05-07 17:44 J -26153964.82 -26153964.76 -26153964.69 0.1641 0.1494

Mercury -76318-03-06 22:18 J -26153661.63 -26153661.57 -26153661.50 0.1908 0.1539

Venus -76317-12-24 01:11 J -26153003.58 -26153003.45 -26153003.32 0.1949 0.1231

Mercury -76308-09-03 15:06 J -26149827.94 -26149827.87 -26149827.81 0.1661 0.1522

Mercury -76307-07-02 22:04 J -26149525.67 -26149525.58 -26149525.50 0.1884 0.1271

Mercury -76298-01-24 16:18 J -26146397.98 -26146397.82 -26146397.67 0.1654 0.0559

Mercury -76298-11-23 06:13 J -26146095.36 -26146095.24 -26146095.13 0.1892 0.0381

Mercury -76289-06-15 17:16 J -26142967.94 -26142967.78 -26142967.62 0.1647 0.0415

Mercury -76288-04-14 14:23 J -26142665.01 -26142664.90 -26142664.79 0.1900 0.0522

Venus -76287-03-13 18:42 J -26142331.88 -26142331.72 -26142331.55 0.1595 0.0645

Mercury -76280-11-05 18:28 J -26139537.82 -26139537.73 -26139537.64 0.1641 0.1357

Mercury -76279-09-04 22:18 J -26139234.64 -26139234.57 -26139234.49 0.1908 0.1437

Mercury -76268-12-31 22:04 J -26135098.66 -26135098.58 -26135098.50 0.1884 0.1372

Mercury -76259-07-25 16:47 J -26131970.95 -26131970.80 -26131970.65 0.1654 0.0689

Mercury -76258-05-24 06:13 J -26131668.35 -26131668.24 -26131668.13 0.1892 0.0486

Moon -76254-06-09 19:11 J -26130190.87 -26130190.70 -26130190.53 0.1700 0.0478

Earth -76254-06-10 00:42 J -26130190.65 -26130190.47 -26130190.29 0.1700 0.0504 *

Venus -76251-10-21 04:04 J -26128961.50 -26128961.33 -26128961.17 0.1952 0.0378

Mercury -76250-12-15 17:59 J -26128540.91 -26128540.75 -26128540.58 0.1647 0.0269

Mercury -76249-10-13 14:08 J -26128238.02 -26128237.91 -26128237.79 0.1900 0.0430

Mercury -76240-05-06 19:11 J -26125110.81 -26125110.70 -26125110.60 0.1641 0.1227

Mercury -76239-03-05 22:18 J -26124807.65 -26124807.57 -26124807.49 0.1908 0.1336

Mercury -76228-07-01 22:04 J -26120671.65 -26120671.58 -26120671.51 0.1884 0.1484

Venus -76221-01-09 06:42 J -26118289.39 -26118289.22 -26118289.05 0.1594 0.0399

Mercury -76219-01-23 17:30 J -26117543.91 -26117543.77 -26117543.63 0.1654 0.0824

Mercury -76219-11-22 06:13 J -26117241.35 -26117241.24 -26117241.13 0.1892 0.0589

Mercury -76210-06-15 18:42 J -26114113.89 -26114113.72 -26114113.56 0.1647 0.0137

Mercury -76209-04-13 14:08 J -26113811.02 -26113810.91 -26113810.79 0.1900 0.0327

Mercury -76201-11-04 19:54 J -26110683.79 -26110683.67 -26110683.55 0.1641 0.1086

Mercury -76200-09-03 22:18 J -26110380.65 -26110380.57 -26110380.48 0.1908 0.1229

Mercury -76189-12-30 22:04 J -26106244.64 -26106244.58 -26106244.52 0.1883 0.1581

Venus -76185-08-17 07:25 J -26104919.36 -26104919.19 -26104919.03 0.1955 0.0471

Mercury -76180-07-24 17:59 J -26103116.88 -26103116.75 -26103116.61 0.1654 0.0959

Mercury -76179-05-23 06:13 J -26102814.35 -26102814.24 -26102814.14 0.1892 0.0688

Moon -76175-06-12 01:40 J -26101333.62 -26101333.43 -26101333.24 0.1695 0.0344

Earth -76175-06-12 06:42 J -26101333.40 -26101333.22 -26101333.04 0.1694 0.0385 *

Mercury -76171-12-14 19:11 J -26099686.86 -26099686.70 -26099686.53 0.1648 0.0014

Mercury -76170-10-13 14:23 J -26099384.01 -26099383.90 -26099383.78 0.1900 0.0206

Mercury -76161-05-05 20:23 J -26096256.78 -26096256.65 -26096256.51 0.1641 0.0953

Mercury -76160-03-04 22:18 J -26095953.66 -26095953.57 -26095953.48 0.1908 0.1130

Venus -76156-11-05 18:28 J -26094246.90 -26094246.73 -26094246.55 0.1592 0.0161

Earth -76150-12-14 09:49 J -26092017.27 -26092017.09 -26092016.89 0.1842 0.0645

Moon -76150-12-14 16:18 J -26092017.00 -26092016.82 -26092016.63 0.1843 0.0375 *

Mercury -76149-06-30 22:04 J -26091817.63 -26091817.58 -26091817.53 0.1883 0.1685

Mercury -76140-01-22 18:42 J -26088689.84 -26088689.72 -26088689.59 0.1654 0.1098

Mercury -76140-11-21 06:13 J -26088387.35 -26088387.24 -26088387.13 0.1892 0.0797

Mercury -76131-06-14 19:54 J -26085259.83 -26085259.67 -26085259.50 0.1648 0.0140

Mercury -76130-04-13 14:08 J -26084957.02 -26084956.91 -26084956.79 0.1900 0.0132

Mercury -76122-11-04 21:06 J -26081829.76 -26081829.62 -26081829.48 0.1641 0.0819

Mercury -76121-09-02 22:18 J -26081526.66 -26081526.57 -26081526.47 0.1908 0.1024

Venus -76119-06-14 10:04 J -26080877.20 -26080877.08 -26080876.96 0.1958 0.1348

Mercury -76110-12-30 22:04 J -26077390.61 -26077390.58 -26077390.55 0.1884 0.1796

Mercury -76101-07-23 19:25 J -26074262.80 -26074262.69 -26074262.58 0.1655 0.1229

Mercury -76100-05-22 06:13 J -26073960.34 -26073960.24 -26073960.14 0.1891 0.0902

Earth -76096-06-14 11:59 J -26072476.13 -26072476.00 -26072475.88 0.1689 0.1255

Moon -76096-06-14 15:20 J -26072475.99 -26072475.86 -26072475.73 0.1689 0.1276 *

Mercury -76092-12-13 20:37 J -26070832.80 -26070832.64 -26070832.47 0.1648 0.0277

Mercury -76091-10-12 14:23 J -26070530.02 -26070529.90 -26070529.79 0.1900 0.0044

Venus -76090-09-03 06:28 J -26070204.41 -26070204.23 -26070204.05 0.1590 0.0093

Mercury -76082-05-05 21:49 J -26067402.74 -26067402.59 -26067402.44 0.1642 0.0683

Mercury -76081-03-03 22:18 J -26067099.67 -26067099.57 -26067099.47 0.1907 0.0922

Mercury -76073-09-24 23:01 J -26063972.55 -26063972.54 -26063972.52 0.1636 0.1625

Mercury -76072-07-25 06:28 J -26063669.26 -26063669.23 -26063669.20 0.1915 0.1845

Moon -76071-12-17 13:54 J -26063159.09 -26063158.92 -26063158.75 0.1851 0.0845

Earth -76071-12-17 19:25 J -26063158.85 -26063158.69 -26063158.53 0.1851 0.1130 *

Mercury -76061-01-22 20:08 J -26059835.75 -26059835.66 -26059835.57 0.1654 0.1370

Mercury -76061-11-20 06:13 J -26059533.34 -26059533.24 -26059533.14 0.1892 0.1001

Mercury -76052-06-13 21:06 J -26056405.78 -26056405.62 -26056405.46 0.1648 0.0398

Mercury -76051-04-12 14:23 J -26056103.02 -26056102.90 -26056102.78 0.1900 0.0103

Earth -76049-06-07 17:01 J -26055315.93 -26055315.79 -26055315.65 0.1713 0.1112

Moon -76049-06-07 23:01 J -26055315.67 -26055315.54 -26055315.40 0.1713 0.1200 *

Mercury -76043-11-03 22:32 J -26052975.72 -26052975.56 -26052975.40 0.1642 0.0543

Mercury -76042-09-02 22:18 J -26052672.67 -26052672.57 -26052672.46 0.1907 0.0819

Mercury -76033-03-25 23:44 J -26049545.58 -26049545.51 -26049545.45 0.1636 0.1492

Mercury -76032-01-23 06:28 J -26049242.27 -26049242.23 -26049242.18 0.1915 0.1735

Venus -76024-06-30 18:42 J -26046161.89 -26046161.72 -26046161.54 0.1588 0.0325

Mercury -76022-07-23 20:37 J -26045408.71 -26045408.64 -26045408.57 0.1655 0.1500

Mercury -76021-05-21 06:13 J -26045106.33 -26045106.24 -26045106.15 0.1891 0.1110

Mercury -76013-12-12 22:04 J -26041978.74 -26041978.58 -26041978.43 0.1648 0.0548

Mercury -76012-10-11 14:23 J -26041676.02 -26041675.90 -26041675.79 0.1899 0.0208

Mercury -76003-05-04 23:01 J -26038548.70 -26038548.54 -26038548.38 0.1642 0.0414

Mercury -76002-03-03 22:18 J -26038245.67 -26038245.57 -26038245.46 0.1908 0.0715

76TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 76th millennium BCE.

| | | | | | | | | |
|--------|------|---|-------|-----|-----|--------|-------|---|
| PLANET | MAX- | C | START | MAX | END | SUNRAD | DEPTH | S |
|--------|------|---|-------|-----|-----|--------|-------|---|

TRANSIT

TIME

Mercury -75994-09-25 00:13 J -26035118.58 -26035118.49 -26035118.40 0.1636 0.1361

Mercury -75993-07-24 06:28 J -26034815.28 -26034815.23 -26034815.17 0.1915 0.1628

Mercury -75982-01-21 21:20 J -26030981.63 -26030981.61 -26030981.59 0.1655 0.1639

Mercury -75982-11-20 06:13 J -26030679.33 -26030679.24 -26030679.15 0.1891 0.1214

Mercury -75973-06-12 22:32 J -26027551.71 -26027551.56 -26027551.41 0.1648 0.0680

Mercury -75972-04-11 14:23 J -26027249.02 -26027248.90 -26027248.79 0.1899 0.0307

Earth -75970-06-10 23:30 J -26026458.70 -26026458.52 -26026458.33 0.1707 0.0201

Moon -75970-06-11 04:04 J -26026458.51 -26026458.33 -26026458.16 0.1707 0.0089 *

Mercury -75964-11-02 23:59 J -26024121.67 -26024121.50 -26024121.34 0.1642 0.0275

Mercury -75963-09-01 22:32 J -26023818.67 -26023818.56 -26023818.45 0.1907 0.0609

Venus -75958-04-28 06:13 J -26022119.40 -26022119.24 -26022119.07 0.1587 0.0576

Venus -75955-02-05 14:52 J -26021105.00 -26021104.88 -26021104.76 0.1955 0.1367

Mercury -75954-03-26 00:56 J -26020691.56 -26020691.46 -26020691.35 0.1636 0.1222

Mercury -75953-01-23 06:28 J -26020388.30 -26020388.23 -26020388.17 0.1915 0.1538

Mercury -75942-05-21 06:13 J -26016252.32 -26016252.24 -26016252.16 0.1891 0.1316

Mercury -75934-12-12 23:16 J -26013124.68 -26013124.53 -26013124.39 0.1648 0.0813

Mercury -75933-10-10 14:23 J -26012822.01 -26012821.90 -26012821.78 0.1899 0.0425

Venus -75926-04-27 00:42 J -26010432.55 -26010432.47 -26010432.39 0.1592 0.1430

Mercury -75924-05-04 00:28 J -26009694.64 -26009694.48 -26009694.31 0.1642 0.0138

Mercury -75923-03-02 22:18 J -26009391.68 -26009391.57 -26009391.45 0.1907 0.0511

Mercury -75915-09-24 01:40 J -26006264.55 -26006264.43 -26006264.30 0.1636 0.1086

Mercury -75914-07-24 06:28 J -26005961.30 -26005961.23 -26005961.15 0.1915 0.1423

Mercury -75903-11-19 06:13 J -26001825.31 -26001825.24 -26001825.16 0.1891 0.1429

Mercury -75894-06-12 23:59 J -25998697.64 -25998697.50 -25998697.37 0.1648 0.0953

Mercury -75893-04-10 14:23 J -25998395.01 -25998394.90 -25998394.79 0.1899 0.0513

Venus -75892-02-22 18:56 J -25998076.87 -25998076.71 -25998076.56 0.1585 0.0798

Moon -75891-06-13 03:20 J -25997601.52 -25997601.36 -25997601.20 0.1702 0.0705

Earth -75891-06-13 05:59 J -25997601.42 -25997601.25 -25997601.08 0.1701 0.0708 *

Venus -75890-12-03 17:59 J -25997062.91 -25997062.75 -25997062.59 0.1957 0.0508
 Mercury -75885-11-02 01:11 J -25995267.62 -25995267.45 -25995267.29 0.1642 0.0042
 Mercury -75884-08-31 22:32 J -25994964.68 -25994964.56 -25994964.45 0.1907 0.0399
 Mercury -75875-03-25 02:23 J -25991837.54 -25991837.40 -25991837.27 0.1636 0.0954
 Mercury -75874-01-22 06:28 J -25991534.31 -25991534.23 -25991534.14 0.1914 0.1319
 Moon -75866-12-13 23:01 J -25988286.76 -25988286.54 -25988286.33 0.1831 0.0503
 Earth -75866-12-13 23:01 J -25988286.72 -25988286.54 -25988286.36 0.1831 0.0807 *
 Mercury -75863-05-20 06:13 J -25987398.30 -25987398.24 -25987398.17 0.1891 0.1531
 Venus -75860-02-21 12:56 J -25986390.08 -25986389.96 -25986389.84 0.1590 0.1188
 Mercury -75855-12-12 00:28 J -25984270.60 -25984270.48 -25984270.35 0.1649 0.1092
 Mercury -75854-10-10 14:23 J -25983968.01 -25983967.90 -25983967.79 0.1899 0.0623
 Mercury -75845-05-03 01:54 J -25980840.59 -25980840.42 -25980840.26 0.1642 0.0138
 Mercury -75844-03-01 22:32 J -25980537.68 -25980537.56 -25980537.45 0.1907 0.0303
 Moon -75844-06-06 00:56 J -25980441.48 -25980441.46 -25980441.44 0.1727 0.1712
 Mercury -75836-09-23 03:06 J -25977410.51 -25977410.37 -25977410.22 0.1636 0.0811
 Mercury -75835-07-23 06:28 J -25977107.32 -25977107.23 -25977107.14 0.1915 0.1221
 Venus -75827-12-21 06:42 J -25974034.35 -25974034.22 -25974034.08 0.1584 0.1037
 Venus -75824-09-29 20:37 J -25973020.81 -25973020.64 -25973020.48 0.1960 0.0378
 Mercury -75824-11-18 06:13 J -25972971.29 -25972971.24 -25972971.18 0.1891 0.1634
 Mercury -75815-06-12 00:56 J -25969843.57 -25969843.46 -25969843.35 0.1649 0.1217
 Mercury -75814-04-10 14:23 J -25969541.00 -25969540.90 -25969540.79 0.1899 0.0735
 Moon -75812-06-15 05:44 J -25968744.35 -25968744.26 -25968744.16 0.1696 0.1456
 Earth -75812-06-15 12:28 J -25968744.03 -25968743.98 -25968743.92 0.1696 0.1611
 Mercury -75806-11-02 02:37 J -25966413.55 -25966413.39 -25966413.23 0.1643 0.0276
 Mercury -75805-08-30 22:32 J -25966110.68 -25966110.56 -25966110.45 0.1907 0.0194
 Mercury -75796-03-24 03:49 J -25962983.49 -25962983.34 -25962983.19 0.1636 0.0679
 Mercury -75795-01-21 06:28 J -25962680.32 -25962680.23 -25962680.13 0.1914 0.1112
 Venus -75795-12-20 00:56 J -25962347.60 -25962347.46 -25962347.32 0.1589 0.0949
 Mercury -75787-08-14 05:01 J -25959553.31 -25959553.29 -25959553.27 0.1631 0.1618
 Earth -75787-12-17 07:11 J -25959428.38 -25959428.20 -25959428.03 0.1840 0.0917

Moon -75787-12-17 16:04 J -25959428.01 -25959427.83 -25959427.64 0.1841 0.0731
 Mercury -75784-05-19 06:28 J -25958544.28 -25958544.23 -25958544.19 0.1891 0.1743
 Mercury -75776-12-11 01:54 J -25955416.51 -25955416.42 -25955416.33 0.1649 0.1366
 Mercury -75775-10-09 14:23 J -25955114.00 -25955113.90 -25955113.80 0.1899 0.0830
 Mercury -75766-05-03 03:06 J -25951986.53 -25951986.37 -25951986.21 0.1642 0.0403
 Mercury -75765-02-29 22:32 J -25951683.68 -25951683.56 -25951683.45 0.1907 0.0085
 Moon -75765-06-08 09:49 J -25951584.25 -25951584.09 -25951583.93 0.1721 0.0933
 Earth -75765-06-08 15:35 J -25951584.01 -25951583.85 -25951583.69 0.1720 0.0830 *
 Venus -75761-10-17 19:25 J -25949991.80 -25949991.69 -25949991.59 0.1583 0.1256
 Venus -75758-07-27 23:44 J -25948978.64 -25948978.51 -25948978.38 0.1962 0.1252
 Mercury -75757-09-22 04:18 J -25948556.47 -25948556.32 -25948556.16 0.1637 0.0546
 Mercury -75756-07-22 06:42 J -25948253.32 -25948253.22 -25948253.13 0.1914 0.1004
 Mercury -75747-02-12 05:44 J -25945126.33 -25945126.26 -25945126.19 0.1631 0.1480
 Mercury -75745-11-17 06:28 J -25944117.25 -25944117.23 -25944117.21 0.1890 0.1847
 Mercury -75736-06-11 02:37 J -25940989.46 -25940989.39 -25940989.33 0.1649 0.1498
 Mercury -75735-04-09 14:23 J -25940687.00 -25940686.90 -25940686.80 0.1899 0.0940
 Venus -75729-10-16 13:11 J -25938305.11 -25938304.95 -25938304.79 0.1587 0.0713
 Mercury -75727-11-01 03:49 J -25937559.49 -25937559.34 -25937559.18 0.1643 0.0547
 Mercury -75726-08-30 22:32 J -25937256.68 -25937256.56 -25937256.45 0.1906 0.0028
 Mercury -75717-03-23 05:01 J -25934129.45 -25934129.29 -25934129.12 0.1637 0.0407
 Mercury -75716-01-20 06:28 J -25933826.33 -25933826.23 -25933826.13 0.1914 0.0909
 Mercury -75708-08-13 06:13 J -25930699.33 -25930699.24 -25930699.15 0.1631 0.1353
 Mercury -75707-06-12 14:37 J -25930395.92 -25930395.89 -25930395.85 0.1921 0.1827
 Mercury -75697-12-10 03:06 J -25926562.39 -25926562.37 -25926562.35 0.1649 0.1630
 Mercury -75696-10-08 14:37 J -25926259.99 -25926259.89 -25926259.80 0.1898 0.1055
 Venus -75695-08-15 07:40 J -25925949.24 -25925949.18 -25925949.12 0.1581 0.1481
 Mercury -75687-05-02 04:32 J -25923132.46 -25923132.31 -25923132.16 0.1643 0.0683
 Mercury -75686-02-28 22:32 J -25922829.68 -25922829.56 -25922829.45 0.1906 0.0135
 Earth -75686-06-11 22:18 J -25922726.76 -25922726.57 -25922726.39 0.1715 0.0112
 Moon -75686-06-12 00:28 J -25922726.68 -25922726.48 -25922726.28 0.1714 0.0134 *

Mercury -75678-09-22 05:44 J -25919702.42 -25919702.26 -25919702.09 0.1637 0.0270

Mercury -75677-07-21 06:42 J -25919399.33 -25919399.22 -25919399.12 0.1914 0.0792

Mercury -75668-02-11 07:11 J -25916272.31 -25916272.20 -25916272.09 0.1631 0.1207

Mercury -75668-12-11 14:37 J -25915968.94 -25915968.89 -25915968.85 0.1921 0.1737

Venus -75663-08-14 01:25 J -25914262.61 -25914262.44 -25914262.27 0.1586 0.0477

Mercury -75656-04-08 14:23 J -25911832.99 -25911832.90 -25911832.81 0.1899 0.1144

Mercury -75648-10-31 05:01 J -25908705.43 -25908705.29 -25908705.14 0.1643 0.0815

Mercury -75647-08-29 22:32 J -25908402.67 -25908402.56 -25908402.44 0.1906 0.0245

Mercury -75638-03-23 06:28 J -25905275.39 -25905275.23 -25905275.06 0.1637 0.0133

Mercury -75637-01-20 06:42 J -25904972.33 -25904972.22 -25904972.11 0.1914 0.0689

Mercury -75629-08-12 07:54 J -25901845.30 -25901845.17 -25901845.05 0.1631 0.1073

Mercury -75628-06-11 14:37 J -25901541.95 -25901541.89 -25901541.83 0.1921 0.1628

Mercury -75617-10-07 14:37 J -25897405.98 -25897405.89 -25897405.81 0.1898 0.1262

Mercury -75608-05-01 05:59 J -25894278.39 -25894278.25 -25894278.12 0.1643 0.0957

Mercury -75607-02-27 22:32 J -25893975.67 -25893975.56 -25893975.45 0.1906 0.0340

Earth -75607-06-14 05:16 J -25893869.43 -25893869.28 -25893869.13 0.1709 0.1037

Moon -75607-06-14 11:44 J -25893869.15 -25893869.01 -25893868.87 0.1708 0.1102 *

Mercury -75599-09-21 07:11 J -25890848.37 -25890848.20 -25890848.03 0.1637 0.0009

Mercury -75598-07-21 06:42 J -25890545.33 -25890545.22 -25890545.12 0.1914 0.0593

Venus -75597-06-10 13:40 J -25890220.11 -25890219.93 -25890219.76 0.1584 0.0246

Venus -75594-03-21 04:47 J -25889206.40 -25889206.30 -25889206.19 0.1960 0.1509

Mercury -75589-02-11 08:23 J -25887418.29 -25887418.15 -25887418.02 0.1631 0.0945

Mercury -75589-12-10 14:37 J -25887114.96 -25887114.89 -25887114.82 0.1921 0.1516

Moon -75582-12-13 08:08 J -25884556.33 -25884556.16 -25884555.98 0.1820 0.0713

Earth -75582-12-13 15:35 J -25884556.03 -25884555.85 -25884555.68 0.1820 0.0910 *

Mercury -75577-04-07 14:37 J -25882978.97 -25882978.89 -25882978.81 0.1898 0.1371

Mercury -75569-10-30 06:42 J -25879851.35 -25879851.22 -25879851.10 0.1643 0.1098

Mercury -75568-08-28 22:32 J -25879548.67 -25879548.56 -25879548.45 0.1906 0.0447

Earth -75560-06-07 03:06 J -25876709.44 -25876709.37 -25876709.29 0.1735 0.1576

Moon -75560-06-07 08:37 J -25876709.23 -25876709.14 -25876709.04 0.1734 0.1463

Mercury -75559-03-22 07:54 J -25876421.34 -25876421.17 -25876421.01 0.1637 0.0143

Mercury -75558-01-19 06:42 J -25876118.33 -25876118.22 -25876118.11 0.1914 0.0479

Mercury -75550-08-12 09:06 J -25872991.26 -25872991.12 -25872990.97 0.1631 0.0800

Mercury -75549-06-10 14:37 J -25872687.97 -25872687.89 -25872687.81 0.1921 0.1420

Mercury -75538-10-07 14:37 J -25868551.97 -25868551.89 -25868551.82 0.1898 0.1470

Venus -75531-04-08 01:25 J -25866177.62 -25866177.44 -25866177.26 0.1583 0.0031

Mercury -75529-04-30 07:11 J -25865424.31 -25865424.20 -25865424.10 0.1643 0.1223

Venus -75528-01-15 07:40 J -25865164.34 -25865164.18 -25865164.02 0.1962 0.0634

Mercury -75528-02-26 22:32 J -25865121.67 -25865121.56 -25865121.45 0.1906 0.0562

Mercury -75520-09-20 08:37 J -25861994.31 -25861994.14 -25861993.98 0.1637 0.0281

Mercury -75519-07-20 06:42 J -25861691.33 -25861691.22 -25861691.11 0.1913 0.0369

Mercury -75510-02-10 09:49 J -25858564.24 -25858564.09 -25858563.93 0.1631 0.0662

Mercury -75510-12-10 14:37 J -25858260.97 -25858260.89 -25858260.81 0.1921 0.1312

Moon -75503-12-16 16:32 J -25855698.02 -25855697.81 -25855697.60 0.1829 0.0392

Earth -75503-12-16 22:04 J -25855697.76 -25855697.58 -25855697.40 0.1829 0.0767 *

Mercury -75501-07-02 11:01 J -25855134.06 -25855134.04 -25855134.01 0.1626 0.1604

Mercury -75498-04-07 14:37 J -25854124.95 -25854124.89 -25854124.83 0.1898 0.1579

Mercury -75490-10-30 07:54 J -25850997.26 -25850997.17 -25850997.08 0.1643 0.1368

Mercury -75489-08-27 22:32 J -25850694.67 -25850694.56 -25850694.45 0.1906 0.0662

Moon -75481-06-09 10:18 J -25847852.23 -25847852.07 -25847851.91 0.1728 0.0639

Earth -75481-06-09 12:56 J -25847852.13 -25847851.96 -25847851.78 0.1728 0.0559 *

Mercury -75480-03-21 09:06 J -25847567.28 -25847567.12 -25847566.95 0.1637 0.0420

Mercury -75479-01-18 06:42 J -25847264.34 -25847264.22 -25847264.11 0.1914 0.0275

Mercury -75471-08-11 10:18 J -25844137.22 -25844137.07 -25844136.91 0.1631 0.0536

Mercury -75470-06-10 14:52 J -25843833.97 -25843833.88 -25843833.79 0.1921 0.1196

Venus -75465-02-03 14:08 J -25842135.09 -25842134.91 -25842134.73 0.1582 0.0217

Venus -75463-11-12 10:18 J -25841122.24 -25841122.07 -25841121.90 0.1965 0.0264

Mercury -75461-01-01 11:59 J -25840707.07 -25840707.00 -25840706.93 0.1626 0.1462

Mercury -75459-10-06 14:37 J -25839697.94 -25839697.89 -25839697.84 0.1898 0.1693

Mercury -75450-04-30 08:37 J -25836570.20 -25836570.14 -25836570.08 0.1644 0.1506

Mercury -75449-02-26 22:32 J -25836267.66 -25836267.56 -25836267.45 0.1906 0.0765

Mercury -75441-09-19 09:49 J -25833140.24 -25833140.09 -25833139.93 0.1637 0.0558

Mercury -75440-07-19 06:42 J -25832837.33 -25832837.22 -25832837.10 0.1913 0.0158

Mercury -75431-02-09 11:16 J -25829710.19 -25829710.03 -25829709.87 0.1632 0.0388

Mercury -75431-12-09 14:37 J -25829406.98 -25829406.89 -25829406.80 0.1921 0.1105

Mercury -75422-07-02 12:28 J -25826280.07 -25826279.98 -25826279.89 0.1626 0.1334

Mercury -75419-04-06 14:37 J -25825270.93 -25825270.89 -25825270.86 0.1898 0.1786

Mercury -75411-10-29 09:06 J -25822143.13 -25822143.12 -25822143.11 0.1644 0.1636

Mercury -75410-08-27 22:47 J -25821840.65 -25821840.55 -25821840.45 0.1906 0.0883

Moon -75402-06-12 13:25 J -25818995.12 -25818994.94 -25818994.76 0.1723 0.0336

Earth -75402-06-12 20:37 J -25818994.83 -25818994.64 -25818994.46 0.1722 0.0410 *

Mercury -75401-03-20 10:32 J -25818713.21 -25818713.06 -25818712.91 0.1638 0.0690

Mercury -75400-01-17 06:42 J -25818410.33 -25818410.22 -25818410.10 0.1913 0.0060

Venus -75400-12-01 02:08 J -25818092.58 -25818092.41 -25818092.24 0.1580 0.0451

Venus -75397-09-08 12:56 J -25817080.10 -25817079.96 -25817079.83 0.1967 0.1174

Mercury -75392-08-10 11:59 J -25815283.17 -25815283.00 -25815282.84 0.1632 0.0253

Mercury -75391-06-09 14:37 J -25814979.98 -25814979.89 -25814979.79 0.1921 0.0995

Mercury -75383-12-31 13:11 J -25811853.06 -25811852.95 -25811852.83 0.1626 0.1190

Mercury -75370-02-25 22:47 J -25807413.65 -25807413.55 -25807413.46 0.1905 0.0982

Venus -75368-11-29 19:54 J -25806405.71 -25806405.67 -25806405.62 0.1585 0.1523

Mercury -75362-09-19 11:16 J -25804286.17 -25804286.03 -25804285.89 0.1638 0.0828

Mercury -75361-07-18 06:42 J -25803983.34 -25803983.22 -25803983.10 0.1913 0.0050

Mercury -75352-02-08 12:28 J -25800856.14 -25800855.98 -25800855.81 0.1632 0.0124

Mercury -75352-12-08 14:52 J -25800552.98 -25800552.88 -25800552.78 0.1920 0.0880

Mercury -75343-07-01 13:54 J -25797426.04 -25797425.92 -25797425.79 0.1626 0.1055

Mercury -75342-04-30 22:32 J -25797122.59 -25797122.56 -25797122.52 0.1927 0.1840

Venus -75334-09-28 14:52 J -25794050.04 -25794049.88 -25794049.72 0.1579 0.0669

Mercury -75331-08-26 22:47 J -25792986.65 -25792986.55 -25792986.46 0.1905 0.1087

Moon -75323-06-15 01:54 J -25790137.53 -25790137.42 -25790137.32 0.1716 0.1437

Earth -75323-06-15 04:04 J -25790137.44 -25790137.33 -25790137.22 0.1716 0.1361 *

Mercury -75322-03-20 11:59 J -25789859.13 -25789859.00 -25789858.87 0.1638 0.0965

Mercury -75321-01-17 06:42 J -25789556.33 -25789556.22 -25789556.10 0.1913 0.0169

Mercury -75313-08-09 13:25 J -25786429.11 -25786428.94 -25786428.78 0.1632 0.0034

Mercury -75312-06-08 14:37 J -25786125.99 -25786125.89 -25786125.78 0.1920 0.0786

Mercury -75304-12-30 14:37 J -25782999.03 -25782998.89 -25782998.75 0.1626 0.0920

Mercury -75303-10-29 22:47 J -25782695.60 -25782695.55 -25782695.50 0.1928 0.1728

Venus -75302-09-27 08:23 J -25782363.25 -25782363.15 -25782363.05 0.1583 0.1290

Earth -75298-12-13 10:32 J -25780825.23 -25780825.06 -25780824.89 0.1810 0.0971

Moon -75298-12-13 18:56 J -25780824.89 -25780824.71 -25780824.53 0.1810 0.0627 *

Mercury -75291-02-24 22:47 J -25778559.64 -25778559.55 -25778559.46 0.1905 0.1201

Mercury -75283-09-18 12:42 J -25775432.09 -25775431.97 -25775431.85 0.1638 0.1104

Mercury -75282-07-18 06:56 J -25775129.33 -25775129.21 -25775129.10 0.1913 0.0279

Earth -75276-06-07 23:01 J -25772977.65 -25772977.54 -25772977.42 0.1743 0.1340

Moon -75276-06-08 01:54 J -25772977.56 -25772977.42 -25772977.28 0.1743 0.1229 *

Mercury -75273-02-08 14:08 J -25772002.08 -25772001.91 -25772001.75 0.1632 0.0166

Mercury -75273-12-07 14:37 J -25771698.99 -25771698.89 -25771698.78 0.1920 0.0679

Venus -75268-07-26 03:20 J -25770007.50 -25770007.36 -25770007.21 0.1578 0.0892

Mercury -75264-06-30 15:20 J -25768572.01 -25768571.86 -25768571.72 0.1626 0.0784

Mercury -75263-04-29 22:47 J -25768268.61 -25768268.55 -25768268.49 0.1927 0.1626

Mercury -75252-08-25 22:47 J -25764132.63 -25764132.55 -25764132.47 0.1905 0.1302

Mercury -75243-03-19 13:11 J -25761005.05 -25761004.95 -25761004.84 0.1638 0.1240

Mercury -75242-01-16 06:42 J -25760702.33 -25760702.22 -25760702.10 0.1913 0.0372

Venus -75236-07-24 20:37 J -25758320.77 -25758320.64 -25758320.50 0.1582 0.1056

Mercury -75234-08-09 14:37 J -25757575.06 -25757574.89 -25757574.73 0.1632 0.0289

Venus -75233-05-02 18:56 J -25757307.79 -25757307.71 -25757307.62 0.1964 0.1661

Mercury -75233-06-07 14:52 J -25757271.99 -25757271.88 -25757271.77 0.1920 0.0559

Mercury -75225-12-29 16:04 J -25754144.98 -25754144.83 -25754144.67 0.1627 0.0641

Mercury -75224-10-28 22:47 J -25753841.62 -25753841.55 -25753841.48 0.1927 0.1522

Moon -75219-12-16 13:25 J -25751967.12 -25751966.94 -25751966.76 0.1818 0.0430

Earth -75219-12-16 15:35 J -25751967.04 -25751966.85 -25751966.67 0.1818 0.0657 *

Mercury -75215-05-21 17:30 J -25750714.81 -25750714.77 -25750714.74 0.1621 0.1575

Mercury -75212-02-23 22:47 J -25749705.63 -25749705.55 -25749705.47 0.1905 0.1407

Mercury -75204-09-17 13:54 J -25746578.00 -25746577.92 -25746577.83 0.1638 0.1377

Mercury -75203-07-17 06:56 J -25746275.32 -25746275.21 -25746275.10 0.1912 0.0488

Venus -75202-05-23 15:49 J -25745964.97 -25745964.84 -25745964.72 0.1577 0.1115

Earth -75197-06-10 09:06 J -25744120.30 -25744120.12 -25744119.93 0.1736 0.0304

Moon -75197-06-10 16:18 J -25744120.00 -25744119.82 -25744119.63 0.1736 0.0232 *

Mercury -75194-02-07 15:20 J -25743148.02 -25743147.86 -25743147.70 0.1632 0.0434

Mercury -75194-12-07 14:37 J -25742845.00 -25742844.89 -25742844.77 0.1920 0.0471

Mercury -75185-06-29 16:32 J -25739717.97 -25739717.81 -25739717.65 0.1626 0.0515

Mercury -75184-04-28 22:47 J -25739414.63 -25739414.55 -25739414.47 0.1927 0.1411

Mercury -75176-11-19 18:13 J -25736287.82 -25736287.74 -25736287.67 0.1621 0.1441

Mercury -75173-08-24 23:01 J -25735278.61 -25735278.54 -25735278.48 0.1905 0.1528

Venus -75170-05-22 08:52 J -25734278.28 -25734278.13 -25734277.98 0.1580 0.0825

Venus -75167-02-27 21:06 J -25733265.78 -25733265.62 -25733265.46 0.1966 0.0737

Mercury -75164-03-18 14:37 J -25732150.95 -25732150.89 -25732150.83 0.1638 0.1513

Mercury -75163-01-15 06:42 J -25731848.32 -25731848.22 -25731848.11 0.1912 0.0591

Mercury -75155-08-08 16:04 J -25728720.99 -25728720.83 -25728720.67 0.1632 0.0570

Mercury -75154-06-07 14:52 J -25728418.00 -25728417.88 -25728417.77 0.1920 0.0354

Mercury -75146-12-29 17:30 J -25725290.93 -25725290.77 -25725290.61 0.1627 0.0368

Mercury -75145-10-27 22:47 J -25724987.63 -25724987.55 -25724987.47 0.1927 0.1304

Venus -75136-03-20 04:18 J -25721922.41 -25721922.32 -25721922.22 0.1576 0.1334

Mercury -75136-05-20 18:42 J -25721860.81 -25721860.72 -25721860.62 0.1621 0.1304

Mercury -75133-02-23 22:47 J -25720851.61 -25720851.55 -25720851.49 0.1905 0.1620

Mercury -75124-07-16 06:56 J -25717421.32 -25717421.21 -25717421.11 0.1913 0.0698

Earth -75118-06-13 17:44 J -25715262.93 -25715262.76 -25715262.59 0.1730 0.0704

Moon -75118-06-13 19:40 J -25715262.84 -25715262.68 -25715262.51 0.1730 0.0655 *

Mercury -75115-02-06 16:32 J -25714293.96 -25714293.81 -25714293.66 0.1632 0.0703

Mercury -75115-12-06 14:52 J -25713990.99 -25713990.88 -25713990.76 0.1920 0.0241

Mercury -75106-06-29 18:13 J -25710863.91 -25710863.74 -25710863.58 0.1627 0.0238

Mercury -75105-04-27 22:47 J -25710560.64 -25710560.55 -25710560.46 0.1927 0.1205
 Venus -75104-03-18 21:06 J -25710235.78 -25710235.62 -25710235.45 0.1579 0.0591
 Venus -75102-12-25 23:44 J -25709223.68 -25709223.51 -25709223.34 0.1969 0.0166
 Mercury -75097-11-18 19:40 J -25707433.80 -25707433.68 -25707433.57 0.1621 0.1166
 Mercury -75094-08-24 22:47 J -25706424.59 -25706424.55 -25706424.50 0.1905 0.1731
 Mercury -75084-01-14 06:56 J -25702994.32 -25702994.21 -25702994.11 0.1912 0.0805
 Mercury -75076-08-07 17:30 J -25699866.91 -25699866.77 -25699866.63 0.1633 0.0845
 Mercury -75075-06-06 14:52 J -25699564.00 -25699563.88 -25699563.77 0.1920 0.0155
 Venus -75070-01-15 17:01 J -25697879.82 -25697879.79 -25697879.77 0.1575 0.1555
 Mercury -75067-12-28 18:42 J -25696436.89 -25696436.72 -25696436.55 0.1627 0.0101
 Mercury -75066-10-27 22:47 J -25696133.64 -25696133.55 -25696133.45 0.1927 0.1091
 Mercury -75057-05-19 20:08 J -25693006.79 -25693006.66 -25693006.53 0.1622 0.1033
 Mercury -75054-02-22 23:01 J -25691997.57 -25691997.54 -25691997.52 0.1905 0.1847
 Mercury -75045-07-15 06:56 J -25688567.31 -25688567.21 -25688567.11 0.1912 0.0911
 Earth -75039-06-16 01:40 J -25686405.47 -25686405.43 -25686405.39 0.1724 0.1677
 Venus -75038-01-14 09:49 J -25686193.26 -25686193.09 -25686192.92 0.1578 0.0374
 Mercury -75036-02-05 17:59 J -25685439.88 -25685439.75 -25685439.61 0.1633 0.0982
 Venus -75036-10-22 01:54 J -25685181.56 -25685181.42 -25685181.28 0.1971 0.1092
 Mercury -75036-12-05 14:52 J -25685137.00 -25685136.88 -25685136.77 0.1920 0.0037
 Mercury -75027-06-28 19:25 J -25682009.86 -25682009.69 -25682009.52 0.1627 0.0040
 Mercury -75026-04-27 22:47 J -25681706.65 -25681706.55 -25681706.45 0.1927 0.0990
 Mercury -75018-11-18 20:52 J -25678579.76 -25678579.63 -25678579.49 0.1621 0.0891
 Moon -75014-12-13 07:11 J -25677094.39 -25677094.20 -25677094.01 0.1799 0.0847
 Earth -75014-12-13 07:54 J -25677094.34 -25677094.17 -25677094.00 0.1799 0.0992 *
 Mercury -75005-01-14 06:56 J -25674140.31 -25674140.21 -25674140.12 0.1912 0.1015

75TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 75th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -74997-08-06 18:42 J | -25671012.84 | -25671012.72 | -25671012.60 | 0.1633 | 0.1110 | | |
| Mercury | -74996-06-05 14:52 J | -25670709.99 | -25670709.88 | -25670709.76 | 0.1919 | 0.0096 | | |
| Moon | -74992-06-08 11:01 J | -25669246.17 | -25669246.04 | -25669245.90 | 0.1752 | 0.1206 | | |
| Earth | -74992-06-08 17:44 J | -25669245.90 | -25669245.76 | -25669245.61 | 0.1751 | 0.1123 | * | |
| Mercury | -74988-12-27 20:08 J | -25667582.82 | -25667582.66 | -25667582.49 | 0.1627 | 0.0187 | | |
| Mercury | -74987-10-26 22:47 J | -25667279.65 | -25667279.55 | -25667279.45 | 0.1927 | 0.0883 | | |
| Mercury | -74978-05-19 21:35 J | -25664152.75 | -25664152.60 | -25664152.45 | 0.1622 | 0.0757 | | |
| Mercury | -74977-03-18 06:42 J | -25663849.25 | -25663849.22 | -25663849.19 | 0.1933 | 0.1841 | | |
| Venus | -74973-11-10 21:49 J | -25662150.76 | -25662150.59 | -25662150.41 | 0.1577 | 0.0147 | | |
| Mercury | -74966-07-15 06:56 J | -25659713.30 | -25659713.21 | -25659713.12 | 0.1912 | 0.1126 | | |
| Mercury | -74957-02-05 19:25 J | -25656585.79 | -25656585.69 | -25656585.58 | 0.1633 | 0.1256 | | |
| Mercury | -74957-12-04 14:52 J | -25656283.00 | -25656282.88 | -25656282.77 | 0.1920 | 0.0178 | | |
| Mercury | -74948-06-27 20:37 J | -25653155.80 | -25653155.64 | -25653155.47 | 0.1627 | 0.0308 | | |
| Mercury | -74947-04-26 22:47 J | -25652852.65 | -25652852.55 | -25652852.44 | 0.1927 | 0.0772 | | |
| Mercury | -74939-11-17 22:18 J | -25649725.73 | -25649725.57 | -25649725.42 | 0.1622 | 0.0622 | | |
| Mercury | -74938-09-17 06:42 J | -25649422.27 | -25649422.22 | -25649422.17 | 0.1933 | 0.1733 | | |
| Earth | -74935-12-16 10:18 J | -25648236.26 | -25648236.07 | -25648235.88 | 0.1807 | 0.0566 | | |
| Moon | -74935-12-16 19:25 J | -25648235.88 | -25648235.69 | -25648235.49 | 0.1808 | 0.0493 | * | |
| Mercury | -74929-04-08 23:44 J | -25646295.55 | -25646295.51 | -25646295.46 | 0.1617 | 0.1545 | | |
| Mercury | -74926-01-13 06:56 J | -25645286.30 | -25645286.21 | -25645286.12 | 0.1912 | 0.1228 | | |
| Mercury | -74918-08-06 20:08 J | -25642158.75 | -25642158.66 | -25642158.58 | 0.1633 | 0.1390 | | |
| Mercury | -74917-06-04 14:52 J | -25641855.99 | -25641855.88 | -25641855.76 | 0.1919 | 0.0292 | | |

Moon -74913-06-11 02:23 J -25640388.60 -25640388.40 -25640388.20 0.1744 0.0053
 Earth -74913-06-11 04:18 J -25640388.50 -25640388.32 -25640388.13 0.1744 0.0063 *
 Mercury -74909-12-26 21:35 J -25638728.76 -25638728.60 -25638728.44 0.1627 0.0452
 Mercury -74908-10-25 22:47 J -25638425.66 -25638425.55 -25638425.44 0.1926 0.0669
 Venus -74907-09-08 10:47 J -25638108.23 -25638108.05 -25638107.88 0.1576 0.0085
 Mercury -74899-05-18 23:01 J -25635298.70 -25635298.54 -25635298.38 0.1622 0.0488
 Mercury -74898-03-18 06:42 J -25634995.28 -25634995.22 -25634995.17 0.1934 0.1639
 Mercury -74890-10-09 00:28 J -25631868.56 -25631868.48 -25631868.41 0.1617 0.1415
 Mercury -74887-07-14 06:56 J -25630859.29 -25630859.21 -25630859.13 0.1912 0.1340
 Mercury -74878-02-04 20:37 J -25627731.69 -25627731.64 -25627731.58 0.1633 0.1522
 Mercury -74878-12-04 14:52 J -25627428.99 -25627428.88 -25627428.76 0.1919 0.0406
 Venus -74872-06-15 07:40 J -25625409.26 -25625409.18 -25625409.10 0.1968 0.1726
 Mercury -74869-06-26 22:04 J -25624301.73 -25624301.58 -25624301.42 0.1627 0.0587
 Mercury -74868-04-25 22:47 J -25623998.66 -25623998.55 -25623998.44 0.1926 0.0568
 Mercury -74860-11-16 23:44 J -25620871.68 -25620871.51 -25620871.35 0.1622 0.0347
 Mercury -74859-09-16 06:42 J -25620568.29 -25620568.22 -25620568.15 0.1933 0.1521
 Mercury -74850-04-09 01:11 J -25617441.55 -25617441.45 -25617441.35 0.1617 0.1272
 Mercury -74847-01-12 06:56 J -25616432.28 -25616432.21 -25616432.14 0.1912 0.1446
 Venus -74841-07-05 23:16 J -25614065.71 -25614065.53 -25614065.36 0.1575 0.0301
 Mercury -74838-06-04 14:52 J -25613001.99 -25613001.88 -25613001.77 0.1919 0.0495
 Earth -74834-06-14 13:25 J -25611531.09 -25611530.94 -25611530.78 0.1738 0.0975
 Moon -74834-06-14 19:40 J -25611530.84 -25611530.68 -25611530.52 0.1737 0.0928 *
 Mercury -74830-12-26 22:47 J -25609874.70 -25609874.55 -25609874.40 0.1627 0.0718
 Mercury -74829-10-24 22:47 J -25609571.66 -25609571.55 -25609571.43 0.1926 0.0454
 Mercury -74820-05-18 00:13 J -25606444.65 -25606444.49 -25606444.32 0.1622 0.0217
 Mercury -74819-03-17 06:42 J -25606141.30 -25606141.22 -25606141.14 0.1933 0.1418
 Mercury -74811-10-08 01:54 J -25603014.54 -25603014.42 -25603014.30 0.1617 0.1136
 Mercury -74808-07-13 06:56 J -25602005.27 -25602005.21 -25602005.14 0.1911 0.1551
 Venus -74806-04-12 10:18 J -25601367.22 -25601367.07 -25601366.91 0.1970 0.0833
 Mercury -74799-12-03 14:52 J -25598574.99 -25598574.88 -25598574.77 0.1919 0.0609

Mercury -74790-06-26 23:30 J -25595447.66 -25595447.52 -25595447.38 0.1628 0.0858

Mercury -74789-04-24 22:47 J -25595144.66 -25595144.55 -25595144.44 0.1926 0.0352

Mercury -74781-11-16 00:56 J -25592017.62 -25592017.46 -25592017.29 0.1622 0.0080

Mercury -74780-09-15 06:42 J -25591714.30 -25591714.22 -25591714.14 0.1933 0.1315

Venus -74775-05-03 11:30 J -25590023.19 -25590023.02 -25590022.85 0.1574 0.0526

Mercury -74771-04-08 02:23 J -25588587.53 -25588587.40 -25588587.27 0.1617 0.1010

Mercury -74768-01-11 06:56 J -25587578.27 -25587578.21 -25587578.15 0.1912 0.1659

Mercury -74759-06-03 15:06 J -25584147.98 -25584147.87 -25584147.77 0.1919 0.0725

Mercury -74751-12-26 00:13 J -25581020.62 -25581020.49 -25581020.36 0.1628 0.1000

Mercury -74750-10-24 22:47 J -25580717.66 -25580717.55 -25580717.43 0.1926 0.0244

Venus -74743-05-02 04:18 J -25578336.40 -25578336.32 -25578336.24 0.1577 0.1406

Mercury -74741-05-17 01:40 J -25577590.60 -25577590.43 -25577590.26 0.1622 0.0059

Venus -74740-02-06 12:13 J -25577325.16 -25577324.99 -25577324.82 0.1972 0.0122

Mercury -74740-03-16 06:42 J -25577287.31 -25577287.22 -25577287.13 0.1933 0.1207

Mercury -74732-10-07 03:20 J -25574160.51 -25574160.36 -25574160.22 0.1617 0.0865

Moon -74730-12-13 00:28 J -25573363.63 -25573363.48 -25573363.33 0.1788 0.1052

Earth -74730-12-13 06:42 J -25573363.38 -25573363.22 -25573363.05 0.1788 0.0990 *

Mercury -74729-07-12 06:56 J -25573151.25 -25573151.21 -25573151.17 0.1911 0.1769

Mercury -74720-12-02 14:52 J -25569720.98 -25569720.88 -25569720.78 0.1919 0.0817

Mercury -74711-06-26 00:42 J -25566593.59 -25566593.47 -25566593.35 0.1628 0.1122

Mercury -74710-04-24 22:47 J -25566290.66 -25566290.55 -25566290.43 0.1926 0.0144

Venus -74709-02-29 00:13 J -25565980.64 -25565980.49 -25565980.33 0.1573 0.0743

Earth -74708-06-09 10:47 J -25565514.21 -25565514.05 -25565513.90 0.1760 0.0931

Moon -74708-06-09 13:25 J -25565514.08 -25565513.94 -25565513.79 0.1760 0.0960 *

Mercury -74702-11-16 02:23 J -25563163.57 -25563163.40 -25563163.23 0.1622 0.0197

Mercury -74701-09-14 06:42 J -25562860.31 -25562860.22 -25562860.13 0.1933 0.1099

Mercury -74692-04-07 03:49 J -25559733.49 -25559733.34 -25559733.19 0.1617 0.0730

Mercury -74689-01-11 06:56 J -25558724.23 -25558724.21 -25558724.19 0.1911 0.1871

Mercury -74680-06-02 14:52 J -25555293.98 -25555293.88 -25555293.78 0.1919 0.0934

Venus -74677-02-27 16:47 J -25554293.92 -25554293.80 -25554293.68 0.1576 0.1175

Venus -74675-12-04 14:23 J -25553283.04 -25553282.90 -25553282.75 0.1974 0.1048

Mercury -74672-12-25 01:40 J -25552166.54 -25552166.43 -25552166.33 0.1628 0.1270

Mercury -74671-10-23 22:47 J -25551863.66 -25551863.55 -25551863.43 0.1926 0.0033

Mercury -74662-05-17 02:52 J -25548736.54 -25548736.38 -25548736.21 0.1622 0.0335

Mercury -74661-03-15 06:42 J -25548433.32 -25548433.22 -25548433.12 0.1933 0.1000

Mercury -74653-10-06 04:32 J -25545306.47 -25545306.31 -25545306.16 0.1617 0.0600

Moon -74651-12-15 23:59 J -25544505.70 -25544505.50 -25544505.29 0.1796 0.0471

Earth -74651-12-16 06:56 J -25544505.40 -25544505.21 -25544505.01 0.1797 0.0508 *

Venus -74644-12-26 12:42 J -25541938.11 -25541937.97 -25541937.82 0.1572 0.0965

Mercury -74643-02-26 05:59 J -25541876.30 -25541876.25 -25541876.19 0.1612 0.1516

Mercury -74641-12-01 15:06 J -25540866.97 -25540866.87 -25540866.78 0.1918 0.1043

Mercury -74632-06-25 02:08 J -25537739.49 -25537739.41 -25537739.33 0.1628 0.1404

Mercury -74631-04-23 22:47 J -25537436.67 -25537436.55 -25537436.44 0.1926 0.0073

Moon -74629-06-11 16:47 J -25536656.97 -25536656.80 -25536656.62 0.1753 0.0249

Earth -74629-06-11 21:35 J -25536656.78 -25536656.60 -25536656.41 0.1753 0.0156 *

Mercury -74623-11-15 03:49 J -25534309.50 -25534309.34 -25534309.18 0.1623 0.0472

Mercury -74622-09-14 06:42 J -25534006.32 -25534006.22 -25534006.12 0.1933 0.0884

Mercury -74613-04-06 05:16 J -25530879.44 -25530879.28 -25530879.12 0.1617 0.0459

Mercury -74612-02-03 14:37 J -25530575.92 -25530575.89 -25530575.87 0.1939 0.1870

Venus -74612-12-25 05:16 J -25530251.42 -25530251.28 -25530251.14 0.1575 0.0956

Mercury -74604-08-27 06:42 J -25527449.31 -25527449.22 -25527449.14 0.1612 0.1385

Mercury -74601-06-01 14:52 J -25526439.97 -25526439.88 -25526439.79 0.1919 0.1137

Mercury -74593-12-24 02:52 J -25523312.44 -25523312.38 -25523312.33 0.1628 0.1536

Mercury -74592-10-22 23:01 J -25523009.66 -25523009.54 -25523009.43 0.1926 0.0204

Mercury -74583-05-16 04:18 J -25519882.47 -25519882.32 -25519882.16 0.1623 0.0605

Mercury -74582-03-15 06:42 J -25519579.32 -25519579.22 -25519579.12 0.1932 0.0783

Venus -74578-10-24 01:25 J -25517895.55 -25517895.44 -25517895.32 0.1572 0.1180

Mercury -74574-10-06 05:59 J -25516452.42 -25516452.25 -25516452.09 0.1617 0.0323

Mercury -74573-08-04 14:37 J -25516148.94 -25516148.89 -25516148.84 0.1939 0.1754

Mercury -74564-02-25 07:25 J -25513022.29 -25513022.19 -25513022.08 0.1612 0.1245

Mercury -74562-12-01 14:52 J -25512012.96 -25512012.88 -25512012.79 0.1918 0.1255

Mercury -74552-04-22 22:47 J -25508582.66 -25508582.55 -25508582.44 0.1926 0.0287

Moon -74550-06-15 01:54 J -25507799.57 -25507799.42 -25507799.26 0.1747 0.1008

Earth -74550-06-15 07:54 J -25507799.30 -25507799.17 -25507799.04 0.1746 0.1229 *

Venus -74546-10-22 17:30 J -25506208.92 -25506208.77 -25506208.61 0.1574 0.0727

Mercury -74544-11-14 05:01 J -25505455.44 -25505455.29 -25505455.14 0.1623 0.0740

Mercury -74543-09-13 06:42 J -25505152.33 -25505152.22 -25505152.11 0.1933 0.0676

Mercury -74534-04-06 06:28 J -25502025.40 -25502025.23 -25502025.06 0.1618 0.0194

Mercury -74533-02-03 14:37 J -25501721.95 -25501721.89 -25501721.83 0.1939 0.1643

Mercury -74525-08-26 08:08 J -25498595.28 -25498595.16 -25498595.04 0.1613 0.1107

Mercury -74522-06-01 15:06 J -25497585.95 -25497585.87 -25497585.79 0.1918 0.1364

Mercury -74513-10-21 22:47 J -25494155.66 -25494155.55 -25494155.44 0.1926 0.0398

Venus -74512-08-20 14:08 J -25493852.99 -25493852.91 -25493852.84 0.1571 0.1401

Venus -74511-07-28 20:08 J -25493510.73 -25493510.66 -25493510.59 0.1972 0.1790

Mercury -74504-05-15 05:44 J -25491028.40 -25491028.26 -25491028.12 0.1623 0.0876

Mercury -74503-03-14 06:42 J -25490725.33 -25490725.22 -25490725.11 0.1932 0.0568

Mercury -74495-10-05 07:25 J -25487598.36 -25487598.19 -25487598.03 0.1618 0.0065

Mercury -74494-08-04 14:37 J -25487294.96 -25487294.89 -25487294.83 0.1939 0.1548

Mercury -74485-02-25 08:37 J -25484168.27 -25484168.14 -25484168.00 0.1612 0.0979

Mercury -74483-11-30 14:52 J -25483158.95 -25483158.88 -25483158.81 0.1918 0.1459

Venus -74480-08-19 06:28 J -25482166.40 -25482166.23 -25482166.06 0.1573 0.0513

Mercury -74473-04-21 22:47 J -25479728.66 -25479728.55 -25479728.44 0.1926 0.0514

Mercury -74465-11-13 06:28 J -25476601.36 -25476601.23 -25476601.10 0.1623 0.1016

Mercury -74464-09-12 06:42 J -25476298.33 -25476298.22 -25476298.11 0.1932 0.0461

Mercury -74455-04-05 07:54 J -25473171.34 -25473171.17 -25473171.00 0.1618 0.0087

Mercury -74454-02-02 14:37 J -25472867.97 -25472867.89 -25472867.82 0.1939 0.1436

Mercury -74446-08-26 09:35 J -25469741.25 -25469741.10 -25469740.96 0.1613 0.0839

Earth -74446-12-13 07:11 J -25469632.37 -25469632.20 -25469632.04 0.1778 0.0972

Moon -74446-12-13 14:23 J -25469632.06 -25469631.90 -25469631.74 0.1779 0.0928 *

Venus -74445-05-24 22:04 J -25469468.73 -25469468.58 -25469468.43 0.1973 0.0849

Mercury -74443-05-31 14:52 J -25468731.94 -25468731.88 -25468731.81 0.1918 0.1576
 Mercury -74434-10-21 22:47 J -25465301.66 -25465301.55 -25465301.44 0.1925 0.0610
 Mercury -74425-05-14 06:56 J -25462174.32 -25462174.21 -25462174.09 0.1623 0.1148
 Mercury -74424-03-13 06:42 J -25461871.33 -25461871.22 -25461871.11 0.1933 0.0357
 Earth -74424-06-10 02:37 J -25461782.56 -25461782.39 -25461782.22 0.1769 0.0756
 Moon -74424-06-10 07:40 J -25461782.35 -25461782.18 -25461782.00 0.1769 0.0779 *
 Mercury -74416-10-04 08:37 J -25458744.31 -25458744.14 -25458743.98 0.1618 0.0220
 Mercury -74415-08-03 14:37 J -25458440.97 -25458440.89 -25458440.80 0.1939 0.1322
 Venus -74414-06-16 18:42 J -25458123.89 -25458123.72 -25458123.54 0.1572 0.0288
 Mercury -74406-02-24 10:04 J -25455314.23 -25455314.08 -25455313.92 0.1613 0.0703
 Mercury -74404-11-29 15:06 J -25454304.93 -25454304.87 -25454304.82 0.1918 0.1684
 Mercury -74394-04-21 22:47 J -25450874.66 -25450874.55 -25450874.44 0.1925 0.0717
 Mercury -74386-11-13 07:40 J -25447747.28 -25447747.18 -25447747.08 0.1623 0.1288
 Mercury -74385-09-11 06:42 J -25447444.33 -25447444.22 -25447444.10 0.1932 0.0245
 Venus -74379-03-22 00:28 J -25445426.65 -25445426.48 -25445426.31 0.1975 0.0091
 Mercury -74376-04-04 09:20 J -25444317.28 -25444317.11 -25444316.95 0.1618 0.0358
 Mercury -74375-02-01 14:23 J -25444013.98 -25444013.90 -25444013.81 0.1939 0.1235
 Mercury -74367-08-25 10:47 J -25440887.21 -25440887.05 -25440886.90 0.1613 0.0572
 Moon -74367-12-16 03:49 J -25440774.52 -25440774.34 -25440774.17 0.1786 0.0557
 Earth -74367-12-16 05:44 J -25440774.45 -25440774.26 -25440774.07 0.1786 0.0480 *
 Mercury -74364-05-30 14:52 J -25439877.92 -25439877.88 -25439877.84 0.1918 0.1783
 Mercury -74357-01-15 12:28 J -25437457.04 -25437456.98 -25437456.92 0.1608 0.1485
 Mercury -74355-10-20 23:01 J -25436447.65 -25436447.54 -25436447.44 0.1925 0.0840
 Venus -74348-04-13 07:25 J -25434081.37 -25434081.19 -25434081.01 0.1572 0.0067
 Mercury -74346-05-14 08:23 J -25433320.23 -25433320.15 -25433320.07 0.1623 0.1422
 Mercury -74345-03-12 06:42 J -25433017.34 -25433017.22 -25433017.11 0.1932 0.0146
 Earth -74345-06-12 13:11 J -25432925.13 -25432924.95 -25432924.76 0.1762 0.0349
 Moon -74345-06-12 19:11 J -25432924.87 -25432924.70 -25432924.53 0.1761 0.0538 *
 Mercury -74337-10-03 10:04 J -25429890.24 -25429890.08 -25429889.93 0.1618 0.0496
 Mercury -74336-08-02 14:37 J -25429586.98 -25429586.89 -25429586.80 0.1939 0.1114

Mercury -74327-02-23 11:30 J -25426460.18 -25426460.02 -25426459.86 0.1613 0.0430
 Mercury -74325-11-28 15:06 J -25425450.89 -25425450.87 -25425450.86 0.1918 0.1899
 Mercury -74318-07-16 12:56 J -25423030.05 -25423029.96 -25423029.87 0.1608 0.1352
 Mercury -74315-04-20 22:47 J -25422020.65 -25422020.55 -25422020.45 0.1925 0.0928
 Venus -74313-01-17 02:08 J -25421384.55 -25421384.41 -25421384.27 0.1976 0.1048
 Mercury -74307-11-12 08:52 J -25418893.17 -25418893.13 -25418893.08 0.1623 0.1557
 Mercury -74306-09-11 06:42 J -25418590.33 -25418590.22 -25418590.10 0.1932 0.0033
 Mercury -74297-04-03 10:32 J -25415463.21 -25415463.06 -25415462.91 0.1618 0.0625
 Mercury -74296-01-31 14:37 J -25415159.99 -25415159.89 -25415159.79 0.1938 0.1004
 Mercury -74288-08-24 12:13 J -25412033.15 -25412032.99 -25412032.82 0.1613 0.0293
 Moon -74288-12-18 22:47 J -25411916.58 -25411916.55 -25411916.51 0.1793 0.1757
 Venus -74282-02-08 20:08 J -25410038.84 -25410038.66 -25410038.48 0.1571 0.0153
 Mercury -74278-01-14 13:40 J -25408603.03 -25408602.93 -25408602.82 0.1608 0.1214
 Mercury -74276-10-19 22:47 J -25407593.64 -25407593.55 -25407593.45 0.1925 0.1042
 Mercury -74266-03-12 06:42 J -25404163.33 -25404163.22 -25404163.10 0.1932 0.0076
 Moon -74266-06-15 23:30 J -25404067.64 -25404067.52 -25404067.40 0.1755 0.1257
 Earth -74266-06-16 00:42 J -25404067.57 -25404067.47 -25404067.37 0.1755 0.1461 *
 Mercury -74258-10-03 11:16 J -25401036.17 -25401036.03 -25401035.88 0.1618 0.0769
 Mercury -74257-08-01 14:37 J -25400732.99 -25400732.89 -25400732.79 0.1939 0.0911
 Mercury -74248-02-22 12:42 J -25397606.13 -25397605.97 -25397605.80 0.1613 0.0166
 Mercury -74248-12-22 22:32 J -25397302.59 -25397302.56 -25397302.54 0.1945 0.1885
 Mercury -74239-07-15 14:23 J -25394176.02 -25394175.90 -25394175.78 0.1608 0.1081
 Mercury -74236-04-19 22:47 J -25393166.64 -25393166.55 -25393166.45 0.1925 0.1160
 Mercury -74227-09-10 06:42 J -25389736.33 -25389736.22 -25389736.10 0.1932 0.0183
 Mercury -74218-04-03 11:59 J -25386609.14 -25386609.00 -25386608.86 0.1618 0.0901
 Mercury -74217-01-31 14:37 J -25386306.00 -25386305.89 -25386305.79 0.1938 0.0796
 Venus -74217-12-06 08:37 J -25385996.31 -25385996.14 -25385995.96 0.1570 0.0373
 Mercury -74209-08-23 13:40 J -25383179.10 -25383178.93 -25383178.77 0.1613 0.0040
 Mercury -74208-06-22 22:18 J -25382875.61 -25382875.57 -25382875.52 0.1944 0.1783
 Mercury -74199-01-13 15:06 J -25379749.00 -25379748.87 -25379748.73 0.1608 0.0941

Mercury -74197-10-18 22:47 J -25378739.63 -25378739.55 -25378739.46 0.1925 0.1255

Mercury -74187-03-11 06:42 J -25375309.33 -25375309.22 -25375309.11 0.1932 0.0289

Venus -74185-12-05 00:56 J -25374309.49 -25374309.46 -25374309.43 0.1573 0.1544

Mercury -74179-10-02 12:28 J -25372182.10 -25372181.98 -25372181.85 0.1618 0.1035

Mercury -74178-08-01 14:37 J -25371879.00 -25371878.89 -25371878.78 0.1938 0.0682

Mercury -74169-02-22 14:23 J -25368752.07 -25368751.90 -25368751.74 0.1613 0.0122

Mercury -74169-12-21 22:18 J -25368448.62 -25368448.57 -25368448.51 0.1945 0.1679

Moon -74162-12-13 07:40 J -25365901.35 -25365901.18 -25365901.01 0.1768 0.1108

Earth -74162-12-13 09:20 J -25365901.28 -25365901.11 -25365900.94 0.1768 0.0920 *

Mercury -74160-07-14 15:49 J -25365321.98 -25365321.84 -25365321.69 0.1609 0.0807

Mercury -74157-04-18 22:47 J -25364312.63 -25364312.55 -25364312.47 0.1925 0.1364

Venus -74151-10-03 21:35 J -25361953.77 -25361953.60 -25361953.44 0.1570 0.0586

Venus -74150-09-10 07:25 J -25361612.26 -25361612.19 -25361612.12 0.1975 0.1787

Mercury -74148-09-09 06:42 J -25360882.33 -25360882.22 -25360882.11 0.1931 0.0401

Moon -74140-06-10 09:49 J -25358051.25 -25358051.09 -25358050.92 0.1779 0.0873

Earth -74140-06-10 17:16 J -25358050.96 -25358050.78 -25358050.61 0.1778 0.0607 *

Mercury -74139-04-02 13:25 J -25357755.06 -25357754.94 -25357754.83 0.1618 0.1176

Mercury -74138-01-30 14:23 J -25357452.00 -25357451.90 -25357451.79 0.1938 0.0594

Mercury -74130-08-23 14:52 J -25354325.05 -25354324.88 -25354324.72 0.1613 0.0246

Mercury -74129-06-21 22:32 J -25354021.63 -25354021.56 -25354021.50 0.1945 0.1558

Mercury -74120-01-12 16:32 J -25350894.96 -25350894.81 -25350894.66 0.1609 0.0670

Venus -74119-10-02 13:25 J -25350267.03 -25350266.94 -25350266.84 0.1572 0.1316

Mercury -74118-10-18 23:01 J -25349885.61 -25349885.54 -25349885.47 0.1925 0.1485

Mercury -74111-06-04 17:59 J -25347464.77 -25347464.75 -25347464.72 0.1604 0.1584

Mercury -74108-03-10 06:42 J -25346455.33 -25346455.22 -25346455.11 0.1931 0.0501

Mercury -74100-10-01 13:54 J -25343328.01 -25343327.92 -25343327.82 0.1619 0.1314

Mercury -74099-07-31 14:37 J -25343025.00 -25343024.89 -25343024.78 0.1938 0.0468

Mercury -74090-02-21 15:35 J -25339898.01 -25339897.85 -25339897.69 0.1614 0.0389

Mercury -74090-12-21 22:18 J -25339594.64 -25339594.57 -25339594.49 0.1944 0.1464

Venus -74085-07-31 10:18 J -25337911.22 -25337911.07 -25337910.92 0.1569 0.0805

Venus -74084-07-07 10:04 J -25337570.23 -25337570.08 -25337569.92 0.1976 0.0879

Earth -74083-12-16 06:56 J -25337043.40 -25337043.21 -25337043.02 0.1776 0.0488

Moon -74083-12-16 14:52 J -25337043.06 -25337042.88 -25337042.69 0.1776 0.0740 *

Mercury -74081-07-13 17:01 J -25336467.94 -25336467.79 -25336467.63 0.1609 0.0539

Mercury -74078-04-18 22:47 J -25335458.61 -25335458.55 -25335458.49 0.1925 0.1575

Mercury -74072-12-03 18:42 J -25333037.79 -25333037.72 -25333037.65 0.1604 0.1451

Mercury -74069-09-08 06:42 J -25332028.33 -25332028.22 -25332028.11 0.1932 0.0620

Earth -74061-06-13 04:47 J -25329193.48 -25329193.30 -25329193.12 0.1771 0.0539

Moon -74061-06-13 04:47 J -25329193.48 -25329193.30 -25329193.11 0.1771 0.0733 *

Mercury -74060-04-01 14:37 J -25328900.96 -25328900.89 -25328900.82 0.1619 0.1445

Mercury -74059-01-29 14:37 J -25328598.00 -25328597.89 -25328597.78 0.1938 0.0360

Venus -74053-07-30 02:23 J -25326224.53 -25326224.40 -25326224.27 0.1571 0.1104

Mercury -74051-08-22 16:18 J -25325470.98 -25325470.82 -25325470.66 0.1614 0.0525

Mercury -74050-06-21 22:18 J -25325167.65 -25325167.57 -25325167.49 0.1944 0.1356

Mercury -74041-01-12 17:59 J -25322040.91 -25322040.75 -25322040.59 0.1609 0.0396

Mercury -74039-10-17 22:47 J -25321031.60 -25321031.55 -25321031.49 0.1924 0.1694

Mercury -74032-06-03 19:25 J -25318610.78 -25318610.69 -25318610.59 0.1604 0.1310

Mercury -74029-03-09 06:42 J -25317601.33 -25317601.22 -25317601.11 0.1931 0.0723

Mercury -74021-09-30 15:20 J -25314473.89 -25314473.86 -25314473.83 0.1619 0.1586

Mercury -74020-07-30 14:37 J -25314171.01 -25314170.89 -25314170.78 0.1938 0.0269

Venus -74019-05-28 23:01 J -25313868.68 -25313868.54 -25313868.41 0.1569 0.1017

Venus -74018-05-04 11:59 J -25313528.17 -25313528.00 -25313527.83 0.1977 0.0098

Mercury -74011-02-20 16:47 J -25311043.95 -25311043.80 -25311043.64 0.1614 0.0655

Mercury -74011-12-20 22:32 J -25310740.65 -25310740.56 -25310740.48 0.1944 0.1241

Mercury -74002-07-13 18:28 J -25307613.89 -25307613.73 -25307613.56 0.1609 0.0266

74TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 74th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -73999-04-17 23:01 J | -25306604.58 | -25306604.54 | -25306604.51 | 0.1924 | 0.1809 | | |
| Mercury | -73993-12-02 20:08 J | -25304183.77 | -25304183.66 | -25304183.54 | 0.1604 | 0.1173 | | |
| Mercury | -73990-09-08 06:42 J | -25303174.32 | -25303174.22 | -25303174.11 | 0.1931 | 0.0830 | | |
| Venus | -73987-05-27 14:37 J | -25302182.03 | -25302181.89 | -25302181.74 | 0.1570 | 0.0880 | | |
| Earth | -73982-06-16 16:18 J | -25300335.87 | -25300335.82 | -25300335.76 | 0.1764 | 0.1676 | | |
| Moon | -73982-06-16 23:16 J | -25300335.62 | -25300335.53 | -25300335.43 | 0.1763 | 0.1532 | | |
| Mercury | -73980-01-28 14:37 J | -25299744.01 | -25299743.89 | -25299743.78 | 0.1938 | 0.0150 | | |
| Mercury | -73972-08-21 17:44 J | -25296616.91 | -25296616.76 | -25296616.62 | 0.1614 | 0.0799 | | |
| Mercury | -73971-06-20 22:18 J | -25296313.66 | -25296313.57 | -25296313.47 | 0.1944 | 0.1140 | | |
| Mercury | -73962-01-11 19:11 J | -25293186.86 | -25293186.70 | -25293186.53 | 0.1609 | 0.0129 | | |
| Mercury | -73960-10-16 22:47 J | -25292177.56 | -25292177.55 | -25292177.54 | 0.1924 | 0.1905 | | |
| Venus | -73953-03-25 11:30 J | -25289826.13 | -25289826.02 | -25289825.91 | 0.1568 | 0.1237 | | |
| Mercury | -73953-06-02 20:52 J | -25289756.76 | -25289756.63 | -25289756.51 | 0.1604 | 0.1046 | | |
| Venus | -73952-02-28 13:54 J | -25289486.06 | -25289485.92 | -25289485.77 | 0.1978 | 0.1032 | | |
| Mercury | -73950-03-09 06:42 J | -25288747.32 | -25288747.22 | -25288747.12 | 0.1931 | 0.0941 | | |
| Mercury | -73941-07-29 14:37 J | -25285317.00 | -25285316.89 | -25285316.77 | 0.1938 | 0.0051 | | |
| Earth | -73935-06-08 15:06 J | -25283176.90 | -25283176.87 | -25283176.83 | 0.1795 | 0.1761 | | |
| Moon | -73935-06-08 22:18 J | -25283176.67 | -25283176.57 | -25283176.47 | 0.1794 | 0.1497 | | |
| Mercury | -73932-02-19 18:28 J | -25282189.87 | -25282189.73 | -25282189.60 | 0.1614 | 0.0938 | | |
| Mercury | -73932-12-19 22:18 J | -25281886.66 | -25281886.57 | -25281886.47 | 0.1944 | 0.1033 | | |
| Mercury | -73923-07-12 19:54 J | -25278759.84 | -25278759.67 | -25278759.50 | 0.1609 | 0.0020 | | |
| Venus | -73921-03-24 03:35 J | -25278139.51 | -25278139.35 | -25278139.19 | 0.1570 | 0.0667 | | |

Mercury -73914-12-02 21:35 J -25275329.73 -25275329.60 -25275329.46 0.1604 0.0900

Mercury -73911-09-07 06:42 J -25274320.31 -25274320.22 -25274320.12 0.1931 0.1052

Mercury -73901-01-28 14:37 J -25270890.01 -25270889.89 -25270889.78 0.1938 0.0083

Mercury -73893-08-20 18:56 J -25267762.84 -25267762.71 -25267762.59 0.1614 0.1065

Mercury -73892-06-19 22:32 J -25267459.66 -25267459.56 -25267459.46 0.1944 0.0911

Venus -73887-01-21 00:28 J -25265783.54 -25265783.48 -25265783.41 0.1568 0.1444

Mercury -73883-01-10 20:37 J -25264332.80 -25264332.64 -25264332.47 0.1609 0.0154

Mercury -73883-11-10 06:13 J -25264029.26 -25264029.24 -25264029.22 0.1950 0.1918

Moon -73878-12-13 06:56 J -25262170.36 -25262170.21 -25262170.07 0.1757 0.1120

Earth -73878-12-13 13:40 J -25262170.10 -25262169.93 -25262169.75 0.1758 0.0843 *

Mercury -73874-06-02 22:18 J -25260902.72 -25260902.57 -25260902.42 0.1604 0.0765

Mercury -73871-03-08 06:42 J -25259893.31 -25259893.22 -25259893.13 0.1931 0.1154

Mercury -73862-07-29 14:37 J -25256463.00 -25256462.89 -25256462.77 0.1938 0.0184

Earth -73856-06-11 06:13 J -25254319.42 -25254319.24 -25254319.05 0.1787 0.0490

Moon -73856-06-11 06:13 J -25254319.40 -25254319.24 -25254319.08 0.1787 0.0677 *

Venus -73855-01-19 16:18 J -25254096.99 -25254096.82 -25254096.64 0.1569 0.0452

Mercury -73853-02-19 19:40 J -25253335.79 -25253335.68 -25253335.57 0.1614 0.1210

Mercury -73853-12-18 22:18 J -25253032.67 -25253032.57 -25253032.46 0.1944 0.0819

Mercury -73844-07-11 21:20 J -25249905.78 -25249905.61 -25249905.45 0.1609 0.0284

Mercury -73843-05-11 06:13 J -25249602.28 -25249602.24 -25249602.20 0.1950 0.1812

Mercury -73835-12-01 23:01 J -25246475.70 -25246475.54 -25246475.39 0.1605 0.0630

Mercury -73832-09-06 06:56 J -25245466.30 -25245466.21 -25245466.13 0.1931 0.1275

Mercury -73825-04-23 00:42 J -25243045.51 -25243045.47 -25243045.42 0.1600 0.1536

Mercury -73822-01-27 14:37 J -25242036.00 -25242035.89 -25242035.77 0.1937 0.0291

Mercury -73814-08-20 20:23 J -25238908.74 -25238908.65 -25238908.56 0.1614 0.1347

Mercury -73813-06-18 22:18 J -25238605.67 -25238605.57 -25238605.46 0.1944 0.0709

Mercury -73804-01-09 22:04 J -25235478.74 -25235478.58 -25235478.42 0.1609 0.0427

Mercury -73804-11-09 06:13 J -25235175.29 -25235175.24 -25235175.18 0.1950 0.1698

Moon -73799-12-16 04:32 J -25233312.50 -25233312.31 -25233312.12 0.1765 0.0735

Earth -73799-12-16 11:01 J -25233312.23 -25233312.04 -25233311.85 0.1766 0.0546 *

Mercury -73795-06-01 23:44 J -25232048.67 -25232048.51 -25232048.35 0.1605 0.0491

Mercury -73792-03-07 06:42 J -25231039.30 -25231039.22 -25231039.14 0.1931 0.1376

Venus -73790-11-17 05:01 J -25230054.46 -25230054.29 -25230054.11 0.1569 0.0239

Venus -73789-10-22 19:40 J -25229713.74 -25229713.68 -25229713.62 0.1977 0.1830

Mercury -73786-10-23 01:25 J -25228618.52 -25228618.44 -25228618.36 0.1600 0.1404

Mercury -73783-07-28 14:37 J -25227609.00 -25227608.89 -25227608.78 0.1938 0.0393

Moon -73777-06-13 12:13 J -25225462.15 -25225461.99 -25225461.83 0.1781 0.0891

Earth -73777-06-13 19:25 J -25225461.86 -25225461.69 -25225461.52 0.1780 0.0712 *

Mercury -73774-02-18 21:06 J -25224481.69 -25224481.62 -25224481.56 0.1614 0.1478

Mercury -73774-12-18 22:32 J -25224178.67 -25224178.56 -25224178.45 0.1944 0.0586

Mercury -73765-07-10 22:47 J -25221051.71 -25221051.55 -25221051.39 0.1609 0.0560

Mercury -73764-05-10 06:13 J -25220748.30 -25220748.24 -25220748.18 0.1949 0.1594

Mercury -73756-12-01 00:28 J -25217621.64 -25217621.48 -25217621.32 0.1605 0.0353

Mercury -73753-09-05 06:42 J -25216612.29 -25216612.22 -25216612.14 0.1931 0.1484

Mercury -73746-04-23 02:08 J -25214191.51 -25214191.41 -25214191.31 0.1600 0.1262

Mercury -73743-01-26 14:37 J -25213182.00 -25213181.89 -25213181.78 0.1937 0.0509

Mercury -73734-06-18 22:32 J -25209751.68 -25209751.56 -25209751.45 0.1944 0.0493

Mercury -73725-01-09 23:30 J -25206624.67 -25206624.52 -25206624.37 0.1609 0.0698

Mercury -73725-11-08 06:13 J -25206321.31 -25206321.24 -25206321.17 0.1950 0.1486

Venus -73724-09-13 17:59 J -25206011.93 -25206011.75 -25206011.57 0.1568 0.0039

Venus -73723-08-19 21:35 J -25205671.75 -25205671.60 -25205671.45 0.1978 0.0869

Mercury -73716-06-01 00:56 J -25203194.62 -25203194.46 -25203194.29 0.1605 0.0226

Mercury -73713-03-06 06:56 J -25202185.28 -25202185.21 -25202185.15 0.1931 0.1600

Mercury -73707-10-22 02:52 J -25199764.50 -25199764.38 -25199764.26 0.1601 0.1123

Mercury -73704-07-27 14:37 J -25198754.99 -25198754.89 -25198754.78 0.1937 0.0626

Moon -73698-06-17 03:20 J -25196604.45 -25196604.36 -25196604.28 0.1773 0.1582

Mercury -73695-12-17 22:32 J -25195324.68 -25195324.56 -25195324.45 0.1944 0.0386

Mercury -73686-07-11 00:13 J -25192197.64 -25192197.49 -25192197.35 0.1610 0.0834

Mercury -73685-05-09 06:13 J -25191894.32 -25191894.24 -25191894.16 0.1949 0.1376

Mercury -73677-11-30 01:54 J -25188767.59 -25188767.42 -25188767.25 0.1605 0.0077

Mercury -73674-09-05 06:56 J -25187758.26 -25187758.21 -25187758.16 0.1930 0.1708

Mercury -73667-04-22 03:20 J -25185337.49 -25185337.36 -25185337.22 0.1601 0.0995

Mercury -73664-01-25 14:37 J -25184328.00 -25184327.89 -25184327.78 0.1937 0.0719

Venus -73658-07-12 06:56 J -25181969.39 -25181969.21 -25181969.04 0.1568 0.0199

Venus -73657-06-15 23:59 J -25181629.67 -25181629.50 -25181629.33 0.1979 0.0057

Mercury -73655-06-17 22:32 J -25180897.67 -25180897.56 -25180897.45 0.1944 0.0258

Moon -73651-06-09 00:56 J -25179445.57 -25179445.46 -25179445.35 0.1805 0.1490

Earth -73651-06-09 02:08 J -25179445.46 -25179445.41 -25179445.35 0.1805 0.1714 *

Mercury -73646-01-09 00:56 J -25177770.59 -25177770.46 -25177770.33 0.1610 0.0976

Mercury -73646-11-08 06:13 J -25177467.32 -25177467.24 -25177467.15 0.1949 0.1268

Mercury -73637-05-31 02:37 J -25174340.56 -25174340.39 -25174340.22 0.1605 0.0062

Mercury -73634-03-06 06:42 J -25173331.25 -25173331.22 -25173331.18 0.1930 0.1812

Mercury -73628-10-21 04:18 J -25170910.46 -25170910.32 -25170910.18 0.1601 0.0850

Mercury -73625-07-26 14:37 J -25169900.99 -25169900.89 -25169900.78 0.1937 0.0842

Mercury -73616-12-16 22:18 J -25166470.68 -25166470.57 -25166470.45 0.1943 0.0181

Mercury -73607-07-10 01:25 J -25163343.56 -25163343.44 -25163343.32 0.1610 0.1106

Mercury -73606-05-09 06:13 J -25163040.33 -25163040.24 -25163040.15 0.1950 0.1158

Mercury -73598-11-30 03:06 J -25159913.53 -25159913.37 -25159913.20 0.1605 0.0197

Earth -73594-12-13 20:08 J -25158438.84 -25158438.66 -25158438.48 0.1748 0.0738

Moon -73594-12-14 03:35 J -25158438.51 -25158438.35 -25158438.19 0.1749 0.0930 *

Venus -73592-05-08 19:40 J -25157926.86 -25157926.68 -25157926.51 0.1568 0.0407

Venus -73591-04-13 01:40 J -25157587.57 -25157587.43 -25157587.28 0.1979 0.1032

Mercury -73588-04-21 05:01 J -25156483.44 -25156483.29 -25156483.14 0.1601 0.0715

Mercury -73585-01-25 14:37 J -25155473.99 -25155473.89 -25155473.79 0.1937 0.0947

Mercury -73576-06-16 22:32 J -25152043.68 -25152043.56 -25152043.45 0.1943 0.0050

Earth -73572-06-11 18:42 J -25150587.90 -25150587.72 -25150587.54 0.1797 0.0384

Moon -73572-06-12 01:25 J -25150587.62 -25150587.44 -25150587.25 0.1796 0.0574 *

Mercury -73567-01-08 02:23 J -25148916.51 -25148916.40 -25148916.30 0.1610 0.1251

Mercury -73567-11-07 06:13 J -25148613.33 -25148613.24 -25148613.14 0.1949 0.1048

Venus -73560-05-07 11:01 J -25146240.09 -25146240.04 -25146239.98 0.1569 0.1488

Mercury -73558-05-31 03:49 J -25145486.50 -25145486.34 -25145486.17 0.1605 0.0334
 Mercury -73549-10-20 05:30 J -25142056.42 -25142056.27 -25142056.11 0.1601 0.0584
 Mercury -73546-07-26 14:37 J -25141046.98 -25141046.89 -25141046.79 0.1937 0.1053
 Mercury -73539-03-12 07:25 J -25138626.25 -25138626.19 -25138626.13 0.1597 0.1483
 Mercury -73537-12-15 22:32 J -25137616.67 -25137616.56 -25137616.44 0.1943 0.0078
 Mercury -73528-07-09 02:52 J -25134489.46 -25134489.38 -25134489.29 0.1610 0.1384
 Mercury -73527-05-08 06:13 J -25134186.34 -25134186.24 -25134186.14 0.1949 0.0944
 Venus -73526-03-06 08:23 J -25133884.31 -25133884.15 -25133883.99 0.1567 0.0624
 Mercury -73519-11-29 04:47 J -25131059.46 -25131059.30 -25131059.14 0.1605 0.0472
 Mercury -73518-09-28 13:54 J -25130755.92 -25130755.92 -25130755.91 0.1955 0.1947
 Moon -73515-12-16 14:37 J -25129581.05 -25129580.89 -25129580.73 0.1756 0.0851
 Earth -73515-12-16 17:16 J -25129580.97 -25129580.78 -25129580.60 0.1756 0.0632 *
 Mercury -73509-04-20 06:28 J -25127629.39 -25127629.23 -25127629.07 0.1601 0.0439
 Mercury -73506-01-24 14:52 J -25126619.98 -25126619.88 -25126619.79 0.1937 0.1170
 Mercury -73500-09-10 08:08 J -25124199.25 -25124199.16 -25124199.07 0.1597 0.1347
 Mercury -73497-06-15 22:32 J -25123189.68 -25123189.56 -25123189.45 0.1943 0.0173
 Venus -73494-03-05 00:13 J -25122197.59 -25122197.49 -25122197.39 0.1568 0.1278
 Earth -73493-06-14 08:37 J -25121730.30 -25121730.14 -25121729.98 0.1790 0.0862
 Moon -73493-06-14 13:11 J -25121730.08 -25121729.95 -25121729.81 0.1789 0.1156 *
 Mercury -73488-01-07 03:35 J -25120062.40 -25120062.35 -25120062.30 0.1610 0.1520
 Mercury -73488-11-06 06:13 J -25119759.34 -25119759.24 -25119759.13 0.1949 0.0831
 Mercury -73479-05-30 05:16 J -25116632.43 -25116632.28 -25116632.12 0.1605 0.0604
 Mercury -73478-03-29 14:08 J -25116328.95 -25116328.91 -25116328.88 0.1954 0.1836
 Mercury -73470-10-20 07:11 J -25113202.37 -25113202.20 -25113202.04 0.1601 0.0301
 Mercury -73467-07-25 14:52 J -25112192.97 -25112192.88 -25112192.80 0.1936 0.1279
 Venus -73461-12-31 21:20 J -25109841.76 -25109841.61 -25109841.46 0.1567 0.0829
 Mercury -73460-03-11 08:52 J -25109772.24 -25109772.13 -25109772.02 0.1597 0.1210
 Mercury -73458-12-15 22:32 J -25108762.68 -25108762.56 -25108762.45 0.1943 0.0281
 Mercury -73448-05-07 06:13 J -25105332.34 -25105332.24 -25105332.13 0.1949 0.0723
 Mercury -73440-11-28 06:13 J -25102205.39 -25102205.24 -25102205.10 0.1605 0.0748

Mercury -73439-09-27 13:54 J -25101901.97 -25101901.92 -25101901.87 0.1955 0.1736

Moon -73436-12-19 05:01 J -25100723.35 -25100723.29 -25100723.22 0.1763 0.1670

Mercury -73430-04-20 07:40 J -25098775.35 -25098775.18 -25098775.01 0.1601 0.0173

Venus -73429-12-30 12:56 J -25098155.09 -25098154.96 -25098154.83 0.1568 0.1065

Venus -73428-12-05 07:25 J -25097815.24 -25097815.19 -25097815.13 0.1979 0.1854

Mercury -73427-01-23 14:37 J -25097765.97 -25097765.89 -25097765.81 0.1937 0.1380

Mercury -73421-09-09 09:35 J -25095345.22 -25095345.10 -25095344.98 0.1597 0.1073

Mercury -73418-06-15 22:32 J -25094335.67 -25094335.56 -25094335.44 0.1943 0.0406

Mercury -73409-11-05 06:13 J -25090905.35 -25090905.24 -25090905.13 0.1949 0.0615

Mercury -73400-05-29 06:42 J -25087778.36 -25087778.22 -25087778.08 0.1606 0.0881

Mercury -73399-03-28 13:54 J -25087474.98 -25087474.92 -25087474.85 0.1954 0.1624

Venus -73395-10-29 10:04 J -25085799.21 -25085799.08 -25085798.95 0.1567 0.1045

Mercury -73391-10-19 08:37 J -25084348.31 -25084348.14 -25084347.97 0.1601 0.0033

Moon -73389-12-10 03:06 J -25083565.39 -25083565.37 -25083565.33 0.1732 0.1707

Mercury -73388-07-24 14:52 J -25083338.95 -25083338.88 -25083338.81 0.1936 0.1499

Mercury -73381-03-10 10:18 J -25080918.21 -25080918.07 -25080917.94 0.1597 0.0938

Mercury -73379-12-14 22:32 J -25079908.67 -25079908.56 -25079908.45 0.1943 0.0497

Mercury -73369-05-06 06:13 J -25076478.35 -25076478.24 -25076478.13 0.1949 0.0503

Moon -73367-06-09 06:56 J -25075714.31 -25075714.21 -25075714.11 0.1815 0.1499

Earth -73367-06-09 12:13 J -25075714.05 -25075713.99 -25075713.92 0.1814 0.1687

Venus -73363-10-28 01:54 J -25074112.57 -25074112.42 -25074112.27 0.1568 0.0850

Venus -73362-10-02 09:35 J -25073773.25 -25073773.10 -25073772.95 0.1979 0.0905

Mercury -73361-11-27 07:25 J -25073351.32 -25073351.19 -25073351.06 0.1606 0.1017

Mercury -73360-09-26 14:08 J -25073047.98 -25073047.91 -25073047.84 0.1954 0.1508

Mercury -73351-04-19 09:20 J -25069921.28 -25069921.11 -25069920.95 0.1601 0.0115

Mercury -73348-01-22 14:52 J -25068911.95 -25068911.88 -25068911.82 0.1936 0.1606

Mercury -73342-09-09 11:01 J -25066491.18 -25066491.04 -25066490.89 0.1597 0.0796

Mercury -73339-06-14 22:32 J -25065481.67 -25065481.56 -25065481.45 0.1943 0.0614

Mercury -73330-11-05 06:13 J -25062051.35 -25062051.24 -25062051.12 0.1949 0.0397

Venus -73329-08-25 23:16 J -25061756.64 -25061756.53 -25061756.43 0.1567 0.1250

Mercury -73321-05-28 08:09 J -25058924.28 -25058924.16 -25058924.04 0.1606 0.1155

Mercury -73320-03-27 13:54 J -25058621.00 -25058620.92 -25058620.84 0.1955 0.1413

Mercury -73312-10-18 09:49 J -25055494.25 -25055494.09 -25055493.92 0.1601 0.0242

Earth -73310-12-14 04:33 J -25054707.49 -25054707.31 -25054707.12 0.1739 0.0606

Moon -73310-12-14 05:45 J -25054707.44 -25054707.26 -25054707.07 0.1739 0.0843 *

Mercury -73309-07-23 14:52 J -25054484.93 -25054484.88 -25054484.83 0.1937 0.1716

Mercury -73302-03-10 11:45 J -25052064.16 -25052064.01 -25052063.86 0.1597 0.0662

Mercury -73300-12-13 22:33 J -25051054.66 -25051054.56 -25051054.45 0.1943 0.0732

Venus -73297-08-24 14:52 J -25050070.04 -25050069.88 -25050069.72 0.1567 0.0643

Venus -73296-07-29 11:16 J -25049731.20 -25049731.03 -25049730.86 0.1980 0.0080

Mercury -73293-07-30 13:25 J -25048633.97 -25048633.94 -25048633.91 0.1593 0.1564

Mercury -73290-05-06 06:13 J -25047624.35 -25047624.24 -25047624.13 0.1949 0.0289

Moon -73288-06-11 23:59 J -25046856.68 -25046856.50 -25046856.31 0.1807 0.0638

Earth -73288-06-12 05:30 J -25046856.45 -25046856.27 -25046856.09 0.1806 0.0319 *

Mercury -73282-11-27 08:52 J -25044497.23 -25044497.13 -25044497.03 0.1606 0.1296

Mercury -73281-09-25 14:09 J -25044194.00 -25044193.91 -25044193.83 0.1954 0.1290

Mercury -73272-04-18 10:47 J -25041067.22 -25041067.05 -25041066.89 0.1601 0.0386

Mercury -73269-01-22 14:52 J -25040057.92 -25040057.88 -25040057.85 0.1936 0.1827

Venus -73263-06-23 11:59 J -25037714.06 -25037714.00 -25037713.94 0.1567 0.1462

Mercury -73263-09-08 12:28 J -25037637.14 -25037636.98 -25037636.83 0.1597 0.0529

Mercury -73260-06-13 22:33 J -25036627.66 -25036627.56 -25036627.46 0.1943 0.0826

Mercury -73253-01-29 14:09 J -25034206.98 -25034206.91 -25034206.84 0.1594 0.1430

Mercury -73251-11-04 06:28 J -25033197.35 -25033197.23 -25033197.12 0.1949 0.0185

Mercury -73242-05-28 09:35 J -25030070.18 -25030070.10 -25030070.03 0.1606 0.1429

Mercury -73241-03-26 14:09 J -25029767.00 -25029766.91 -25029766.82 0.1954 0.1184

Mercury -73233-10-17 11:16 J -25026640.18 -25026640.03 -25026639.87 0.1602 0.0523

Venus -73231-06-22 03:35 J -25026027.52 -25026027.35 -25026027.18 0.1567 0.0424

Earth -73231-12-17 00:28 J -25025849.66 -25025849.48 -25025849.30 0.1747 0.0729

Moon -73231-12-17 08:52 J -25025849.28 -25025849.13 -25025848.98 0.1747 0.1096

Venus -73230-05-26 13:40 J -25025689.08 -25025688.93 -25025688.78 0.1980 0.1007

Mercury -73223-03-09 13:11 J -25023210.12 -25023209.95 -25023209.79 0.1597 0.0388

Mercury -73221-12-12 22:33 J -25022200.66 -25022200.56 -25022200.46 0.1943 0.0942

Mercury -73214-07-30 14:52 J -25019779.97 -25019779.88 -25019779.78 0.1593 0.1289

Mercury -73211-05-05 06:13 J -25018770.35 -25018770.24 -25018770.12 0.1948 0.0082

Earth -73209-06-14 20:52 J -25017998.79 -25017998.63 -25017998.48 0.1799 0.0988

Moon -73209-06-15 00:28 J -25017998.61 -25017998.48 -25017998.34 0.1799 0.1289 *

Mercury -73203-11-26 10:18 J -25015643.10 -25015643.07 -25015643.04 0.1606 0.1569

Mercury -73202-09-25 13:54 J -25015340.01 -25015339.92 -25015339.82 0.1954 0.1083

Mercury -73193-04-17 11:59 J -25012213.16 -25012213.00 -25012212.85 0.1602 0.0651

Mercury -73184-09-07 13:54 J -25008783.09 -25008782.92 -25008782.75 0.1598 0.0250

Mercury -73181-06-12 22:47 J -25007773.65 -25007773.55 -25007773.46 0.1942 0.1063

Mercury -73174-01-28 15:35 J -25005352.96 -25005352.85 -25005352.73 0.1594 0.1153

Mercury -73172-11-03 06:13 J -25004343.35 -25004343.24 -25004343.12 0.1948 0.0066

Venus -73165-04-18 16:33 J -25001984.99 -25001984.81 -25001984.64 0.1567 0.0216

Mercury -73162-03-26 14:09 J -25000913.01 -25000912.91 -25000912.82 0.1954 0.0969

Mercury -73154-10-17 12:42 J -24997786.11 -24997785.97 -24997785.82 0.1602 0.0798

Mercury -73144-03-08 14:23 J -24994356.06 -24994355.90 -24994355.73 0.1597 0.0122

Mercury -73142-12-12 22:33 J -24993346.65 -24993346.56 -24993346.47 0.1942 0.1155

Mercury -73135-07-29 16:18 J -24990925.95 -24990925.82 -24990925.69 0.1594 0.1023

Mercury -73132-05-04 06:13 J -24989916.35 -24989916.24 -24989916.12 0.1949 0.0177

Mercury -73123-09-24 14:09 J -24986486.01 -24986485.91 -24986485.81 0.1954 0.0854

Mercury -73114-04-17 13:25 J -24983359.07 -24983358.94 -24983358.80 0.1602 0.0932

Mercury -73113-02-14 21:49 J -24983055.62 -24983055.59 -24983055.56 0.1959 0.1879

Mercury -73105-09-06 15:21 J -24979929.03 -24979928.86 -24979928.69 0.1598 0.0040

Moon -73105-12-10 23:01 J -24979833.63 -24979833.54 -24979833.44 0.1723 0.1456

Earth -73105-12-10 21:35 J -24979833.61 -24979833.60 -24979833.58 0.1723 0.1716 *

Mercury -73102-06-12 22:33 J -24978919.64 -24978919.56 -24978919.47 0.1942 0.1275

Venus -73099-02-14 05:16 J -24977942.46 -24977942.28 -24977942.10 0.1567 0.0013

Mercury -73095-01-27 17:01 J -24976498.93 -24976498.79 -24976498.65 0.1594 0.0880

Mercury -73093-11-02 06:13 J -24975489.35 -24975489.24 -24975489.12 0.1948 0.0269

Mercury -73083-03-25 13:54 J -24972059.02 -24972058.92 -24972058.81 0.1954 0.0757

Earth -73083-06-09 20:37 J -24971982.70 -24971982.64 -24971982.57 0.1824 0.1700

Moon -73083-06-10 03:35 J -24971982.48 -24971982.35 -24971982.23 0.1824 0.1340

Mercury -73075-10-16 14:09 J -24968932.04 -24968931.91 -24968931.79 0.1602 0.1064

Mercury -73074-08-15 21:49 J -24968628.64 -24968628.59 -24968628.54 0.1959 0.1757

Venus -73066-01-17 19:25 J -24965916.74 -24965916.69 -24965916.64 0.1980 0.1882

Mercury -73065-03-07 15:49 J -24965502.00 -24965501.84 -24965501.67 0.1598 0.0167

Mercury -73063-12-11 22:33 J -24964492.63 -24964492.56 -24964492.48 0.1942 0.1390

Mercury -73056-07-28 17:45 J -24962071.91 -24962071.76 -24962071.61 0.1594 0.0745

Mercury -73053-05-03 06:13 J -24961062.35 -24961062.24 -24961062.13 0.1948 0.0373

Mercury -73044-09-23 14:09 J -24957632.02 -24957631.91 -24957631.80 0.1954 0.0634

Mercury -73035-04-16 14:52 J -24954504.99 -24954504.88 -24954504.77 0.1602 0.1205

Mercury -73034-02-13 21:35 J -24954201.65 -24954201.60 -24954201.54 0.1959 0.1668

Venus -73034-12-12 17:59 J -24953899.92 -24953899.75 -24953899.57 0.1567 0.0218

Mercury -73026-09-06 16:33 J -24951074.97 -24951074.81 -24951074.64 0.1598 0.0294

Moon -73026-12-14 07:25 J -24950976.36 -24950976.19 -24950976.02 0.1730 0.0772

Earth -73026-12-14 14:09 J -24950976.10 -24950975.91 -24950975.72 0.1730 0.0470 *

Mercury -73023-06-11 22:33 J -24950065.63 -24950065.56 -24950065.49 0.1942 0.1486

Mercury -73016-01-26 18:28 J -24947644.89 -24947644.73 -24947644.58 0.1594 0.0610

Mercury -73014-11-02 06:28 J -24946635.34 -24946635.23 -24946635.12 0.1948 0.0495

Mercury -73007-06-18 20:09 J -24944214.71 -24944214.66 -24944214.61 0.1590 0.1507

Mercury -73004-03-24 14:09 J -24943205.02 -24943204.91 -24943204.80 0.1954 0.0533

Moon -73004-06-12 12:42 J -24943125.14 -24943124.97 -24943124.81 0.1817 0.0570

Earth -73004-06-12 13:54 J -24943125.11 -24943124.92 -24943124.74 0.1816 0.0302 *

Venus -73001-11-13 20:52 J -24941874.78 -24941874.63 -24941874.47 0.1980 0.0898

73RD MILLENNIUM BCE

This is a list of transits visible from Mars in the 73rd millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -72996-10-15 15:35 J | -24940077.94 | -24940077.85 | -24940077.76 | 0.1602 | 0.1343 | | |
| Mercury | -72995-08-14 21:49 J | -24939774.66 | -24939774.59 | -24939774.53 | 0.1959 | 0.1550 | | |
| Mercury | -72986-03-07 17:16 J | -24936647.94 | -24936647.78 | -24936647.61 | 0.1598 | 0.0437 | | |
| Mercury | -72984-12-10 22:33 J | -24935638.62 | -24935638.56 | -24935638.49 | 0.1942 | 0.1605 | | |
| Mercury | -72977-07-27 19:11 J | -24933217.86 | -24933217.70 | -24933217.54 | 0.1594 | 0.0471 | | |
| Mercury | -72974-05-03 06:13 J | -24932208.35 | -24932208.24 | -24932208.13 | 0.1948 | 0.0592 | | |
| Venus | -72968-10-09 06:57 J | -24929857.38 | -24929857.21 | -24929857.04 | 0.1567 | 0.0433 | | |
| Mercury | -72968-12-17 20:52 J | -24929787.71 | -24929787.63 | -24929787.55 | 0.1590 | 0.1375 | | |
| Mercury | -72965-09-22 13:54 J | -24928778.03 | -24928777.92 | -24928777.80 | 0.1954 | 0.0430 | | |
| Mercury | -72956-04-15 16:04 J | -24925650.89 | -24925650.83 | -24925650.77 | 0.1602 | 0.1473 | | |
| Mercury | -72955-02-12 21:49 J | -24925347.67 | -24925347.59 | -24925347.51 | 0.1959 | 0.1433 | | |
| Mercury | -72947-09-05 17:59 J | -24922220.90 | -24922220.75 | -24922220.59 | 0.1598 | 0.0574 | | |
| Moon | -72947-12-17 04:47 J | -24922118.47 | -24922118.30 | -24922118.13 | 0.1737 | 0.1015 | | |
| Earth | -72947-12-17 09:06 J | -24922118.30 | -24922118.12 | -24922117.95 | 0.1737 | 0.0848 | * | |
| Mercury | -72944-06-10 22:47 J | -24921211.60 | -24921211.55 | -24921211.50 | 0.1942 | 0.1721 | | |
| Mercury | -72937-01-26 19:54 J | -24918790.84 | -24918790.67 | -24918790.51 | 0.1594 | 0.0336 | | |
| Venus | -72936-10-07 22:33 J | -24918170.62 | -24918170.56 | -24918170.50 | 0.1567 | 0.1464 | | |
| Venus | -72935-09-10 23:01 J | -24917832.71 | -24917832.54 | -24917832.37 | 0.1980 | 0.0067 | | |
| Mercury | -72935-11-01 06:13 J | -24917781.34 | -24917781.24 | -24917781.13 | 0.1948 | 0.0704 | | |
| Mercury | -72928-06-17 21:35 J | -24915360.70 | -24915360.60 | -24915360.49 | 0.1590 | 0.1235 | | |
| Mercury | -72925-03-23 14:09 J | -24914351.03 | -24914350.91 | -24914350.80 | 0.1954 | 0.0316 | | |
| Moon | -72925-06-14 23:30 J | -24914267.66 | -24914267.52 | -24914267.38 | 0.1809 | 0.1224 | | |

Earth -72925-06-15 06:42 J -24914267.36 -24914267.22 -24914267.06 0.1809 0.1066
 Mercury -72916-08-13 21:49 J -24910920.68 -24910920.59 -24910920.51 0.1959 0.1337
 Mercury -72907-03-06 18:42 J -24907793.87 -24907793.72 -24907793.57 0.1598 0.0703
 Mercury -72905-12-09 22:33 J -24906784.60 -24906784.56 -24906784.52 0.1942 0.1814
 Venus -72902-08-06 19:54 J -24905814.83 -24905814.67 -24905814.50 0.1567 0.0639
 Mercury -72898-07-27 20:23 J -24904363.81 -24904363.65 -24904363.48 0.1594 0.0205
 Mercury -72895-05-02 06:28 J -24903354.34 -24903354.23 -24903354.13 0.1948 0.0822
 Mercury -72889-12-16 22:18 J -24900933.69 -24900933.57 -24900933.44 0.1590 0.1096
 Mercury -72886-09-22 14:09 J -24899924.03 -24899923.91 -24899923.80 0.1953 0.0199
 Mercury -72876-02-11 21:49 J -24896493.68 -24896493.59 -24896493.51 0.1959 0.1226
 Venus -72870-08-05 11:30 J -24894128.12 -24894128.02 -24894127.91 0.1567 0.1256
 Venus -72869-07-08 00:28 J -24893790.63 -24893790.48 -24893790.34 0.1980 0.1061
 Mercury -72868-09-04 19:25 J -24893366.83 -24893366.69 -24893366.55 0.1598 0.0844
 Mercury -72865-06-09 22:33 J -24892357.56 -24892357.56 -24892357.55 0.1942 0.1935
 Mercury -72858-01-25 21:21 J -24889936.78 -24889936.61 -24889936.45 0.1594 0.0073
 Mercury -72856-10-31 06:13 J -24888927.34 -24888927.24 -24888927.14 0.1948 0.0925
 Mercury -72849-06-16 23:01 J -24886506.68 -24886506.54 -24886506.41 0.1590 0.0970
 Mercury -72846-03-23 13:54 J -24885497.03 -24885496.92 -24885496.80 0.1954 0.0108
 Mercury -72837-08-12 21:49 J -24882066.68 -24882066.59 -24882066.50 0.1959 0.1103
 Venus -72836-06-03 08:37 J -24881772.29 -24881772.14 -24881771.99 0.1567 0.0856
 Mercury -72828-03-05 20:09 J -24878939.79 -24878939.66 -24878939.53 0.1598 0.0981
 Earth -72821-12-11 09:49 J -24876102.17 -24876102.09 -24876102.00 0.1715 0.1530
 Moon -72821-12-11 16:47 J -24876101.94 -24876101.80 -24876101.66 0.1715 0.1222
 Mercury -72819-07-26 21:49 J -24875509.75 -24875509.59 -24875509.42 0.1594 0.0082
 Mercury -72816-05-01 06:13 J -24874500.33 -24874500.24 -24874500.14 0.1948 0.1031
 Mercury -72810-12-16 23:45 J -24872079.65 -24872079.51 -24872079.36 0.1590 0.0823
 Mercury -72807-09-21 14:09 J -24871070.03 -24871069.91 -24871069.80 0.1953 0.0050
 Venus -72804-06-02 00:13 J -24870085.63 -24870085.49 -24870085.36 0.1567 0.1032
 Moon -72799-06-10 02:52 J -24868251.49 -24868251.38 -24868251.27 0.1835 0.1525
 Earth -72799-06-10 02:37 J -24868251.43 -24868251.39 -24868251.34 0.1835 0.1771 *

Mercury -72797-02-11 21:35 J -24867639.70 -24867639.60 -24867639.50 0.1959 0.1014

Mercury -72789-09-03 20:37 J -24864512.76 -24864512.64 -24864512.52 0.1598 0.1114

Mercury -72779-01-24 22:33 J -24861082.73 -24861082.56 -24861082.39 0.1594 0.0210

Mercury -72777-10-30 06:28 J -24860073.32 -24860073.23 -24860073.14 0.1948 0.1153

Venus -72770-03-31 21:35 J -24857729.73 -24857729.60 -24857729.47 0.1567 0.1070

Mercury -72770-06-17 00:28 J -24857652.63 -24857652.48 -24857652.33 0.1591 0.0692

Mercury -72767-03-22 13:54 J -24856643.03 -24856642.92 -24856642.80 0.1953 0.0144

Mercury -72761-11-06 02:23 J -24854222.41 -24854222.40 -24854222.39 0.1587 0.1582

Mercury -72758-08-12 21:49 J -24853212.69 -24853212.59 -24853212.49 0.1959 0.0894

Mercury -72749-03-04 21:35 J -24850085.71 -24850085.60 -24850085.50 0.1598 0.1255

Mercury -72748-01-02 05:30 J -24849782.29 -24849782.27 -24849782.26 0.1963 0.1924

Earth -72742-12-15 00:28 J -24847244.67 -24847244.48 -24847244.28 0.1721 0.0322

Moon -72742-12-15 05:45 J -24847244.44 -24847244.26 -24847244.08 0.1722 0.0505 *

Mercury -72740-07-25 23:16 J -24846655.69 -24846655.53 -24846655.37 0.1594 0.0346

Venus -72738-03-30 13:11 J -24846043.10 -24846042.95 -24846042.80 0.1567 0.0824

Mercury -72737-04-30 06:13 J -24845646.33 -24845646.24 -24845646.15 0.1948 0.1248

Mercury -72731-12-16 00:57 J -24843225.61 -24843225.46 -24843225.30 0.1591 0.0560

Mercury -72728-09-20 13:54 J -24842216.03 -24842215.92 -24842215.80 0.1954 0.0247

Mercury -72721-05-07 03:06 J -24839795.44 -24839795.37 -24839795.31 0.1587 0.1448

Earth -72720-06-12 20:37 J -24839393.83 -24839393.64 -24839393.46 0.1827 0.0324

Moon -72720-06-13 04:33 J -24839393.50 -24839393.31 -24839393.13 0.1826 0.0506 *

Mercury -72718-02-10 21:49 J -24838785.70 -24838785.59 -24838785.49 0.1958 0.0777

Mercury -72710-09-03 22:04 J -24835658.66 -24835658.58 -24835658.49 0.1598 0.1391

Mercury -72709-07-03 05:30 J -24835355.31 -24835355.27 -24835355.23 0.1963 0.1817

Venus -72705-03-01 06:42 J -24834018.27 -24834018.22 -24834018.17 0.1981 0.1882

Venus -72704-01-26 10:33 J -24833687.16 -24833687.06 -24833686.96 0.1568 0.1280

Mercury -72700-01-23 23:59 J -24832228.66 -24832228.50 -24832228.34 0.1594 0.0484

Mercury -72698-10-30 06:13 J -24831219.32 -24831219.24 -24831219.16 0.1948 0.1362

Mercury -72691-06-16 01:54 J -24828798.59 -24828798.42 -24828798.26 0.1591 0.0418

Mercury -72688-03-21 14:09 J -24827789.03 -24827788.91 -24827788.80 0.1953 0.0357

Mercury -72682-11-06 03:35 J -24825368.44 -24825368.35 -24825368.25 0.1587 0.1313

Mercury -72679-08-11 21:35 J -24824358.70 -24824358.60 -24824358.49 0.1958 0.0683

Venus -72672-01-25 01:54 J -24822000.59 -24822000.42 -24822000.26 0.1567 0.0604

Mercury -72670-03-04 22:47 J -24821231.60 -24821231.55 -24821231.50 0.1598 0.1520

Mercury -72669-01-02 05:30 J -24820928.33 -24820928.27 -24820928.22 0.1963 0.1704

Moon -72663-12-17 14:37 J -24818387.03 -24818386.89 -24818386.75 0.1728 0.1109

Earth -72663-12-17 18:13 J -24818386.90 -24818386.74 -24818386.58 0.1728 0.0964 *

Mercury -72661-07-25 00:42 J -24817801.63 -24817801.47 -24817801.32 0.1595 0.0618

Mercury -72658-04-30 06:28 J -24816792.31 -24816792.23 -24816792.16 0.1948 0.1482

Mercury -72652-12-15 02:37 J -24814371.56 -24814371.39 -24814371.22 0.1591 0.0278

Mercury -72649-09-19 14:09 J -24813362.03 -24813361.91 -24813361.80 0.1953 0.0465

Mercury -72642-05-07 04:18 J -24810941.43 -24810941.32 -24810941.20 0.1587 0.1178

Earth -72641-06-15 14:09 J -24810536.06 -24810535.91 -24810535.76 0.1819 0.1089

Moon -72641-06-15 17:16 J -24810535.89 -24810535.78 -24810535.66 0.1819 0.1336 *

Venus -72640-12-27 08:23 J -24809976.30 -24809976.15 -24809976.00 0.1981 0.0896

Mercury -72639-02-09 21:35 J -24809931.70 -24809931.60 -24809931.49 0.1958 0.0572

Venus -72639-11-23 23:16 J -24809644.58 -24809644.53 -24809644.48 0.1568 0.1499

Mercury -72630-07-03 05:30 J -24806501.34 -24806501.27 -24806501.21 0.1963 0.1596

Mercury -72621-01-24 01:25 J -24803374.59 -24803374.44 -24803374.29 0.1594 0.0758

Mercury -72619-10-29 06:13 J -24802365.30 -24802365.24 -24802365.17 0.1947 0.1581

Mercury -72612-06-15 03:06 J -24799944.54 -24799944.37 -24799944.20 0.1591 0.0154

Mercury -72609-03-20 13:54 J -24798935.03 -24798934.92 -24798934.81 0.1953 0.0564

Venus -72607-11-22 14:37 J -24797958.06 -24797957.89 -24797957.71 0.1567 0.0397

Mercury -72603-11-05 05:01 J -24796514.41 -24796514.29 -24796514.16 0.1587 0.1041

Mercury -72600-08-10 21:49 J -24795504.70 -24795504.59 -24795504.48 0.1958 0.0448

Mercury -72590-01-01 05:16 J -24792074.35 -24792074.28 -24792074.20 0.1963 0.1492

Mercury -72582-07-25 02:09 J -24788947.55 -24788947.41 -24788947.28 0.1595 0.0893

Mercury -72579-04-29 06:13 J -24787938.29 -24787938.24 -24787938.18 0.1947 0.1689

Venus -72574-10-24 09:35 J -24785934.27 -24785934.10 -24785933.93 0.1980 0.0109

Mercury -72573-12-14 04:04 J -24785517.50 -24785517.33 -24785517.16 0.1591 0.0035

Mercury -72570-09-19 13:54 J -24784508.02 -24784507.92 -24784507.81 0.1953 0.0686

Mercury -72563-05-06 05:45 J -24782087.40 -24782087.26 -24782087.12 0.1587 0.0908

Mercury -72560-02-08 21:35 J -24781077.71 -24781077.60 -24781077.49 0.1958 0.0356

Mercury -72551-07-02 05:30 J -24777647.35 -24777647.27 -24777647.19 0.1963 0.1371

Mercury -72542-01-23 02:37 J -24774520.51 -24774520.39 -24774520.26 0.1595 0.1028

Venus -72541-09-19 03:35 J -24773915.53 -24773915.35 -24773915.18 0.1567 0.0180

Mercury -72540-10-28 06:28 J -24773511.27 -24773511.23 -24773511.19 0.1947 0.1813

Moon -72537-12-11 15:49 J -24772370.98 -24772370.84 -24772370.70 0.1706 0.1225

Earth -72537-12-11 23:01 J -24772370.66 -24772370.54 -24772370.42 0.1706 0.1341

Mercury -72533-06-14 04:33 J -24771090.48 -24771090.31 -24771090.14 0.1591 0.0128

Mercury -72530-03-20 13:54 J -24770081.02 -24770080.92 -24770080.81 0.1953 0.0785

Mercury -72524-11-04 06:28 J -24767660.37 -24767660.23 -24767660.08 0.1587 0.0767

Mercury -72521-08-09 21:49 J -24766650.71 -24766650.59 -24766650.48 0.1958 0.0245

Moon -72515-06-09 23:59 J -24764520.55 -24764520.50 -24764520.45 0.1845 0.1775

Mercury -72512-12-31 05:16 J -24763220.36 -24763220.28 -24763220.19 0.1963 0.1272

Venus -72508-08-20 11:30 J -24761892.16 -24761892.02 -24761891.87 0.1979 0.1079

Mercury -72503-07-24 03:21 J -24760093.47 -24760093.36 -24760093.24 0.1595 0.1164

Mercury -72500-04-28 06:13 J -24759084.26 -24759084.24 -24759084.22 0.1947 0.1906

Mercury -72494-12-14 05:16 J -24756663.45 -24756663.28 -24756663.11 0.1591 0.0260

Mercury -72491-09-18 13:54 J -24755654.02 -24755653.92 -24755653.81 0.1953 0.0901

Mercury -72484-05-05 07:11 J -24753233.35 -24753233.20 -24753233.04 0.1588 0.0633

Mercury -72481-02-08 21:49 J -24752223.71 -24752223.59 -24752223.48 0.1958 0.0137

Venus -72475-07-17 16:33 J -24749872.99 -24749872.81 -24749872.63 0.1568 0.0035

Mercury -72475-09-25 09:06 J -24749803.16 -24749803.12 -24749803.08 0.1584 0.1523

Mercury -72472-07-01 05:16 J -24748793.37 -24748793.28 -24748793.19 0.1963 0.1163

Mercury -72463-01-22 04:04 J -24745666.42 -24745666.33 -24745666.23 0.1595 0.1304

Earth -72458-12-15 13:11 J -24743513.15 -24743512.95 -24743512.76 0.1713 0.0148

Moon -72458-12-15 15:49 J -24743513.05 -24743512.84 -24743512.63 0.1713 0.0277 *

Mercury -72454-06-14 05:59 J -24742236.41 -24742236.25 -24742236.08 0.1591 0.0401

Mercury -72451-03-19 13:54 J -24741227.01 -24741226.92 -24741226.82 0.1953 0.1009

Mercury -72445-11-03 07:54 J -24738806.33 -24738806.17 -24738806.01 0.1587 0.0500

Mercury -72442-08-09 21:35 J -24737796.71 -24737796.60 -24737796.48 0.1958 0.0029

Moon -72436-06-12 20:09 J -24735662.85 -24735662.66 -24735662.47 0.1838 0.0583

Earth -72436-06-13 01:40 J -24735662.62 -24735662.43 -24735662.25 0.1837 0.0395 *

Mercury -72435-03-26 09:49 J -24735376.17 -24735376.09 -24735376.01 0.1584 0.1392

Mercury -72433-12-30 05:16 J -24734366.37 -24734366.28 -24734366.18 0.1963 0.1048

Mercury -72424-07-23 04:47 J -24731239.37 -24731239.30 -24731239.23 0.1595 0.1437

Mercury -72415-12-13 06:42 J -24727809.38 -24727809.22 -24727809.06 0.1591 0.0538

Mercury -72412-09-17 13:54 J -24726800.01 -24726799.92 -24726799.82 0.1952 0.1118

Venus -72409-05-14 05:16 J -24725830.46 -24725830.28 -24725830.11 0.1568 0.0256

Mercury -72405-05-04 08:37 J -24724379.31 -24724379.14 -24724378.98 0.1588 0.0360

Mercury -72402-02-07 21:35 J -24723369.71 -24723369.60 -24723369.48 0.1958 0.0102

Mercury -72396-09-24 10:33 J -24720949.16 -24720949.06 -24720948.96 0.1584 0.1250

Mercury -72393-06-30 05:16 J -24719939.38 -24719939.28 -24719939.18 0.1963 0.0941

Mercury -72384-01-21 05:30 J -24716812.29 -24716812.27 -24716812.25 0.1595 0.1575

Earth -72379-12-18 04:47 J -24714655.45 -24714655.30 -24714655.15 0.1719 0.1095

Moon -72379-12-18 12:13 J -24714655.11 -24714654.99 -24714654.87 0.1720 0.1338

Mercury -72375-06-13 07:11 J -24713382.35 -24713382.20 -24713382.04 0.1591 0.0666

Mercury -72372-03-18 13:54 J -24712373.01 -24712372.92 -24712372.83 0.1953 0.1226

Mercury -72366-11-03 09:21 J -24709952.28 -24709952.11 -24709951.94 0.1588 0.0222

Mercury -72363-08-08 21:49 J -24708942.71 -24708942.59 -24708942.48 0.1958 0.0216

Earth -72357-06-15 20:09 J -24706804.81 -24706804.66 -24706804.50 0.1829 0.1077

Moon -72357-06-16 01:54 J -24706804.56 -24706804.42 -24706804.28 0.1829 0.1307 *

Mercury -72356-03-25 11:16 J -24706522.15 -24706522.03 -24706521.91 0.1585 0.1115

Mercury -72354-12-30 05:16 J -24705512.38 -24705512.28 -24705512.18 0.1963 0.0835

Venus -72344-04-13 18:13 J -24702119.79 -24702119.74 -24702119.69 0.1980 0.1874

Mercury -72344-05-21 12:57 J -24702081.99 -24702081.96 -24702081.93 0.1967 0.1866

Venus -72343-03-11 18:13 J -24701787.91 -24701787.74 -24701787.57 0.1568 0.0465

Mercury -72336-12-12 08:09 J -24698955.30 -24698955.16 -24698955.02 0.1591 0.0813

Mercury -72333-09-16 13:54 J -24697946.00 -24697945.92 -24697945.83 0.1952 0.1344

Mercury -72326-05-04 09:49 J -24695525.25 -24695525.09 -24695524.92 0.1588 0.0100
 Mercury -72323-02-06 21:35 J -24694515.71 -24694515.60 -24694515.49 0.1958 0.0305
 Mercury -72317-09-23 11:59 J -24692095.14 -24692095.00 -24692094.87 0.1585 0.0983
 Mercury -72314-06-30 05:30 J -24691085.38 -24691085.27 -24691085.17 0.1963 0.0716
 Venus -72311-03-10 09:49 J -24690101.16 -24690101.09 -24690101.02 0.1567 0.1433
 Mercury -72305-11-19 12:57 J -24687655.01 -24687654.96 -24687654.91 0.1967 0.1759
 Mercury -72296-06-12 08:52 J -24684528.27 -24684528.13 -24684528.00 0.1591 0.0947
 Mercury -72293-03-17 13:54 J -24683518.99 -24683518.92 -24683518.84 0.1952 0.1446
 Mercury -72287-11-02 10:47 J -24681098.22 -24681098.05 -24681097.88 0.1588 0.0052
 Mercury -72284-08-07 21:35 J -24680088.71 -24680088.60 -24680088.48 0.1958 0.0432
 Venus -72278-02-08 19:25 J -24678077.84 -24678077.69 -24678077.54 0.1980 0.0871
 Venus -72277-01-07 07:11 J -24677745.36 -24677745.20 -24677745.04 0.1569 0.0680
 Mercury -72277-03-24 12:42 J -24677668.12 -24677667.97 -24677667.83 0.1585 0.0845
 Mercury -72275-12-29 05:16 J -24676658.39 -24676658.28 -24676658.17 0.1962 0.0615
 Mercury -72265-05-20 12:57 J -24673228.02 -24673227.96 -24673227.90 0.1967 0.1654
 Mercury -72257-12-11 09:21 J -24670101.23 -24670101.11 -24670100.98 0.1591 0.1081
 Mercury -72254-09-16 13:54 J -24669091.98 -24669091.92 -24669091.85 0.1953 0.1563
 Moon -72253-12-12 11:01 J -24668639.19 -24668639.04 -24668638.90 0.1698 0.1008
 Earth -72253-12-12 12:57 J -24668639.10 -24668638.96 -24668638.81 0.1698 0.1141 *
 Mercury -72247-05-03 11:30 J -24666671.19 -24666671.02 -24666670.86 0.1588 0.0189
 Venus -72245-01-05 22:18 J -24666058.68 -24666058.57 -24666058.46 0.1567 0.1209
 Mercury -72244-02-05 21:35 J -24665661.70 -24665661.60 -24665661.49 0.1958 0.0544
 Mercury -72238-09-23 13:25 J -24663241.09 -24663240.94 -24663240.79 0.1585 0.0707
 Mercury -72235-06-29 05:16 J -24662231.39 -24662231.28 -24662231.17 0.1963 0.0502
 Mercury -72226-11-19 12:57 J -24658801.03 -24658800.96 -24658800.89 0.1967 0.1537
 Mercury -72217-06-11 10:04 J -24655674.18 -24655674.08 -24655673.97 0.1591 0.1220
 Mercury -72214-03-17 13:54 J -24654664.98 -24654664.92 -24654664.86 0.1952 0.1669
 Venus -72213-12-05 21:06 J -24654035.79 -24654035.62 -24654035.45 0.1979 0.0119
 Venus -72212-11-03 19:54 J -24653702.81 -24653702.67 -24653702.52 0.1569 0.0897
 Mercury -72208-11-01 11:59 J -24652244.16 -24652244.00 -24652243.83 0.1588 0.0320

Mercury -72205-08-06 21:35 J -24651234.71 -24651234.60 -24651234.49 0.1958 0.0639

Mercury -72198-03-24 13:54 J -24648814.07 -24648813.92 -24648813.76 0.1585 0.0575

Mercury -72196-12-28 05:16 J -24647804.39 -24647804.28 -24647804.16 0.1963 0.0390

Mercury -72189-08-13 16:04 J -24645383.89 -24645383.83 -24645383.77 0.1582 0.1458

Mercury -72186-05-20 12:57 J -24644374.04 -24644373.96 -24644373.88 0.1967 0.1430

Venus -72180-11-02 11:16 J -24642016.16 -24642016.03 -24642015.89 0.1568 0.1005

Mercury -72178-12-11 10:47 J -24641247.13 -24641247.05 -24641246.96 0.1592 0.1359

Mercury -72175-09-15 13:54 J -24640237.96 -24640237.92 -24640237.87 0.1952 0.1779

Moon -72174-12-15 18:57 J -24639781.90 -24639781.71 -24639781.51 0.1704 0.0148

Earth -72174-12-16 03:06 J -24639781.57 -24639781.37 -24639781.17 0.1705 0.0038 *

Mercury -72168-05-02 12:57 J -24637817.13 -24637816.96 -24637816.80 0.1588 0.0462

Mercury -72165-02-05 21:35 J -24636807.70 -24636807.60 -24636807.49 0.1958 0.0759

Mercury -72159-09-22 14:52 J -24634387.05 -24634386.88 -24634386.72 0.1585 0.0434

Mercury -72156-06-28 05:16 J -24633377.39 -24633377.28 -24633377.17 0.1962 0.0281

Moon -72152-06-13 01:25 J -24631931.60 -24631931.44 -24631931.27 0.1848 0.0664

Earth -72152-06-13 05:16 J -24631931.46 -24631931.28 -24631931.10 0.1848 0.0507 *

Mercury -72149-02-12 16:33 J -24630956.90 -24630956.81 -24630956.72 0.1582 0.1329

Venus -72147-10-02 22:18 J -24629993.71 -24629993.57 -24629993.43 0.1978 0.1112

Mercury -72147-11-18 12:57 J -24629947.05 -24629946.96 -24629946.88 0.1967 0.1326

Venus -72146-09-01 09:06 J -24629660.25 -24629660.12 -24629660.00 0.1570 0.1104

Mercury -72138-06-11 11:30 J -24626820.08 -24626820.02 -24626819.96 0.1592 0.1488

Mercury -72135-03-16 13:54 J -24625810.94 -24625810.92 -24625810.89 0.1953 0.1893

Mercury -72129-10-31 13:40 J -24623390.09 -24623389.93 -24623389.78 0.1588 0.0600

Mercury -72126-08-06 21:49 J -24622380.70 -24622380.59 -24622380.49 0.1957 0.0877

Mercury -72119-03-23 15:21 J -24619960.02 -24619959.86 -24619959.69 0.1585 0.0302

Mercury -72117-12-27 05:16 J -24618950.39 -24618950.28 -24618950.17 0.1962 0.0173

Venus -72114-08-31 00:13 J -24617973.65 -24617973.49 -24617973.34 0.1568 0.0787

Mercury -72110-08-13 17:30 J -24616529.88 -24616529.77 -24616529.66 0.1582 0.1186

Mercury -72107-05-19 12:57 J -24615520.05 -24615519.96 -24615519.87 0.1967 0.1208

Moon -72095-12-18 14:37 J -24610924.03 -24610923.89 -24610923.74 0.1711 0.1254

Earth -72095-12-18 17:45 J -24610923.89 -24610923.76 -24610923.63 0.1711 0.1262 *
 Mercury -72089-05-01 14:09 J -24608963.06 -24608962.91 -24608962.76 0.1588 0.0728
 Mercury -72086-02-04 21:35 J -24607953.70 -24607953.60 -24607953.50 0.1958 0.0970
 Venus -72080-06-28 21:49 J -24605617.69 -24605617.59 -24605617.50 0.1570 0.1328
 Mercury -72080-09-21 16:04 J -24605532.99 -24605532.83 -24605532.66 0.1585 0.0167
 Mercury -72077-06-27 05:16 J -24604523.39 -24604523.28 -24604523.16 0.1962 0.0091
 Moon -72073-06-15 16:47 J -24603073.96 -24603073.80 -24603073.63 0.1840 0.0928
 Earth -72073-06-16 00:57 J -24603073.61 -24603073.46 -24603073.30 0.1840 0.1024
 Mercury -72070-02-11 18:13 J -24602102.87 -24602102.74 -24602102.62 0.1582 0.1050
 Mercury -72068-11-17 12:57 J -24601093.05 -24601092.96 -24601092.87 0.1966 0.1099
 Mercury -72050-10-31 14:52 J -24594536.02 -24594535.88 -24594535.74 0.1588 0.0873
 Venus -72048-06-27 13:11 J -24593931.12 -24593930.95 -24593930.78 0.1568 0.0576
 Mercury -72047-08-05 21:35 J -24593526.69 -24593526.60 -24593526.50 0.1957 0.1095
 Mercury -72040-03-22 16:47 J -24591105.97 -24591105.80 -24591105.63 0.1585 0.0043
 Mercury -72038-12-27 05:16 J -24590096.40 -24590096.28 -24590096.17 0.1962 0.0052
 Mercury -72031-08-12 18:42 J -24587675.85 -24587675.72 -24587675.58 0.1582 0.0919
 Mercury -72028-05-18 12:57 J -24586666.06 -24586665.96 -24586665.86 0.1967 0.0991
 Venus -72014-04-26 10:33 J -24581575.09 -24581575.06 -24581575.03 0.1571 0.1540
 Mercury -72010-05-01 15:35 J -24580108.98 -24580108.85 -24580108.72 0.1588 0.1008
 Mercury -72007-02-03 21:35 J -24579099.68 -24579099.60 -24579099.51 0.1957 0.1206
 Mercury -72001-09-20 17:45 J -24576678.93 -24576678.76 -24576678.60 0.1585 0.0121

72ND MILLENNIUM BCE

This is a list of transits visible from Mars in the 72nd millennium BCE.

| PLANET | MAX- | C | START | MAX | END | SUNRAD | DEPTH | S |
|--------|------|---|-------|-----|-----|--------|-------|---|
|--------|------|---|-------|-----|-----|--------|-------|---|

TRANSIT

TIME

Mercury -71998-06-27 05:16 J -24575669.39 -24575669.28 -24575669.16 0.1962 0.0168

Mercury -71991-02-10 19:40 J -24573248.83 -24573248.68 -24573248.53 0.1582 0.0776

Mercury -71989-11-16 12:57 J -24572239.06 -24572238.96 -24572238.86 0.1966 0.0876

Venus -71983-05-27 05:45 J -24570221.31 -24570221.26 -24570221.21 0.1980 0.1886

Venus -71982-04-25 01:54 J -24569888.59 -24569888.42 -24569888.25 0.1569 0.0357

Mercury -71979-04-08 20:23 J -24568808.67 -24568808.65 -24568808.63 0.1970 0.1938

Mercury -71971-10-30 16:18 J -24565681.94 -24565681.82 -24565681.71 0.1588 0.1141

Earth -71969-12-13 04:47 J -24564907.46 -24564907.30 -24564907.14 0.1690 0.0921

Moon -71969-12-13 12:13 J -24564907.16 -24564906.99 -24564906.81 0.1691 0.0757 *

Mercury -71968-08-04 21:35 J -24564672.68 -24564672.60 -24564672.51 0.1957 0.1309

Mercury -71961-03-21 18:13 J -24562251.90 -24562251.74 -24562251.57 0.1585 0.0250

Mercury -71959-12-26 05:16 J -24561242.39 -24561242.28 -24561242.16 0.1962 0.0291

Mercury -71952-08-11 20:23 J -24558821.81 -24558821.65 -24558821.50 0.1582 0.0642

Mercury -71949-05-17 12:57 J -24557812.07 -24557811.96 -24557811.86 0.1966 0.0770

Mercury -71942-01-01 22:18 J -24555391.61 -24555391.57 -24555391.53 0.1579 0.1525

Mercury -71940-10-07 20:37 J -24554381.69 -24554381.64 -24554381.60 0.1970 0.1815

Mercury -71931-04-30 17:01 J -24551254.88 -24551254.79 -24551254.69 0.1588 0.1284

Mercury -71928-02-02 21:35 J -24550245.67 -24550245.60 -24550245.52 0.1957 0.1427

Mercury -71922-09-20 18:57 J -24547824.87 -24547824.71 -24547824.54 0.1585 0.0387

Mercury -71919-06-26 05:16 J -24546815.39 -24546815.28 -24546815.17 0.1962 0.0384

Venus -71917-03-23 06:57 J -24546179.37 -24546179.21 -24546179.06 0.1979 0.0874

Venus -71916-02-19 15:06 J -24545846.05 -24545845.87 -24545845.70 0.1569 0.0150

Mercury -71912-02-09 20:52 J -24544394.79 -24544394.63 -24544394.47 0.1582 0.0510

Mercury -71910-11-16 12:57 J -24543385.07 -24543384.96 -24543384.86 0.1967 0.0658

Mercury -71903-07-02 23:01 J -24540964.62 -24540964.54 -24540964.46 0.1579 0.1391

Mercury -71900-04-07 20:37 J -24539954.70 -24539954.64 -24539954.59 0.1970 0.1700

Mercury -71892-10-29 17:45 J -24536827.83 -24536827.76 -24536827.69 0.1588 0.1421

Earth -71890-12-16 18:13 J -24536049.93 -24536049.74 -24536049.54 0.1697 0.0246

Moon -71890-12-16 21:06 J -24536049.80 -24536049.62 -24536049.44 0.1697 0.0219 *
 Mercury -71889-08-03 21:49 J -24535818.66 -24535818.59 -24535818.53 0.1957 0.1541
 Mercury -71882-03-21 19:40 J -24533397.84 -24533397.68 -24533397.52 0.1585 0.0524
 Mercury -71880-12-25 05:16 J -24532388.39 -24532388.28 -24532388.17 0.1962 0.0496
 Mercury -71873-08-10 21:49 J -24529967.76 -24529967.59 -24529967.43 0.1582 0.0366
 Mercury -71870-05-17 12:57 J -24528958.07 -24528957.96 -24528957.85 0.1966 0.0543
 Earth -71868-06-13 07:25 J -24528200.36 -24528200.19 -24528200.01 0.1858 0.0663
 Moon -71868-06-13 15:21 J -24528200.04 -24528199.86 -24528199.68 0.1857 0.0553 *
 Mercury -71864-12-31 23:45 J -24526537.61 -24526537.51 -24526537.41 0.1579 0.1256
 Mercury -71861-10-06 20:23 J -24525527.71 -24525527.65 -24525527.58 0.1970 0.1602
 Mercury -71852-04-29 18:13 J -24522400.77 -24522400.74 -24522400.70 0.1588 0.1550
 Venus -71851-01-18 08:37 J -24522137.31 -24522137.14 -24522136.97 0.1978 0.0117
 Venus -71851-12-18 03:49 J -24521803.52 -24521803.34 -24521803.16 0.1570 0.0072
 Mercury -71849-02-02 21:35 J -24521391.66 -24521391.60 -24521391.54 0.1957 0.1640
 Mercury -71843-09-19 20:23 J -24518970.80 -24518970.65 -24518970.49 0.1585 0.0661
 Mercury -71840-06-25 05:30 J -24517961.38 -24517961.27 -24517961.17 0.1962 0.0626
 Mercury -71833-02-09 22:33 J -24515540.73 -24515540.56 -24515540.40 0.1582 0.0231
 Mercury -71831-11-15 12:57 J -24514531.07 -24514530.96 -24514530.85 0.1966 0.0435
 Mercury -71824-07-02 00:28 J -24512110.60 -24512110.48 -24512110.36 0.1579 0.1118
 Mercury -71821-04-06 20:23 J -24511100.72 -24511100.65 -24511100.57 0.1970 0.1487
 Moon -71811-12-19 01:40 J -24507192.53 -24507192.43 -24507192.33 0.1702 0.1409
 Earth -71811-12-19 08:09 J -24507192.26 -24507192.16 -24507192.06 0.1703 0.1441
 Mercury -71810-08-03 21:49 J -24506964.64 -24506964.59 -24506964.55 0.1957 0.1765
 Mercury -71803-03-20 21:06 J -24504543.76 -24504543.62 -24504543.47 0.1585 0.0798
 Mercury -71801-12-24 05:16 J -24503534.39 -24503534.28 -24503534.17 0.1962 0.0717
 Mercury -71794-08-10 23:01 J -24501113.71 -24501113.54 -24501113.37 0.1582 0.0099
 Mercury -71791-05-16 12:57 J -24500104.07 -24500103.96 -24500103.85 0.1967 0.0324
 Earth -71789-06-16 04:04 J -24499342.49 -24499342.33 -24499342.16 0.1850 0.0932
 Moon -71789-06-16 05:16 J -24499342.43 -24499342.28 -24499342.13 0.1850 0.0926 *
 Venus -71786-11-15 10:04 J -24498095.22 -24498095.08 -24498094.94 0.1976 0.1097

Venus -71785-10-14 16:47 J -24497760.98 -24497760.80 -24497760.63 0.1571 0.0287
 Mercury -71785-12-31 01:11 J -24497683.58 -24497683.45 -24497683.32 0.1580 0.0980
 Mercury -71782-10-06 20:37 J -24496673.72 -24496673.64 -24496673.56 0.1970 0.1366
 Mercury -71770-02-01 21:49 J -24492537.62 -24492537.59 -24492537.56 0.1957 0.1874
 Mercury -71764-09-18 21:49 J -24490116.72 -24490116.59 -24490116.45 0.1585 0.0938
 Mercury -71761-06-24 05:16 J -24489107.38 -24489107.28 -24489107.18 0.1962 0.0836
 Mercury -71754-02-08 23:59 J -24486686.67 -24486686.50 -24486686.33 0.1582 0.0055
 Mercury -71752-11-14 12:57 J -24485677.07 -24485676.96 -24485676.85 0.1966 0.0210
 Mercury -71745-07-01 01:40 J -24483256.57 -24483256.43 -24483256.28 0.1579 0.0850
 Mercury -71742-04-06 20:23 J -24482246.73 -24482246.65 -24482246.56 0.1970 0.1272
 Mercury -71724-03-19 22:33 J -24475689.68 -24475689.56 -24475689.44 0.1585 0.1072
 Mercury -71722-12-24 05:16 J -24474680.37 -24474680.28 -24474680.18 0.1962 0.0957
 Venus -71719-08-12 05:59 J -24473718.42 -24473718.25 -24473718.08 0.1571 0.0495
 Mercury -71715-08-10 00:42 J -24472259.64 -24472259.47 -24472259.31 0.1582 0.0186
 Mercury -71712-05-15 12:57 J -24471250.08 -24471249.96 -24471249.85 0.1966 0.0110
 Mercury -71706-12-31 02:37 J -24468829.54 -24468829.39 -24468829.24 0.1580 0.0704
 Mercury -71703-10-05 20:37 J -24467819.73 -24467819.64 -24467819.55 0.1970 0.1146
 Venus -71687-08-10 21:06 J -24462031.70 -24462031.62 -24462031.54 0.1569 0.1405
 Mercury -71685-09-17 23:16 J -24461262.64 -24461262.53 -24461262.42 0.1585 0.1209
 Moon -71685-12-13 18:42 J -24461175.91 -24461175.72 -24461175.53 0.1683 0.0657
 Earth -71685-12-13 22:04 J -24461175.75 -24461175.58 -24461175.40 0.1683 0.0691 *
 Mercury -71682-06-24 05:16 J -24460253.38 -24460253.28 -24460253.19 0.1962 0.1053
 Mercury -71675-02-08 01:11 J -24457832.61 -24457832.45 -24457832.28 0.1582 0.0315
 Mercury -71673-11-13 12:57 J -24456823.07 -24456822.96 -24456822.85 0.1966 0.0017
 Mercury -71666-07-01 03:21 J -24454402.52 -24454402.36 -24454402.20 0.1580 0.0570
 Mercury -71663-04-05 20:37 J -24453392.74 -24453392.64 -24453392.55 0.1970 0.1037
 Mercury -71657-11-20 05:16 J -24450972.34 -24450972.28 -24450972.21 0.1577 0.1453
 Venus -71653-06-08 18:28 J -24449675.89 -24449675.73 -24449675.57 0.1572 0.0718
 Mercury -71645-03-18 23:59 J -24446835.58 -24446835.50 -24446835.41 0.1586 0.1348
 Mercury -71643-12-23 05:16 J -24445826.37 -24445826.28 -24445826.19 0.1962 0.1170

Mercury -71636-08-09 02:09 J -24443405.58 -24443405.41 -24443405.25 0.1582 0.0458

Mercury -71633-05-14 12:57 J -24442396.07 -24442395.96 -24442395.85 0.1966 0.0126

Mercury -71627-12-30 04:04 J -24439975.50 -24439975.33 -24439975.17 0.1580 0.0438

Mercury -71624-10-04 20:23 J -24438965.75 -24438965.65 -24438965.55 0.1970 0.0936

Venus -71622-07-09 16:47 J -24438322.86 -24438322.80 -24438322.75 0.1978 0.1858

Venus -71621-06-07 10:04 J -24437989.20 -24437989.08 -24437988.97 0.1570 0.1194

Mercury -71617-05-21 05:59 J -24436545.34 -24436545.25 -24436545.16 0.1577 0.1320

Mercury -71606-09-18 00:42 J -24432408.52 -24432408.47 -24432408.41 0.1586 0.1486

Earth -71606-12-17 11:30 J -24432318.21 -24432318.02 -24432317.83 0.1689 0.0470

Moon -71606-12-17 17:01 J -24432317.98 -24432317.79 -24432317.59 0.1689 0.0515 *

Mercury -71603-06-23 05:30 J -24431399.36 -24431399.27 -24431399.19 0.1962 0.1295

Mercury -71596-02-07 02:37 J -24428978.54 -24428978.39 -24428978.23 0.1583 0.0595

Mercury -71594-11-13 12:57 J -24427969.07 -24427968.96 -24427968.85 0.1966 0.0235

Venus -71587-04-06 07:25 J -24425633.33 -24425633.19 -24425633.05 0.1573 0.0931

Mercury -71587-06-30 04:47 J -24425548.47 -24425548.30 -24425548.13 0.1580 0.0297

Mercury -71584-04-04 20:23 J -24424538.75 -24424538.65 -24424538.54 0.1970 0.0820

Moon -71584-06-13 03:35 J -24424469.54 -24424469.35 -24424469.17 0.1869 0.0803

Earth -71584-06-13 07:54 J -24424469.33 -24424469.17 -24424469.00 0.1868 0.0880 *

Mercury -71578-11-20 06:57 J -24422118.33 -24422118.21 -24422118.10 0.1577 0.1179

Mercury -71575-08-26 04:04 J -24421108.36 -24421108.33 -24421108.30 0.1973 0.1874

Mercury -71564-12-22 05:16 J -24416972.36 -24416972.28 -24416972.20 0.1961 0.1387

Mercury -71557-08-08 03:21 J -24414551.51 -24414551.36 -24414551.21 0.1583 0.0725

Venus -71556-05-05 18:57 J -24414280.86 -24414280.71 -24414280.56 0.1977 0.0909

Venus -71555-04-04 22:47 J -24413946.69 -24413946.55 -24413946.41 0.1570 0.0975

Mercury -71554-05-14 12:57 J -24413542.07 -24413541.96 -24413541.85 0.1966 0.0349

Mercury -71548-12-29 05:30 J -24411121.44 -24411121.27 -24411121.10 0.1580 0.0157

Mercury -71545-10-03 20:37 J -24410111.75 -24410111.64 -24410111.54 0.1970 0.0698

Mercury -71538-05-21 07:25 J -24407691.31 -24407691.19 -24407691.06 0.1577 0.1044

Mercury -71535-02-24 04:04 J -24406681.38 -24406681.33 -24406681.28 0.1973 0.1766

Earth -71527-12-19 23:45 J -24403460.55 -24403460.51 -24403460.46 0.1695 0.1639

Moon -71527-12-20 06:13 J -24403460.28 -24403460.24 -24403460.20 0.1695 0.1640
 Mercury -71524-06-22 05:16 J -24402545.35 -24402545.28 -24402545.21 0.1962 0.1508
 Venus -71521-02-01 20:09 J -24401590.78 -24401590.66 -24401590.54 0.1574 0.1155
 Mercury -71517-02-07 04:18 J -24400124.47 -24400124.32 -24400124.18 0.1583 0.0870
 Mercury -71515-11-12 12:57 J -24399115.07 -24399114.96 -24399114.85 0.1966 0.0461
 Mercury -71508-06-29 05:59 J -24396694.41 -24396694.25 -24396694.08 0.1580 0.0050
 Mercury -71505-04-03 20:23 J -24395684.76 -24395684.65 -24395684.54 0.1970 0.0602
 Earth -71505-06-16 06:13 J -24395611.41 -24395611.24 -24395611.07 0.1861 0.0799
 Moon -71505-06-16 11:59 J -24395611.18 -24395611.00 -24395610.81 0.1860 0.0713 *
 Mercury -71499-11-19 08:09 J -24393264.29 -24393264.16 -24393264.02 0.1577 0.0908
 Mercury -71496-08-25 04:04 J -24392254.39 -24392254.33 -24392254.26 0.1973 0.1642
 Venus -71490-03-02 20:09 J -24390238.83 -24390238.66 -24390238.49 0.1975 0.0105
 Venus -71489-01-31 11:45 J -24389904.16 -24389904.01 -24389903.85 0.1571 0.0765
 Mercury -71485-12-21 05:30 J -24388118.34 -24388118.27 -24388118.21 0.1961 0.1628
 Earth -71480-12-12 06:13 J -24386301.32 -24386301.24 -24386301.17 0.1670 0.1530
 Moon -71480-12-12 10:33 J -24386301.12 -24386301.06 -24386300.99 0.1671 0.1551
 Mercury -71478-08-08 04:47 J -24385697.43 -24385697.30 -24385697.17 0.1583 0.1006
 Mercury -71475-05-13 12:57 J -24384688.07 -24384687.96 -24384687.85 0.1966 0.0569
 Mercury -71469-12-28 06:57 J -24382267.38 -24382267.21 -24382267.04 0.1580 0.0120
 Mercury -71466-10-03 20:37 J -24381257.75 -24381257.64 -24381257.53 0.1970 0.0479
 Mercury -71459-05-20 08:52 J -24378837.27 -24378837.13 -24378836.98 0.1577 0.0772
 Mercury -71456-02-23 04:04 J -24377827.40 -24377827.33 -24377827.26 0.1973 0.1547
 Venus -71456-11-29 09:06 J -24377548.21 -24377548.12 -24377548.04 0.1575 0.1371
 Mercury -71445-06-21 05:16 J -24373691.33 -24373691.28 -24373691.23 0.1961 0.1725
 Mercury -71438-02-06 05:30 J -24371270.38 -24371270.27 -24371270.15 0.1583 0.1139
 Mercury -71436-11-11 12:57 J -24370261.07 -24370260.96 -24370260.85 0.1966 0.0690
 Mercury -71429-06-28 07:40 J -24367840.35 -24367840.18 -24367840.01 0.1580 0.0252
 Mercury -71426-04-03 20:37 J -24366830.76 -24366830.64 -24366830.53 0.1970 0.0373
 Venus -71425-12-27 21:49 J -24366196.73 -24366196.59 -24366196.44 0.1974 0.1074
 Venus -71424-11-28 00:42 J -24365861.64 -24365861.47 -24365861.30 0.1572 0.0548

Mercury -71420-11-18 09:49 J -24364410.25 -24364410.09 -24364409.94 0.1577 0.0632

Mercury -71417-08-24 04:04 J -24363400.41 -24363400.33 -24363400.25 0.1973 0.1429

Mercury -71410-04-10 11:45 J -24360980.05 -24360980.01 -24360979.96 0.1575 0.1512

Mercury -71406-12-21 05:16 J -24359264.31 -24359264.28 -24359264.24 0.1961 0.1844

Moon -71401-12-14 12:28 J -24357444.16 -24357443.98 -24357443.81 0.1675 0.0499

Earth -71401-12-14 16:33 J -24357444.00 -24357443.81 -24357443.62 0.1676 0.0446 *

Mercury -71399-08-07 06:13 J -24356843.33 -24356843.24 -24356843.14 0.1583 0.1280

Mercury -71396-05-12 12:57 J -24355834.07 -24355833.96 -24355833.86 0.1966 0.0794

Mercury -71390-12-28 08:23 J -24353413.32 -24353413.15 -24353412.99 0.1580 0.0388

Mercury -71387-10-02 20:23 J -24352403.76 -24352403.65 -24352403.53 0.1970 0.0266

Mercury -71380-05-19 10:18 J -24349983.23 -24349983.07 -24349982.91 0.1577 0.0499

Mercury -71377-02-23 04:04 J -24348973.41 -24348973.33 -24348973.24 0.1973 0.1309

Mercury -71371-10-09 12:28 J -24346553.06 -24346552.98 -24346552.90 0.1575 0.1375

Mercury -71359-02-05 06:57 J -24342416.28 -24342416.21 -24342416.13 0.1583 0.1417

Venus -71358-09-25 13:40 J -24341819.11 -24341818.93 -24341818.76 0.1573 0.0331

Mercury -71357-11-10 12:57 J -24341407.06 -24341406.96 -24341406.86 0.1966 0.0905

Mercury -71350-06-28 09:06 J -24338986.28 -24338986.12 -24338985.96 0.1580 0.0527

Mercury -71347-04-02 20:37 J -24337976.76 -24337976.64 -24337976.53 0.1970 0.0164

Mercury -71341-11-17 11:16 J -24335556.20 -24335556.03 -24335555.87 0.1577 0.0360

Mercury -71338-08-24 04:04 J -24334546.42 -24334546.33 -24334546.24 0.1973 0.1208

Mercury -71331-04-09 13:11 J -24332126.05 -24332125.95 -24332125.85 0.1575 0.1246

Moon -71322-12-17 22:47 J -24328586.73 -24328586.55 -24328586.36 0.1681 0.0683

Earth -71322-12-18 05:16 J -24328586.45 -24328586.28 -24328586.10 0.1682 0.0698 *

Mercury -71320-08-06 07:40 J -24327989.21 -24327989.18 -24327989.15 0.1583 0.1549

Mercury -71317-05-11 12:57 J -24326980.06 -24326979.96 -24326979.86 0.1966 0.1024

Mercury -71311-12-27 09:49 J -24324559.24 -24324559.09 -24324558.94 0.1580 0.0667

Mercury -71308-10-01 20:37 J -24323549.76 -24323549.64 -24323549.53 0.1969 0.0046

Mercury -71301-05-18 11:45 J -24321129.17 -24321129.01 -24321128.84 0.1577 0.0226

Moon -71300-06-13 02:37 J -24320738.54 -24320738.39 -24320738.24 0.1879 0.1023

Earth -71300-06-13 06:13 J -24320738.39 -24320738.24 -24320738.09 0.1879 0.1168 *

Mercury -71298-02-22 04:04 J -24320119.43 -24320119.33 -24320119.24 0.1973 0.1098

Venus -71292-07-23 02:37 J -24317776.57 -24317776.39 -24317776.21 0.1573 0.0118

Mercury -71292-10-08 13:54 J -24317699.04 -24317698.92 -24317698.80 0.1575 0.1103

Mercury -71278-11-10 12:57 J -24312553.05 -24312552.96 -24312552.87 0.1965 0.1133

Mercury -71271-06-27 10:18 J -24310132.21 -24310132.07 -24310131.92 0.1580 0.0796

Mercury -71268-04-01 20:23 J -24309122.76 -24309122.65 -24309122.54 0.1970 0.0069

Mercury -71262-11-17 12:28 J -24306702.15 -24306701.98 -24306701.81 0.1578 0.0093

Venus -71261-08-21 04:33 J -24306424.36 -24306424.31 -24306424.26 0.1976 0.1879

Mercury -71259-08-23 04:04 J -24305692.42 -24305692.33 -24305692.23 0.1973 0.0974

Mercury -71252-04-08 14:37 J -24303272.02 -24303271.89 -24303271.76 0.1575 0.0967

Mercury -71238-05-11 12:57 J -24298126.05 -24298125.96 -24298125.88 0.1966 0.1240

Mercury -71232-12-26 11:16 J -24295705.17 -24295705.03 -24295704.90 0.1580 0.0940

Mercury -71229-09-30 20:37 J -24294695.76 -24294695.64 -24294695.53 0.1970 0.0203

Venus -71226-05-20 15:06 J -24293734.05 -24293733.87 -24293733.69 0.1574 0.0112

Mercury -71222-05-18 13:11 J -24292275.12 -24292274.95 -24292274.78 0.1577 0.0056

Moon -71221-06-15 22:33 J -24291880.75 -24291880.56 -24291880.36 0.1872 0.0255

Earth -71221-06-16 06:13 J -24291880.42 -24291880.24 -24291880.06 0.1871 0.0599 *

Mercury -71219-02-21 04:04 J -24291265.43 -24291265.33 -24291265.23 0.1973 0.0880

Mercury -71213-10-07 15:21 J -24288845.00 -24288844.86 -24288844.72 0.1575 0.0834

Mercury -71210-07-14 11:45 J -24287835.03 -24287835.01 -24287834.99 0.1976 0.1931

Mercury -71199-11-09 12:57 J -24283699.04 -24283698.96 -24283698.88 0.1966 0.1363

Earth -71196-12-13 02:23 J -24282569.52 -24282569.40 -24282569.27 0.1664 0.1264

Moon -71196-12-13 07:25 J -24282569.32 -24282569.19 -24282569.05 0.1664 0.1271 *

Venus -71195-06-18 05:59 J -24282382.41 -24282382.25 -24282382.10 0.1974 0.0887

Mercury -71192-06-26 11:59 J -24281278.13 -24281278.00 -24281277.88 0.1580 0.1074

Mercury -71189-03-31 20:23 J -24280268.76 -24280268.65 -24280268.53 0.1969 0.0309

Mercury -71183-11-16 14:09 J -24277848.08 -24277847.91 -24277847.75 0.1578 0.0195

Mercury -71180-08-22 04:04 J -24276838.43 -24276838.33 -24276838.22 0.1973 0.0757

Mercury -71173-04-07 16:04 J -24274417.98 -24274417.83 -24274417.67 0.1575 0.0693

Mercury -71170-01-12 11:30 J -24273408.06 -24273408.02 -24273407.97 0.1976 0.1821

Venus -71160-03-17 04:18 J -24269691.50 -24269691.32 -24269691.15 0.1575 0.0326

Mercury -71159-05-10 12:57 J -24269272.04 -24269271.96 -24269271.89 0.1965 0.1464

Mercury -71153-12-25 12:28 J -24266851.08 -24266850.98 -24266850.87 0.1580 0.1209

Mercury -71150-09-30 20:23 J -24265841.76 -24265841.65 -24265841.54 0.1970 0.0413

Mercury -71143-05-17 14:37 J -24263421.05 -24263420.89 -24263420.72 0.1578 0.0326

Mercury -71140-02-20 04:04 J -24262411.43 -24262411.33 -24262411.22 0.1973 0.0640

Mercury -71134-10-07 16:47 J -24259990.96 -24259990.80 -24259990.64 0.1575 0.0557

Mercury -71131-07-13 11:30 J -24258981.07 -24258981.02 -24258980.96 0.1976 0.1713

Venus -71129-04-14 08:09 J -24258340.33 -24258340.16 -24258339.99 0.1973 0.0062

Mercury -71124-02-26 18:57 J -24256560.78 -24256560.71 -24256560.64 0.1573 0.1436

Mercury -71120-11-08 12:57 J -24254845.03 -24254844.96 -24254844.90 0.1965 0.1577

Earth -71117-12-15 11:59 J -24253712.19 -24253712.00 -24253711.80 0.1669 0.0194

Moon -71117-12-15 18:57 J -24253711.90 -24253711.71 -24253711.52 0.1669 0.0161 *

Mercury -71113-06-25 13:25 J -24252424.03 -24252423.94 -24252423.86 0.1580 0.1349

Mercury -71110-03-31 20:23 J -24251414.75 -24251414.65 -24251414.54 0.1969 0.0534

Mercury -71104-11-15 15:21 J -24248994.02 -24248993.86 -24248993.70 0.1578 0.0462

Mercury -71101-08-21 04:04 J -24247984.44 -24247984.33 -24247984.22 0.1973 0.0542

Venus -71094-01-12 16:47 J -24245648.97 -24245648.80 -24245648.64 0.1577 0.0554

Mercury -71094-04-07 17:30 J -24245563.94 -24245563.77 -24245563.61 0.1575 0.0427

Mercury -71091-01-11 11:30 J -24244554.08 -24244554.02 -24244553.95 0.1976 0.1601

Mercury -71085-08-27 19:40 J -24242133.77 -24242133.68 -24242133.59 0.1573 0.1300

Mercury -71080-05-09 12:57 J -24240418.01 -24240417.96 -24240417.90 0.1966 0.1698

Mercury -71074-12-25 14:09 J -24237996.97 -24237996.91 -24237996.86 0.1580 0.1488

Mercury -71071-09-29 20:37 J -24236987.75 -24236987.64 -24236987.54 0.1969 0.0645

Mercury -71064-05-16 16:04 J -24234566.98 -24234566.83 -24234566.67 0.1578 0.0600

Venus -71063-02-09 09:21 J -24234298.25 -24234298.11 -24234297.97 0.1970 0.1064

Venus -71062-01-11 08:23 J -24233962.23 -24233962.15 -24233962.06 0.1573 0.1373

Mercury -71061-02-20 04:04 J -24233557.44 -24233557.33 -24233557.22 0.1973 0.0428

Mercury -71055-10-06 18:13 J -24231136.90 -24231136.74 -24231136.57 0.1575 0.0284

Mercury -71052-07-12 11:45 J -24230127.09 -24230127.01 -24230126.94 0.1976 0.1485

Mercury -71045-02-26 20:23 J -24227706.77 -24227706.65 -24227706.54 0.1573 0.1168

Mercury -71041-11-07 12:57 J -24225991.01 -24225990.96 -24225990.92 0.1965 0.1802

Earth -71038-12-18 23:16 J -24224854.69 -24224854.53 -24224854.36 0.1674 0.0925

Moon -71038-12-18 23:16 J -24224854.67 -24224854.53 -24224854.39 0.1674 0.1041 *

Mercury -71031-03-30 20:23 J -24222560.75 -24222560.65 -24222560.54 0.1970 0.0741

Venus -71029-11-09 05:30 J -24221606.42 -24221606.27 -24221606.11 0.1578 0.0774

Mercury -71025-11-14 16:47 J -24220139.95 -24220139.80 -24220139.65 0.1578 0.0736

Mercury -71022-08-21 04:04 J -24219130.44 -24219130.33 -24219130.21 0.1973 0.0307

Earth -71016-06-13 01:25 J -24217007.54 -24217007.44 -24217007.33 0.1889 0.1552

Moon -71016-06-13 10:18 J -24217007.22 -24217007.07 -24217006.92 0.1888 0.1122

Mercury -71015-04-06 18:57 J -24216709.88 -24216709.71 -24216709.54 0.1575 0.0147

Mercury -71012-01-10 11:30 J -24215700.10 -24215700.02 -24215699.94 0.1976 0.1380

Mercury -71006-08-27 21:06 J -24213279.75 -24213279.62 -24213279.49 0.1573 0.1027

Mercury -71001-05-08 12:57 J -24211563.99 -24211563.96 -24211563.94 0.1965 0.1910

71ST MILLENNIUM BCE

This is a list of transits visible from Mars in the 71st millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Venus | -70997-11-07 21:21 J | -24209919.73 | -24209919.61 | -24209919.49 | 0.1574 | 0.1156 | | |
| Mercury | -70992-09-28 20:23 J | -24208133.75 | -24208133.65 | -24208133.54 | 0.1969 | 0.0870 | | |
| Mercury | -70985-05-15 17:30 J | -24205712.91 | -24205712.77 | -24205712.63 | 0.1578 | 0.0871 | | |
| Mercury | -70982-02-19 04:04 J | -24204703.45 | -24204703.33 | -24204703.22 | 0.1973 | 0.0219 | | |
| Mercury | -70976-10-05 19:40 J | -24202282.85 | -24202282.68 | -24202282.51 | 0.1575 | 0.0027 | | |

Mercury -70973-07-11 11:30 J -24201273.10 -24201273.02 -24201272.93 0.1976 0.1264
 Mercury -70966-02-25 21:49 J -24198852.73 -24198852.59 -24198852.45 0.1573 0.0894
 Venus -70963-09-06 18:13 J -24197563.87 -24197563.74 -24197563.60 0.1579 0.0999
 Mercury -70952-03-29 20:23 J -24193706.75 -24193706.65 -24193706.55 0.1969 0.0973
 Mercury -70946-11-14 18:13 J -24191285.87 -24191285.74 -24191285.61 0.1578 0.1012
 Mercury -70943-08-20 04:04 J -24190276.44 -24190276.33 -24190276.22 0.1973 0.0088
 Earth -70937-06-16 03:49 J -24188149.53 -24188149.34 -24188149.15 0.1881 0.0321
 Moon -70937-06-16 05:45 J -24188149.43 -24188149.26 -24188149.08 0.1881 0.0076 *
 Mercury -70936-04-05 20:23 J -24187855.82 -24187855.65 -24187855.48 0.1575 0.0125
 Mercury -70933-01-10 11:30 J -24186846.11 -24186846.02 -24186845.93 0.1976 0.1155
 Venus -70931-09-05 10:04 J -24185877.22 -24185877.08 -24185876.93 0.1575 0.0938
 Mercury -70927-08-26 22:18 J -24184425.71 -24184425.57 -24184425.42 0.1573 0.0761
 Mercury -70913-09-27 20:23 J -24179279.74 -24179279.65 -24179279.55 0.1969 0.1083
 Moon -70912-12-13 16:18 J -24178837.98 -24178837.82 -24178837.66 0.1657 0.0975
 Earth -70912-12-13 23:45 J -24178837.67 -24178837.51 -24178837.36 0.1657 0.0990 *
 Mercury -70906-05-15 18:57 J -24176858.83 -24176858.71 -24176858.60 0.1578 0.1144
 Mercury -70903-02-18 04:04 J -24175849.44 -24175849.33 -24175849.21 0.1973 0.0038
 Venus -70900-10-03 15:06 J -24174525.93 -24174525.87 -24174525.81 0.1973 0.1837
 Venus -70897-07-04 06:57 J -24173521.31 -24173521.21 -24173521.09 0.1580 0.1225
 Mercury -70897-10-04 21:06 J -24173428.79 -24173428.62 -24173428.45 0.1576 0.0262
 Mercury -70894-07-11 11:30 J -24172419.11 -24172419.02 -24172418.92 0.1976 0.1045
 Mercury -70887-02-24 23:16 J -24169998.69 -24169998.53 -24169998.38 0.1573 0.0618
 Mercury -70878-07-18 01:11 J -24166568.49 -24166568.45 -24166568.40 0.1571 0.1500
 Mercury -70873-03-28 20:23 J -24164852.74 -24164852.65 -24164852.56 0.1969 0.1198
 Mercury -70867-11-13 19:40 J -24162431.78 -24162431.68 -24162431.59 0.1578 0.1280
 Venus -70865-07-02 23:01 J -24161834.70 -24161834.54 -24161834.38 0.1576 0.0720
 Mercury -70864-08-19 04:04 J -24161422.45 -24161422.33 -24161422.22 0.1973 0.0151
 Mercury -70857-04-04 21:35 J -24159001.76 -24159001.60 -24159001.43 0.1576 0.0397
 Mercury -70854-01-09 11:30 J -24157992.12 -24157992.02 -24157991.92 0.1976 0.0930
 Mercury -70848-08-25 23:59 J -24155571.66 -24155571.50 -24155571.34 0.1573 0.0484

Mercury -70838-01-16 01:54 J -24152141.50 -24152141.42 -24152141.33 0.1572 0.1363
 Venus -70834-07-31 17:30 J -24150483.92 -24150483.77 -24150483.62 0.1971 0.0898
 Mercury -70834-09-27 20:23 J -24150425.73 -24150425.65 -24150425.56 0.1969 0.1309
 Earth -70833-12-16 08:23 J -24149980.35 -24149980.15 -24149979.96 0.1662 0.0061
 Moon -70833-12-16 08:52 J -24149980.35 -24149980.13 -24149979.92 0.1662 0.0033 *
 Venus -70831-05-01 19:40 J -24149478.75 -24149478.68 -24149478.62 0.1581 0.1456
 Mercury -70827-05-14 20:23 J -24148004.72 -24148004.65 -24148004.58 0.1578 0.1419
 Mercury -70824-02-17 04:04 J -24146995.45 -24146995.33 -24146995.22 0.1973 0.0252
 Mercury -70818-10-04 22:33 J -24144574.72 -24144574.56 -24144574.40 0.1576 0.0536
 Mercury -70815-07-10 11:30 J -24143565.12 -24143565.02 -24143564.91 0.1975 0.0818
 Mercury -70808-02-24 00:28 J -24141144.64 -24141144.48 -24141144.31 0.1573 0.0352
 Mercury -70806-11-30 18:57 J -24140134.74 -24140134.71 -24140134.68 0.1978 0.1899
 Venus -70799-04-30 11:30 J -24137792.19 -24137792.02 -24137791.85 0.1577 0.0488
 Mercury -70799-07-17 02:37 J -24137714.49 -24137714.39 -24137714.28 0.1572 0.1230
 Mercury -70794-03-28 20:23 J -24135998.73 -24135998.65 -24135998.57 0.1969 0.1414
 Mercury -70788-11-12 21:06 J -24133577.65 -24133577.62 -24133577.60 0.1578 0.1556
 Mercury -70785-08-18 04:04 J -24132568.44 -24132568.33 -24132568.22 0.1973 0.0372
 Mercury -70778-04-04 23:16 J -24130147.69 -24130147.53 -24130147.38 0.1576 0.0672
 Mercury -70775-01-08 11:30 J -24129138.13 -24129138.02 -24129137.92 0.1976 0.0713
 Mercury -70769-08-25 01:25 J -24126717.61 -24126717.44 -24126717.28 0.1573 0.0213
 Venus -70768-05-27 18:57 J -24126441.88 -24126441.71 -24126441.54 0.1969 0.0089
 Mercury -70766-05-31 19:11 J -24125707.75 -24125707.70 -24125707.66 0.1978 0.1777
 Mercury -70759-01-15 03:21 J -24123287.48 -24123287.36 -24123287.24 0.1572 0.1092
 Mercury -70755-09-26 20:23 J -24121571.72 -24121571.65 -24121571.58 0.1969 0.1538
 Earth -70754-12-19 18:28 J -24121122.87 -24121122.73 -24121122.59 0.1667 0.1162
 Moon -70754-12-20 02:09 J -24121122.53 -24121122.41 -24121122.30 0.1668 0.1329
 Mercury -70745-02-17 03:49 J -24118141.45 -24118141.34 -24118141.23 0.1973 0.0462
 Mercury -70739-10-03 23:45 J -24115720.65 -24115720.51 -24115720.36 0.1576 0.0804
 Mercury -70736-07-09 11:30 J -24114711.13 -24114711.02 -24114710.91 0.1976 0.0594
 Venus -70733-02-26 00:28 J -24113749.65 -24113749.48 -24113749.30 0.1578 0.0274

Moon -70732-06-12 12:42 J -24113277.03 -24113276.97 -24113276.91 0.1900 0.1816
 Mercury -70729-02-24 01:54 J -24112290.59 -24112290.42 -24112290.25 0.1574 0.0085
 Mercury -70727-11-29 19:11 J -24111280.76 -24111280.70 -24111280.65 0.1978 0.1666
 Mercury -70720-07-16 04:04 J -24108860.46 -24108860.33 -24108860.19 0.1572 0.0955
 Mercury -70715-03-27 20:23 J -24107144.71 -24107144.65 -24107144.59 0.1969 0.1640
 Mercury -70706-08-18 04:04 J -24103714.44 -24103714.33 -24103714.22 0.1973 0.0585
 Venus -70702-03-24 21:06 J -24102399.76 -24102399.62 -24102399.47 0.1967 0.1031
 Mercury -70699-04-04 00:28 J -24101293.61 -24101293.48 -24101293.34 0.1576 0.0944
 Mercury -70696-01-07 11:30 J -24100284.13 -24100284.02 -24100283.91 0.1975 0.0488
 Mercury -70690-08-25 02:37 J -24097863.56 -24097863.39 -24097863.22 0.1573 0.0058
 Mercury -70687-05-30 18:57 J -24096853.78 -24096853.71 -24096853.64 0.1978 0.1563
 Mercury -70680-01-14 04:47 J -24094433.44 -24094433.30 -24094433.15 0.1572 0.0820
 Mercury -70676-09-25 20:23 J -24092717.70 -24092717.65 -24092717.60 0.1969 0.1754
 Venus -70668-12-23 12:42 J -24089707.14 -24089706.97 -24089706.79 0.1580 0.0041
 Mercury -70666-02-16 04:04 J -24089287.44 -24089287.33 -24089287.23 0.1972 0.0700
 Mercury -70660-10-03 01:11 J -24086866.57 -24086866.45 -24086866.32 0.1576 0.1082
 Mercury -70657-07-08 11:30 J -24085857.13 -24085857.02 -24085856.91 0.1975 0.0376
 Earth -70653-06-15 22:47 J -24084418.74 -24084418.55 -24084418.36 0.1892 0.0049
 Moon -70653-06-16 05:59 J -24084418.45 -24084418.25 -24084418.05 0.1891 0.0258 *
 Mercury -70650-02-23 03:35 J -24083436.52 -24083436.35 -24083436.19 0.1574 0.0204
 Mercury -70648-11-28 18:57 J -24082426.78 -24082426.71 -24082426.63 0.1978 0.1445
 Mercury -70641-07-15 05:30 J -24080006.42 -24080006.27 -24080006.12 0.1572 0.0687
 Mercury -70636-03-26 20:23 J -24078290.68 -24078290.65 -24078290.62 0.1969 0.1866
 Mercury -70632-12-05 07:40 J -24076576.19 -24076576.18 -24076576.17 0.1570 0.1563
 Moon -70628-12-14 20:23 J -24075105.82 -24075105.65 -24075105.49 0.1651 0.0681
 Earth -70628-12-14 20:52 J -24075105.80 -24075105.63 -24075105.45 0.1651 0.0721 *
 Mercury -70627-08-17 03:49 J -24074860.44 -24074860.34 -24074860.23 0.1972 0.0800
 Mercury -70620-04-03 01:54 J -24072439.52 -24072439.42 -24072439.31 0.1576 0.1214
 Mercury -70617-01-07 11:30 J -24071430.13 -24071430.02 -24071429.91 0.1976 0.0258
 Mercury -70611-08-24 04:04 J -24069009.49 -24069009.33 -24069009.16 0.1574 0.0334

Mercury -70608-05-29 18:57 J -24067999.79 -24067999.71 -24067999.62 0.1978 0.1334

Venus -70602-10-21 01:40 J -24065664.61 -24065664.43 -24065664.25 0.1581 0.0186

Mercury -70601-01-14 06:13 J -24065579.40 -24065579.24 -24065579.08 0.1572 0.0547

Mercury -70592-06-05 08:23 J -24062149.22 -24062149.15 -24062149.08 0.1570 0.1424

Mercury -70587-02-15 03:49 J -24060433.44 -24060433.34 -24060433.23 0.1973 0.0921

Mercury -70581-10-02 02:37 J -24058012.47 -24058012.39 -24058012.30 0.1576 0.1354

Mercury -70578-07-08 11:30 J -24057003.14 -24057003.02 -24057002.91 0.1975 0.0153

Earth -70574-06-19 23:16 J -24055560.59 -24055560.53 -24055560.47 0.1884 0.1773

Mercury -70571-02-22 04:47 J -24054582.46 -24054582.30 -24054582.14 0.1574 0.0466

Mercury -70569-11-27 18:57 J -24053572.80 -24053572.71 -24053572.62 0.1978 0.1232

Mercury -70562-07-15 06:57 J -24051152.37 -24051152.21 -24051152.05 0.1572 0.0413

Mercury -70553-12-04 09:06 J -24047722.21 -24047722.12 -24047722.02 0.1570 0.1287

Moon -70549-12-16 22:33 J -24046248.75 -24046248.56 -24046248.37 0.1655 0.0118

Earth -70549-12-17 05:30 J -24046248.46 -24046248.27 -24046248.08 0.1656 0.0327 *

Mercury -70548-08-16 04:04 J -24046006.43 -24046006.33 -24046006.24 0.1972 0.1039

Mercury -70541-04-02 03:21 J -24043585.41 -24043585.36 -24043585.31 0.1576 0.1489

Venus -70539-11-16 02:37 J -24042627.45 -24042627.39 -24042627.33 0.1970 0.1842

Mercury -70538-01-06 11:30 J -24042576.14 -24042576.02 -24042575.91 0.1975 0.0075

Venus -70536-08-17 14:23 J -24041622.07 -24041621.90 -24041621.73 0.1582 0.0415

Mercury -70532-08-23 05:30 J -24040155.42 -24040155.27 -24040155.11 0.1574 0.0609

Mercury -70529-05-28 18:57 J -24039145.80 -24039145.71 -24039145.61 0.1978 0.1110

Mercury -70522-01-13 07:40 J -24036725.35 -24036725.18 -24036725.01 0.1572 0.0275

Mercury -70513-06-04 09:49 J -24033295.21 -24033295.09 -24033294.98 0.1570 0.1158

Mercury -70508-02-14 03:49 J -24031579.43 -24031579.34 -24031579.25 0.1972 0.1130

Venus -70504-08-16 06:13 J -24029935.27 -24029935.24 -24029935.20 0.1578 0.1535

Mercury -70499-07-07 11:30 J -24028149.13 -24028149.02 -24028148.91 0.1976 0.0081

Mercury -70492-02-21 06:13 J -24025728.39 -24025728.24 -24025728.09 0.1574 0.0744

Mercury -70490-11-27 18:57 J -24024718.80 -24024718.71 -24024718.61 0.1978 0.0999

Mercury -70483-07-14 08:23 J -24022298.32 -24022298.15 -24022297.98 0.1572 0.0138

Mercury -70474-12-04 10:33 J -24018868.19 -24018868.06 -24018867.93 0.1570 0.1015

Venus -70473-09-12 04:18 J -24018585.48 -24018585.32 -24018585.17 0.1967 0.0863
 Venus -70470-06-15 02:52 J -24017579.54 -24017579.38 -24017579.22 0.1584 0.0646
 Moon -70470-12-20 10:18 J -24017391.15 -24017391.07 -24017391.00 0.1660 0.1538
 Earth -70470-12-20 14:52 J -24017390.98 -24017390.88 -24017390.78 0.1661 0.1404
 Mercury -70469-08-15 03:49 J -24017152.42 -24017152.34 -24017152.25 0.1972 0.1257
 Mercury -70459-01-05 11:30 J -24013722.14 -24013722.02 -24013721.91 0.1975 0.0193
 Mercury -70453-08-22 06:57 J -24011301.35 -24011301.21 -24011301.07 0.1574 0.0876
 Mercury -70450-05-28 18:57 J -24010291.81 -24010291.71 -24010291.61 0.1978 0.0894
 Mercury -70443-01-12 09:06 J -24007871.29 -24007871.12 -24007870.95 0.1572 0.0009
 Mercury -70441-10-18 02:37 J -24006861.41 -24006861.39 -24006861.38 0.1980 0.1961
 Venus -70438-06-13 19:11 J -24005892.80 -24005892.70 -24005892.61 0.1579 0.1314
 Mercury -70434-06-04 11:16 J -24004441.17 -24004441.03 -24004440.89 0.1570 0.0883
 Mercury -70429-02-14 04:04 J -24002725.42 -24002725.33 -24002725.25 0.1972 0.1372
 Moon -70423-12-13 10:47 J -24000231.13 -24000231.05 -24000230.97 0.1640 0.1504
 Earth -70423-12-13 11:16 J -24000231.11 -24000231.03 -24000230.94 0.1640 0.1450 *
 Mercury -70420-07-06 11:30 J -23999295.14 -23999295.02 -23999294.91 0.1975 0.0300
 Mercury -70413-02-21 07:40 J -23996874.31 -23996874.18 -23996874.05 0.1574 0.1017
 Mercury -70411-11-26 18:57 J -23995864.81 -23995864.71 -23995864.60 0.1978 0.0776
 Venus -70407-07-10 06:42 J -23994543.39 -23994543.22 -23994543.05 0.1965 0.0071
 Venus -70404-04-11 15:35 J -23993537.00 -23993536.85 -23993536.71 0.1585 0.0878
 Mercury -70404-07-13 09:49 J -23993444.26 -23993444.09 -23993443.92 0.1572 0.0135
 Mercury -70401-04-18 02:23 J -23992434.44 -23992434.40 -23992434.37 0.1980 0.1868
 Mercury -70395-12-03 11:59 J -23990014.15 -23990014.00 -23990013.85 0.1570 0.0747
 Mercury -70390-08-15 03:49 J -23988298.41 -23988298.34 -23988298.27 0.1972 0.1471
 Mercury -70380-01-04 11:30 J -23984868.13 -23984868.02 -23984867.91 0.1976 0.0415
 Mercury -70374-08-22 08:23 J -23982447.27 -23982447.15 -23982447.04 0.1574 0.1152
 Venus -70372-04-10 07:25 J -23981850.31 -23981850.19 -23981850.06 0.1580 0.1083
 Mercury -70371-05-27 18:57 J -23981437.82 -23981437.71 -23981437.60 0.1978 0.0665
 Moon -70369-06-15 06:28 J -23980688.40 -23980688.23 -23980688.05 0.1903 0.0844
 Earth -70369-06-15 14:52 J -23980688.06 -23980687.88 -23980687.69 0.1902 0.0514 *

Mercury -70364-01-11 10:33 J -23979017.23 -23979017.06 -23979016.89 0.1572 0.0273

Mercury -70362-10-18 02:23 J -23978007.45 -23978007.40 -23978007.35 0.1980 0.1745

Mercury -70355-06-03 12:42 J -23975587.13 -23975586.97 -23975586.81 0.1570 0.0608

Mercury -70350-02-13 03:49 J -23973871.40 -23973871.34 -23973871.27 0.1972 0.1589

Mercury -70346-10-24 14:52 J -23972156.93 -23972156.88 -23972156.83 0.1569 0.1487

Earth -70344-12-15 18:42 J -23971373.90 -23971373.72 -23971373.53 0.1645 0.0449

Moon -70344-12-16 01:25 J -23971373.64 -23971373.44 -23971373.24 0.1645 0.0293 *

Venus -70341-05-06 08:23 J -23970501.30 -23970501.15 -23970501.00 0.1962 0.1024

Mercury -70341-07-05 11:30 J -23970441.13 -23970441.02 -23970440.92 0.1975 0.0524

Venus -70338-02-07 04:18 J -23969494.45 -23969494.32 -23969494.20 0.1587 0.1109

Mercury -70334-02-20 08:52 J -23968020.22 -23968020.13 -23968020.03 0.1574 0.1285

Mercury -70332-11-25 18:57 J -23967010.82 -23967010.71 -23967010.60 0.1978 0.0560

Mercury -70325-07-12 11:16 J -23964590.20 -23964590.03 -23964589.87 0.1572 0.0407

Mercury -70322-04-18 02:23 J -23963580.46 -23963580.40 -23963580.33 0.1980 0.1628

Mercury -70316-12-02 13:25 J -23961160.10 -23961159.94 -23961159.78 0.1570 0.0471

Mercury -70311-08-14 04:04 J -23959444.39 -23959444.33 -23959444.28 0.1972 0.1709

Venus -70306-02-05 20:37 J -23957807.79 -23957807.64 -23957807.50 0.1582 0.0865

Mercury -70306-04-24 15:35 J -23957729.93 -23957729.85 -23957729.76 0.1569 0.1345

Mercury -70301-01-04 11:16 J -23956014.13 -23956014.03 -23956013.92 0.1975 0.0631

Mercury -70295-08-21 09:49 J -23953593.16 -23953593.09 -23953593.02 0.1574 0.1428

Mercury -70292-05-26 18:57 J -23952583.82 -23952583.71 -23952583.60 0.1978 0.0438

Earth -70290-06-19 17:45 J -23951829.89 -23951829.76 -23951829.64 0.1895 0.1420

Moon -70290-06-19 19:25 J -23951829.78 -23951829.69 -23951829.59 0.1894 0.1669 *

Mercury -70285-01-11 11:59 J -23950163.16 -23950163.00 -23950162.84 0.1572 0.0543

Mercury -70283-10-17 02:23 J -23949153.47 -23949153.40 -23949153.33 0.1980 0.1530

Mercury -70276-06-02 13:54 J -23946733.08 -23946732.92 -23946732.75 0.1570 0.0343

Venus -70275-03-03 10:33 J -23946459.06 -23946459.06 -23946459.06 0.1959 0.1958

Venus -70273-12-04 16:47 J -23945451.89 -23945451.80 -23945451.71 0.1588 0.1345

Mercury -70271-02-12 03:49 J -23945017.39 -23945017.34 -23945017.30 0.1972 0.1804

Mercury -70267-10-23 16:18 J -23943302.93 -23943302.82 -23943302.71 0.1569 0.1210

Earth -70265-12-18 03:35 J -23942516.53 -23942516.35 -23942516.16 0.1650 0.0600
 Moon -70265-12-18 06:57 J -23942516.38 -23942516.21 -23942516.03 0.1650 0.0501 *
 Mercury -70262-07-05 11:30 J -23941587.12 -23941587.02 -23941586.92 0.1975 0.0756
 Mercury -70255-02-19 10:33 J -23939166.08 -23939166.06 -23939166.05 0.1574 0.1563
 Mercury -70253-11-24 18:57 J -23938156.82 -23938156.71 -23938156.60 0.1978 0.0330
 Mercury -70246-07-12 12:42 J -23935736.12 -23935735.97 -23935735.82 0.1572 0.0681
 Mercury -70243-04-17 02:23 J -23934726.48 -23934726.40 -23934726.32 0.1980 0.1413
 Venus -70241-12-03 08:37 J -23933765.30 -23933765.14 -23933764.97 0.1583 0.0627
 Mercury -70237-12-01 14:52 J -23932306.05 -23932305.88 -23932305.71 0.1570 0.0197
 Mercury -70232-08-13 03:49 J -23930590.36 -23930590.34 -23930590.32 0.1972 0.1931
 Mercury -70227-04-23 17:01 J -23928875.92 -23928875.79 -23928875.67 0.1569 0.1078
 Mercury -70222-01-03 11:16 J -23927160.13 -23927160.03 -23927159.92 0.1975 0.0854
 Mercury -70213-05-25 18:57 J -23923729.83 -23923729.71 -23923729.60 0.1978 0.0225
 Venus -70207-10-02 05:16 J -23921409.29 -23921409.28 -23921409.27 0.1590 0.1584
 Mercury -70206-01-10 13:25 J -23921309.09 -23921308.94 -23921308.80 0.1572 0.0818
 Mercury -70204-10-16 02:23 J -23920299.48 -23920299.40 -23920299.31 0.1980 0.1290
 Mercury -70197-06-01 15:35 J -23917879.02 -23917878.85 -23917878.68 0.1570 0.0068
 Mercury -70188-10-22 17:45 J -23914448.89 -23914448.76 -23914448.62 0.1569 0.0935
 Mercury -70183-07-04 11:16 J -23912733.12 -23912733.03 -23912732.93 0.1975 0.0972
 Venus -70178-12-29 13:54 J -23910728.98 -23910728.92 -23910728.86 0.1966 0.1840
 Venus -70175-09-30 21:35 J -23909722.77 -23909722.60 -23909722.43 0.1585 0.0402
 Mercury -70174-11-24 18:57 J -23909302.82 -23909302.71 -23909302.60 0.1978 0.0105
 Mercury -70167-07-11 13:54 J -23906882.05 -23906881.92 -23906881.78 0.1572 0.0952
 Mercury -70164-04-16 02:09 J -23905872.49 -23905872.41 -23905872.32 0.1980 0.1199
 Mercury -70158-12-01 16:18 J -23903451.99 -23903451.82 -23903451.65 0.1570 0.0079
 Mercury -70148-04-22 18:28 J -23900021.88 -23900021.73 -23900021.59 0.1569 0.0803
 Mercury -70143-01-02 11:30 J -23898306.12 -23898306.02 -23898305.93 0.1975 0.1090
 Moon -70139-12-14 04:47 J -23896499.42 -23896499.30 -23896499.18 0.1634 0.1271
 Earth -70139-12-14 11:30 J -23896499.15 -23896499.02 -23896498.88 0.1635 0.1153
 Mercury -70134-05-25 18:57 J -23894875.83 -23894875.71 -23894875.60 0.1978 0.0036

Mercury -70127-01-09 14:52 J -23892455.00 -23892454.88 -23892454.76 0.1572 0.1095

Mercury -70125-10-15 02:23 J -23891445.49 -23891445.40 -23891445.30 0.1980 0.1071

Mercury -70118-06-01 17:01 J -23889024.96 -23889024.79 -23889024.62 0.1570 0.0213

Venus -70112-10-25 16:04 J -23886686.98 -23886686.83 -23886686.68 0.1963 0.0904

Venus -70109-07-28 10:04 J -23885680.25 -23885680.08 -23885679.90 0.1586 0.0170

Mercury -70109-10-21 19:11 J -23885594.86 -23885594.70 -23885594.55 0.1569 0.0670

Mercury -70104-07-03 11:16 J -23883879.12 -23883879.03 -23883878.94 0.1975 0.1192

Mercury -70099-03-13 21:21 J -23882164.64 -23882164.61 -23882164.58 0.1568 0.1540

Mercury -70095-11-23 18:57 J -23880448.83 -23880448.71 -23880448.60 0.1978 0.0125

Mercury -70088-07-10 15:35 J -23878027.96 -23878027.85 -23878027.75 0.1572 0.1228

Mercury -70085-04-15 02:23 J -23877018.50 -23877018.40 -23877018.30 0.1980 0.0956

Earth -70085-06-15 05:01 J -23876957.45 -23876957.29 -23876957.13 0.1912 0.1069

Moon -70085-06-15 07:11 J -23876957.34 -23876957.20 -23876957.06 0.1912 0.1194 *

Mercury -70079-11-30 17:45 J -23874597.93 -23874597.76 -23874597.60 0.1570 0.0350

Mercury -70069-04-21 19:54 J -23871167.83 -23871167.67 -23871167.51 0.1569 0.0527

Mercury -70064-01-01 11:16 J -23869452.11 -23869452.03 -23869451.94 0.1975 0.1307

Mercury -70060-09-11 22:04 J -23867737.65 -23867737.58 -23867737.50 0.1568 0.1403

Moon -70060-12-16 14:09 J -23867642.11 -23867641.91 -23867641.70 0.1639 0.0051

Earth -70060-12-16 18:28 J -23867641.92 -23867641.73 -23867641.53 0.1639 0.0156 *

Mercury -70055-05-24 18:57 J -23866021.83 -23866021.71 -23866021.60 0.1978 0.0238

Mercury -70048-01-08 16:04 J -23863600.91 -23863600.83 -23863600.74 0.1572 0.1362

Venus -70046-08-22 17:59 J -23862644.92 -23862644.75 -23862644.58 0.1960 0.0063

Mercury -70046-10-15 02:23 J -23862591.51 -23862591.40 -23862591.30 0.1980 0.0860

Venus -70043-05-25 22:47 J -23861637.73 -23861637.55 -23861637.38 0.1588 0.0077

Mercury -70039-05-31 18:13 J -23860170.90 -23860170.74 -23860170.57 0.1570 0.0484

Mercury -70036-03-06 09:49 J -23859161.11 -23859161.09 -23859161.07 0.1981 0.1928

Mercury -70030-10-21 20:37 J -23856740.80 -23856740.64 -23856740.47 0.1569 0.0391

Mercury -70025-07-02 11:30 J -23855025.10 -23855025.02 -23855024.94 0.1975 0.1432

Mercury -70020-03-12 22:47 J -23853310.65 -23853310.55 -23853310.45 0.1568 0.1266

Mercury -70016-11-22 18:57 J -23851594.83 -23851594.71 -23851594.60 0.1977 0.0347

Mercury -70009-07-09 17:01 J -23849173.84 -23849173.79 -23849173.75 0.1572 0.1503

Mercury -70006-04-15 02:23 J -23848164.51 -23848164.40 -23848164.30 0.1980 0.0738

Moon -70006-06-19 02:52 J -23848099.54 -23848099.38 -23848099.22 0.1905 0.0952

Earth -70006-06-19 10:18 J -23848099.24 -23848099.07 -23848098.91 0.1905 0.0985 *

70TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 70th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -70000-11-29 19:11 J | -23845743.86 | -23845743.70 | -23845743.55 | 0.1570 | 0.0624 | | |
| Mercury | -69997-09-04 09:49 J | -23844734.13 | -23844734.09 | -23844734.05 | 0.1981 | 0.1818 | | |
| Mercury | -69990-04-21 21:21 J | -23842313.78 | -23842313.61 | -23842313.45 | 0.1569 | 0.0262 | | |
| Mercury | -69985-01-01 11:16 J | -23840598.10 | -23840598.03 | -23840597.96 | 0.1975 | 0.1526 | | |
| Mercury | -69981-09-10 23:30 J | -23838883.63 | -23838883.52 | -23838883.40 | 0.1568 | 0.1131 | | |
| Earth | -69981-12-19 02:37 J | -23838784.55 | -23838784.39 | -23838784.22 | 0.1644 | 0.0883 | | |
| Moon | -69981-12-19 06:57 J | -23838784.39 | -23838784.21 | -23838784.03 | 0.1644 | 0.0735 | * | |
| Venus | -69980-06-18 20:37 J | -23838602.79 | -23838602.64 | -23838602.49 | 0.1957 | 0.0961 | | |
| Venus | -69977-03-22 11:16 J | -23837595.20 | -23837595.03 | -23837594.85 | 0.1589 | 0.0300 | | |
| Mercury | -69976-05-23 18:57 J | -23837167.82 | -23837167.71 | -23837167.60 | 0.1978 | 0.0462 | | |
| Mercury | -69967-10-14 02:23 J | -23833737.51 | -23833737.40 | -23833737.29 | 0.1980 | 0.0615 | | |
| Mercury | -69960-05-30 19:54 J | -23831316.82 | -23831316.67 | -23831316.52 | 0.1570 | 0.0760 | | |
| Mercury | -69957-03-05 09:49 J | -23830307.15 | -23830307.09 | -23830307.04 | 0.1981 | 0.1712 | | |
| Mercury | -69951-10-20 22:04 J | -23827886.75 | -23827886.58 | -23827886.41 | 0.1569 | 0.0117 | | |
| Mercury | -69946-07-02 11:16 J | -23826171.09 | -23826171.03 | -23826170.97 | 0.1975 | 0.1647 | | |

Mercury -69941-03-12 00:13 J -23824456.62 -23824456.49 -23824456.36 0.1568 0.0995

Mercury -69937-11-21 18:57 J -23822740.82 -23822740.71 -23822740.60 0.1977 0.0575

Mercury -69927-04-14 02:09 J -23819310.52 -23819310.41 -23819310.30 0.1980 0.0525

Mercury -69921-11-28 20:37 J -23816889.78 -23816889.64 -23816889.51 0.1571 0.0896

Mercury -69918-09-04 09:49 J -23815880.15 -23815880.09 -23815880.02 0.1981 0.1587

Venus -69914-04-15 22:33 J -23814560.59 -23814560.56 -23814560.52 0.1954 0.1899

Venus -69911-01-17 23:45 J -23813552.67 -23813552.51 -23813552.34 0.1591 0.0537

Mercury -69911-04-20 22:47 J -23813459.72 -23813459.55 -23813459.38 0.1569 0.0019

Mercury -69907-12-31 11:30 J -23811744.07 -23811744.02 -23811743.97 0.1975 0.1768

Mercury -69902-09-11 00:57 J -23810029.60 -23810029.46 -23810029.31 0.1568 0.0855

Mercury -69897-05-22 18:57 J -23808313.82 -23808313.71 -23808313.61 0.1977 0.0685

Mercury -69888-10-13 02:23 J -23804883.51 -23804883.40 -23804883.29 0.1980 0.0394

Mercury -69881-05-29 21:21 J -23802462.74 -23802462.61 -23802462.49 0.1570 0.1033

Venus -69879-01-16 16:18 J -23801865.88 -23801865.82 -23801865.75 0.1586 0.1459

Mercury -69878-03-05 09:49 J -23801453.17 -23801453.09 -23801453.02 0.1981 0.1487

Mercury -69872-10-19 23:30 J -23799032.69 -23799032.52 -23799032.35 0.1569 0.0155

Mercury -69867-07-01 11:16 J -23797317.06 -23797317.03 -23797316.99 0.1975 0.1868

Mercury -69862-03-12 01:40 J -23795602.58 -23795602.43 -23795602.28 0.1568 0.0720

Mercury -69858-11-21 18:57 J -23793886.82 -23793886.71 -23793886.61 0.1978 0.0801

Earth -69855-12-15 12:13 J -23792767.15 -23792766.99 -23792766.82 0.1629 0.0847

Moon -69855-12-15 16:33 J -23792766.96 -23792766.81 -23792766.66 0.1630 0.0937 *

Mercury -69848-04-13 02:23 J -23790456.51 -23790456.40 -23790456.29 0.1980 0.0280

Venus -69846-11-15 12:28 J -23789510.14 -23789509.98 -23789509.83 0.1593 0.0770

Mercury -69842-11-28 22:04 J -23788035.69 -23788035.58 -23788035.47 0.1571 0.1173

Mercury -69839-09-03 09:49 J -23787026.17 -23787026.09 -23787026.01 0.1981 0.1370

Mercury -69832-04-20 00:13 J -23784605.65 -23784605.49 -23784605.32 0.1569 0.0297

Mercury -69823-09-10 02:23 J -23781175.56 -23781175.40 -23781175.24 0.1568 0.0585

Mercury -69818-05-22 18:57 J -23779459.81 -23779459.71 -23779459.61 0.1977 0.0912

Venus -69816-02-10 02:09 J -23778830.44 -23778830.41 -23778830.37 0.1961 0.1900

Venus -69814-11-14 04:47 J -23777823.41 -23777823.30 -23777823.19 0.1587 0.1219

Mercury -69813-01-31 04:33 J -23777745.37 -23777745.31 -23777745.25 0.1567 0.1460

Mercury -69809-10-12 02:09 J -23776029.52 -23776029.41 -23776029.29 0.1980 0.0196

Mercury -69802-05-29 22:33 J -23773608.65 -23773608.56 -23773608.46 0.1571 0.1308

Earth -69801-06-14 17:16 J -23773226.87 -23773226.78 -23773226.70 0.1922 0.1710

Moon -69801-06-14 22:18 J -23773226.68 -23773226.57 -23773226.45 0.1921 0.1613

Mercury -69799-03-04 09:49 J -23772599.17 -23772599.09 -23772599.00 0.1981 0.1250

Mercury -69793-10-19 00:57 J -23770178.62 -23770178.46 -23770178.30 0.1569 0.0431

Mercury -69783-03-11 03:06 J -23766748.53 -23766748.37 -23766748.20 0.1568 0.0446

Venus -69780-09-12 00:57 J -23765467.60 -23765467.46 -23765467.32 0.1595 0.1012

Mercury -69779-11-20 18:42 J -23765032.81 -23765032.72 -23765032.62 0.1977 0.1023

Moon -69776-12-17 14:37 J -23763910.07 -23763909.89 -23763909.71 0.1633 0.0244

Earth -69776-12-17 18:57 J -23763909.90 -23763909.71 -23763909.52 0.1633 0.0143 *

Mercury -69774-08-01 05:30 J -23763318.36 -23763318.27 -23763318.18 0.1567 0.1319

Mercury -69769-04-12 02:23 J -23761602.52 -23761602.40 -23761602.29 0.1980 0.0063

Mercury -69763-11-27 23:30 J -23759181.58 -23759181.52 -23759181.46 0.1571 0.1447

Mercury -69760-09-02 09:49 J -23758172.18 -23758172.09 -23758172.00 0.1981 0.1144

Mercury -69753-04-19 01:40 J -23755751.59 -23755751.43 -23755751.28 0.1569 0.0564

Venus -69751-12-08 04:04 J -23754788.48 -23754788.33 -23754788.18 0.1958 0.0944

Venus -69748-09-10 17:30 J -23753780.90 -23753780.77 -23753780.63 0.1589 0.0996

Mercury -69744-09-09 03:49 J -23752321.50 -23752321.34 -23752321.17 0.1568 0.0311

Mercury -69739-05-21 18:57 J -23750605.81 -23750605.71 -23750605.62 0.1978 0.1139

Mercury -69734-01-30 06:13 J -23748891.35 -23748891.24 -23748891.13 0.1567 0.1182

Mercury -69730-10-12 02:23 J -23747175.51 -23747175.40 -23747175.28 0.1979 0.0067

Earth -69722-06-19 00:13 J -23744368.67 -23744368.49 -23744368.30 0.1915 0.0460

Moon -69722-06-19 06:57 J -23744368.38 -23744368.21 -23744368.03 0.1914 0.0578 *

Mercury -69720-03-03 09:49 J -23743745.19 -23743745.09 -23743745.00 0.1981 0.1037

Venus -69714-07-10 13:40 J -23741425.04 -23741424.93 -23741424.82 0.1597 0.1247

Mercury -69714-10-19 02:23 J -23741324.55 -23741324.40 -23741324.25 0.1569 0.0708

Mercury -69704-03-10 04:33 J -23737894.48 -23737894.31 -23737894.14 0.1568 0.0174

Mercury -69700-11-19 18:57 J -23736178.80 -23736178.71 -23736178.63 0.1977 0.1253

Moon -69697-12-19 20:23 J -23735052.81 -23735052.65 -23735052.49 0.1638 0.0924
 Earth -69697-12-20 02:52 J -23735052.51 -23735052.38 -23735052.24 0.1638 0.1179 *
 Mercury -69695-07-31 06:42 J -23734464.34 -23734464.22 -23734464.09 0.1567 0.1050
 Mercury -69690-04-12 02:09 J -23732748.52 -23732748.41 -23732748.29 0.1980 0.0165
 Venus -69685-10-04 06:42 J -23730746.39 -23730746.22 -23730746.05 0.1955 0.0045
 Venus -69682-07-09 05:59 J -23729738.40 -23729738.25 -23729738.09 0.1591 0.0756
 Mercury -69681-09-01 09:49 J -23729318.19 -23729318.09 -23729317.99 0.1981 0.0909
 Mercury -69674-04-19 03:06 J -23726897.51 -23726897.37 -23726897.23 0.1569 0.0843
 Mercury -69665-09-08 05:30 J -23723467.44 -23723467.27 -23723467.10 0.1568 0.0051
 Mercury -69660-05-20 18:42 J -23721751.80 -23721751.72 -23721751.63 0.1977 0.1359
 Mercury -69655-01-29 07:40 J -23720037.32 -23720037.18 -23720037.05 0.1567 0.0910
 Mercury -69651-10-11 02:23 J -23718321.51 -23718321.40 -23718321.29 0.1980 0.0285
 Moon -69650-12-14 04:47 J -23717892.39 -23717892.30 -23717892.21 0.1620 0.1443
 Earth -69650-12-14 08:23 J -23717892.22 -23717892.15 -23717892.08 0.1621 0.1498 *
 Venus -69648-05-07 01:40 J -23717382.49 -23717382.43 -23717382.38 0.1599 0.1503
 Mercury -69641-03-02 09:49 J -23714891.20 -23714891.09 -23714890.99 0.1981 0.0811
 Mercury -69635-10-18 03:49 J -23712470.47 -23712470.34 -23712470.21 0.1569 0.0977
 Mercury -69632-07-23 17:16 J -23711460.81 -23711460.78 -23711460.75 0.1982 0.1890
 Mercury -69625-03-09 05:59 J -23709040.42 -23709040.25 -23709040.08 0.1568 0.0104
 Mercury -69621-11-18 18:57 J -23707324.79 -23707324.71 -23707324.64 0.1978 0.1479
 Venus -69619-08-01 08:37 J -23706704.29 -23706704.14 -23706703.99 0.1952 0.0907
 Venus -69616-05-05 18:28 J -23705695.90 -23705695.73 -23705695.57 0.1592 0.0520
 Mercury -69616-07-30 08:23 J -23705610.30 -23705610.15 -23705610.01 0.1567 0.0774
 Mercury -69611-04-11 02:23 J -23703894.51 -23703894.40 -23703894.29 0.1979 0.0398
 Mercury -69602-09-01 09:49 J -23700464.20 -23700464.09 -23700463.98 0.1981 0.0691
 Mercury -69595-04-18 04:33 J -23698043.43 -23698043.31 -23698043.19 0.1569 0.1119
 Mercury -69592-01-21 17:16 J -23697033.83 -23697033.78 -23697033.73 0.1982 0.1774
 Mercury -69586-09-08 06:42 J -23694613.39 -23694613.22 -23694613.05 0.1568 0.0237
 Mercury -69581-05-19 18:42 J -23692897.78 -23692897.72 -23692897.65 0.1977 0.1589
 Mercury -69576-01-28 08:52 J -23691183.28 -23691183.13 -23691182.97 0.1567 0.0640

Mercury -69572-10-10 02:23 J -23689467.51 -23689467.40 -23689467.29 0.1980 0.0507

Earth -69571-12-16 14:23 J -23689035.08 -23689034.90 -23689034.71 0.1624 0.0528

Moon -69571-12-16 19:54 J -23689034.86 -23689034.67 -23689034.48 0.1625 0.0586 *

Mercury -69567-06-20 11:16 J -23687753.07 -23687753.03 -23687752.99 0.1566 0.1509

Mercury -69562-03-02 09:49 J -23686037.20 -23686037.09 -23686036.98 0.1981 0.0571

Mercury -69556-10-17 05:16 J -23683616.38 -23683616.28 -23683616.18 0.1569 0.1254

Venus -69553-05-28 11:30 J -23682662.08 -23682662.02 -23682661.95 0.1948 0.1783

Mercury -69553-07-22 17:16 J -23682606.84 -23682606.78 -23682606.72 0.1982 0.1662

Venus -69550-03-03 06:57 J -23681653.38 -23681653.21 -23681653.03 0.1594 0.0284

Mercury -69546-03-09 07:25 J -23680186.35 -23680186.19 -23680186.02 0.1568 0.0381

Mercury -69542-11-18 18:42 J -23678470.77 -23678470.72 -23678470.66 0.1977 0.1700

Mercury -69537-07-29 09:49 J -23676756.25 -23676756.09 -23676755.93 0.1567 0.0499

Mercury -69532-04-10 02:23 J -23675040.51 -23675040.40 -23675040.29 0.1980 0.0623

Mercury -69528-12-19 11:59 J -23673326.08 -23673326.00 -23673325.92 0.1566 0.1375

Mercury -69523-08-31 09:49 J -23671610.20 -23671610.09 -23671609.98 0.1981 0.0470

Mercury -69516-04-17 05:59 J -23669189.33 -23669189.25 -23669189.18 0.1569 0.1387

Mercury -69513-01-21 17:16 J -23668179.85 -23668179.78 -23668179.71 0.1982 0.1555

Mercury -69507-09-07 08:09 J -23665759.32 -23665759.16 -23665759.00 0.1568 0.0516

Mercury -69502-05-19 18:57 J -23664043.76 -23664043.71 -23664043.67 0.1978 0.1819

Mercury -69497-01-28 10:33 J -23662329.23 -23662329.06 -23662328.90 0.1567 0.0362

Mercury -69493-10-09 02:23 J -23660613.51 -23660613.40 -23660613.29 0.1979 0.0739

Earth -69492-12-18 19:54 J -23660177.86 -23660177.67 -23660177.48 0.1628 0.0445

Moon -69492-12-19 02:37 J -23660177.56 -23660177.39 -23660177.22 0.1629 0.0688 *

Mercury -69488-06-19 12:42 J -23658899.07 -23658898.97 -23658898.86 0.1566 0.1235

Venus -69485-12-28 19:25 J -23657610.87 -23657610.69 -23657610.52 0.1596 0.0052

Mercury -69483-03-01 09:49 J -23657183.21 -23657183.09 -23657182.98 0.1981 0.0361

Mercury -69477-10-16 06:42 J -23654762.25 -23654762.22 -23654762.18 0.1569 0.1531

Mercury -69474-07-22 17:16 J -23653752.85 -23653752.78 -23653752.70 0.1982 0.1432

Mercury -69467-03-08 08:52 J -23651332.28 -23651332.13 -23651331.97 0.1568 0.0648

Mercury -69463-11-17 18:42 J -23649616.74 -23649616.72 -23649616.69 0.1977 0.1929

Mercury -69458-07-29 11:01 J -23647902.20 -23647902.04 -23647901.87 0.1567 0.0232

Mercury -69453-04-09 02:09 J -23646186.51 -23646186.41 -23646186.30 0.1980 0.0838

Mercury -69449-12-18 13:25 J -23644472.06 -23644471.94 -23644471.82 0.1566 0.1099

Mercury -69444-08-30 09:49 J -23642756.20 -23642756.09 -23642755.97 0.1981 0.0234

Moon -69438-06-18 10:47 J -23640638.26 -23640638.05 -23640637.84 0.1924 0.0393

Earth -69438-06-18 12:13 J -23640638.18 -23640637.99 -23640637.80 0.1924 0.0167 *

Mercury -69434-01-20 17:16 J -23639325.86 -23639325.78 -23639325.70 0.1982 0.1326

Mercury -69428-09-06 09:35 J -23636905.24 -23636905.10 -23636904.95 0.1568 0.0791

Venus -69419-10-26 07:54 J -23633568.35 -23633568.17 -23633568.00 0.1598 0.0202

Mercury -69418-01-27 11:59 J -23633475.17 -23633475.00 -23633474.83 0.1567 0.0091

Mercury -69414-10-09 02:23 J -23631759.50 -23631759.40 -23631759.30 0.1979 0.0965

Moon -69413-12-21 03:21 J -23631320.47 -23631320.36 -23631320.25 0.1632 0.1291

Earth -69413-12-21 03:35 J -23631320.43 -23631320.35 -23631320.27 0.1632 0.1473 *

Mercury -69409-06-18 14:09 J -23630045.05 -23630044.91 -23630044.78 0.1566 0.0967

Mercury -69404-02-28 09:49 J -23628329.21 -23628329.09 -23628328.98 0.1981 0.0147

Mercury -69395-07-21 17:16 J -23624898.87 -23624898.78 -23624898.69 0.1982 0.1212

Venus -69389-01-20 17:01 J -23622889.94 -23622889.79 -23622889.65 0.1953 0.1039

Mercury -69388-03-07 10:18 J -23622478.20 -23622478.07 -23622477.93 0.1568 0.0925

Mercury -69379-07-28 12:42 J -23619048.14 -23619047.97 -23619047.80 0.1567 0.0053

Mercury -69374-04-09 02:23 J -23617332.50 -23617332.40 -23617332.31 0.1979 0.1076

Mercury -69370-12-18 14:52 J -23615618.02 -23615617.88 -23615617.73 0.1566 0.0823

Moon -69366-12-15 06:57 J -23614160.35 -23614160.21 -23614160.08 0.1616 0.1094

Earth -69366-12-15 11:01 J -23614160.17 -23614160.04 -23614159.91 0.1616 0.1174 *

Mercury -69365-08-29 09:49 J -23613902.21 -23613902.09 -23613901.98 0.1981 0.0036

Mercury -69355-01-19 17:16 J -23610471.87 -23610471.78 -23610471.69 0.1982 0.1098

Venus -69353-08-22 20:23 J -23609525.82 -23609525.65 -23609525.49 0.1600 0.0447

Mercury -69349-09-05 11:01 J -23608051.16 -23608051.04 -23608050.91 0.1568 0.1059

Mercury -69339-01-26 13:25 J -23604621.11 -23604620.94 -23604620.77 0.1567 0.0187

Mercury -69335-10-08 02:09 J -23602905.50 -23602905.41 -23602905.32 0.1980 0.1184

Mercury -69330-06-18 15:35 J -23601191.00 -23601190.85 -23601190.70 0.1566 0.0691

Mercury -69325-02-28 09:49 J -23599475.20 -23599475.09 -23599474.98 0.1981 0.0110

Venus -69324-11-16 18:57 J -23598847.88 -23598847.71 -23598847.54 0.1950 0.0107

Venus -69321-08-21 13:11 J -23597838.96 -23597838.95 -23597838.93 0.1594 0.1583

Mercury -69321-11-07 17:59 J -23597760.76 -23597760.75 -23597760.74 0.1566 0.1559

Mercury -69316-07-20 17:16 J -23596044.88 -23596044.78 -23596044.68 0.1982 0.0986

Mercury -69309-03-06 11:59 J -23593624.11 -23593624.00 -23593623.90 0.1568 0.1203

Mercury -69300-07-27 14:09 J -23590194.08 -23590193.91 -23590193.75 0.1567 0.0323

Mercury -69295-04-08 02:23 J -23588478.49 -23588478.40 -23588478.32 0.1979 0.1301

Mercury -69291-12-17 16:18 J -23586763.98 -23586763.82 -23586763.66 0.1566 0.0557

Venus -69287-06-20 08:37 J -23585483.29 -23585483.14 -23585482.98 0.1602 0.0688

Moon -69287-12-17 10:33 J -23585303.25 -23585303.06 -23585302.87 0.1619 0.0427

Earth -69287-12-17 17:01 J -23585302.99 -23585302.79 -23585302.60 0.1620 0.0214 *

Mercury -69286-08-29 09:49 J -23585048.21 -23585048.09 -23585047.98 0.1981 0.0222

Mercury -69281-05-08 18:42 J -23583333.79 -23583333.72 -23583333.66 0.1566 0.1426

Mercury -69276-01-18 17:16 J -23581617.88 -23581617.78 -23581617.68 0.1982 0.0873

Mercury -69270-09-05 12:28 J -23579197.06 -23579196.98 -23579196.89 0.1568 0.1337

Mercury -69267-06-11 00:42 J -23578187.48 -23578187.47 -23578187.45 0.1982 0.1955

Mercury -69260-01-25 14:52 J -23575767.05 -23575766.88 -23575766.72 0.1567 0.0460

Venus -69258-09-13 21:49 J -23574805.75 -23574805.59 -23574805.43 0.1946 0.0786

Mercury -69256-10-07 02:23 J -23574051.48 -23574051.40 -23574051.32 0.1979 0.1416

Venus -69255-06-19 01:25 J -23573796.53 -23573796.44 -23573796.35 0.1595 0.1337

Mercury -69251-06-17 17:01 J -23572336.95 -23572336.79 -23572336.62 0.1566 0.0416

Mercury -69246-02-27 09:49 J -23570621.21 -23570621.09 -23570620.98 0.1981 0.0330

Mercury -69242-11-07 19:11 J -23568906.79 -23568906.70 -23568906.60 0.1566 0.1290

Mercury -69237-07-19 17:16 J -23567190.88 -23567190.78 -23567190.67 0.1982 0.0756

Mercury -69230-03-06 13:11 J -23564770.01 -23564769.95 -23564769.89 0.1568 0.1468

Mercury -69228-12-10 00:42 J -23563760.51 -23563760.47 -23563760.44 0.1983 0.1860

Venus -69221-04-16 20:37 J -23561440.78 -23561440.64 -23561440.50 0.1604 0.0948

Mercury -69221-07-26 15:21 J -23561340.01 -23561339.86 -23561339.70 0.1567 0.0595

Mercury -69216-04-07 02:09 J -23559624.48 -23559624.41 -23559624.34 0.1980 0.1517

Mercury -69212-12-16 17:45 J -23557909.93 -23557909.76 -23557909.59 0.1566 0.0279

Earth -69208-12-19 22:18 J -23556445.74 -23556445.57 -23556445.40 0.1623 0.0761

Moon -69208-12-19 23:45 J -23556445.67 -23556445.51 -23556445.33 0.1623 0.0935 *

Mercury -69207-08-28 09:49 J -23556194.20 -23556194.09 -23556193.98 0.1981 0.0454

Mercury -69202-05-08 20:09 J -23554479.78 -23554479.66 -23554479.55 0.1566 0.1151

Mercury -69197-01-18 17:16 J -23552763.89 -23552763.78 -23552763.68 0.1982 0.0652

Venus -69192-07-10 23:45 J -23550763.58 -23550763.51 -23550763.42 0.1942 0.1704

Venus -69189-04-15 13:40 J -23549754.05 -23549753.93 -23549753.80 0.1597 0.1097

Mercury -69188-06-10 00:42 J -23549333.52 -23549333.47 -23549333.42 0.1983 0.1735

Mercury -69181-01-25 16:18 J -23546912.97 -23546912.82 -23546912.67 0.1567 0.0733

Mercury -69177-10-06 02:23 J -23545197.46 -23545197.40 -23545197.34 0.1979 0.1644

Mercury -69172-06-16 18:28 J -23543482.90 -23543482.73 -23543482.56 0.1566 0.0152

Mercury -69167-02-26 09:35 J -23541767.21 -23541767.10 -23541766.99 0.1981 0.0546

Mercury -69163-11-06 20:52 J -23540052.76 -23540052.63 -23540052.51 0.1566 0.1018

Mercury -69158-07-19 17:16 J -23538336.89 -23538336.78 -23538336.67 0.1982 0.0532

Venus -69155-02-12 09:06 J -23537398.23 -23537398.12 -23537398.00 0.1606 0.1193

Moon -69154-06-17 13:40 J -23536908.07 -23536907.93 -23536907.80 0.1934 0.1344

Earth -69154-06-17 20:37 J -23536907.81 -23536907.64 -23536907.46 0.1934 0.0925 *

Mercury -69149-12-09 00:42 J -23534906.53 -23534906.47 -23534906.40 0.1982 0.1619

Mercury -69142-07-26 17:01 J -23532485.93 -23532485.79 -23532485.65 0.1567 0.0871

Mercury -69137-04-06 02:09 J -23530770.46 -23530770.41 -23530770.35 0.1979 0.1751

Mercury -69133-12-15 19:11 J -23529055.87 -23529055.70 -23529055.53 0.1566 0.0021

Moon -69129-12-22 11:45 J -23527588.04 -23527588.01 -23527587.98 0.1628 0.1606

Mercury -69128-08-27 09:49 J -23527340.20 -23527340.09 -23527339.99 0.1981 0.0668

Venus -69123-02-11 02:23 J -23525711.55 -23525711.40 -23525711.25 0.1599 0.0855

Mercury -69123-05-07 21:21 J -23525625.75 -23525625.61 -23525625.47 0.1566 0.0883

Mercury -69118-01-17 17:16 J -23523909.89 -23523909.78 -23523909.67 0.1982 0.0424

Mercury -69109-06-09 00:42 J -23520479.54 -23520479.47 -23520479.40 0.1983 0.1519

Mercury -69102-01-24 17:45 J -23518058.89 -23518058.76 -23518058.64 0.1567 0.1006

Mercury -69098-10-06 02:09 J -23516343.44 -23516343.41 -23516343.37 0.1979 0.1860

Mercury -69093-06-15 19:54 J -23514628.84 -23514628.67 -23514628.50 0.1566 0.0129

Venus -69090-12-10 20:52 J -23513355.70 -23513355.63 -23513355.56 0.1609 0.1463

Mercury -69088-02-25 09:49 J -23512913.20 -23512913.09 -23512912.99 0.1981 0.0786

Mercury -69084-11-05 22:18 J -23511198.72 -23511198.57 -23511198.42 0.1566 0.0741

Earth -69082-12-16 14:09 J -23510428.08 -23510427.91 -23510427.75 0.1611 0.0852

Moon -69082-12-16 19:40 J -23510427.85 -23510427.68 -23510427.51 0.1612 0.0714 *

Mercury -69079-07-18 17:16 J -23509482.89 -23509482.78 -23509482.67 0.1982 0.0309

Moon -69075-06-21 00:13 J -23508049.61 -23508049.49 -23508049.38 0.1927 0.1606

Earth -69075-06-21 07:11 J -23508049.33 -23508049.20 -23508049.07 0.1927 0.1405

Mercury -69070-12-09 00:42 J -23506052.55 -23506052.47 -23506052.39 0.1982 0.1398

Mercury -69063-07-25 18:13 J -23503631.85 -23503631.74 -23503631.62 0.1567 0.1141

Mercury -69058-04-06 02:09 J -23501916.41 -23501916.41 -23501916.40 0.1979 0.1976

Venus -69058-12-09 14:23 J -23501669.07 -23501668.90 -23501668.74 0.1601 0.0602

Mercury -69054-12-15 20:37 J -23500201.81 -23500201.64 -23500201.48 0.1566 0.0265

Mercury -69049-08-26 09:35 J -23498486.20 -23498486.10 -23498485.99 0.1981 0.0889

Mercury -69044-05-06 22:47 J -23496771.70 -23496771.55 -23496771.39 0.1566 0.0609

Mercury -69039-01-16 17:16 J -23495055.89 -23495055.78 -23495055.67 0.1982 0.0197

Mercury -69035-09-27 01:11 J -23493341.50 -23493341.45 -23493341.40 0.1566 0.1480

Mercury -69030-06-09 00:42 J -23491625.55 -23491625.47 -23491625.38 0.1982 0.1282

Venus -69028-03-04 05:45 J -23490991.40 -23490991.26 -23490991.12 0.1947 0.1135

Mercury -69023-01-23 19:11 J -23489204.80 -23489204.70 -23489204.61 0.1567 0.1281

Mercury -69014-06-15 21:21 J -23485774.77 -23485774.61 -23485774.45 0.1566 0.0404

Mercury -69009-02-25 09:35 J -23484059.19 -23484059.10 -23484059.00 0.1981 0.1006

Mercury -69005-11-04 23:30 J -23482344.68 -23482344.52 -23482344.36 0.1566 0.0474

Moon -69003-12-18 18:13 J -23481570.92 -23481570.74 -23481570.56 0.1615 0.0078

Earth -69003-12-18 19:11 J -23481570.89 -23481570.70 -23481570.50 0.1615 0.0104 *

69TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 69th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -69000-07-17 17:16 J | -23480628.90 | -23480628.78 | -23480628.67 | 0.1982 | 0.0090 | | |
| Mercury | -68995-03-28 01:54 J | -23478914.51 | -23478914.42 | -23478914.34 | 0.1566 | 0.1348 | | |
| Venus | -68992-10-06 02:52 J | -23477626.55 | -23477626.38 | -23477626.21 | 0.1603 | 0.0358 | | |
| Mercury | -68991-12-08 00:28 J | -23477198.57 | -23477198.48 | -23477198.39 | 0.1983 | 0.1186 | | |
| Mercury | -68984-07-24 19:40 J | -23474777.75 | -23474777.68 | -23474777.61 | 0.1567 | 0.1415 | | |
| Mercury | -68975-12-14 22:04 J | -23471347.74 | -23471347.58 | -23471347.42 | 0.1566 | 0.0540 | | |
| Mercury | -68970-08-26 09:49 J | -23469632.18 | -23469632.09 | -23469632.00 | 0.1981 | 0.1127 | | |
| Mercury | -68965-05-06 00:28 J | -23467917.65 | -23467917.48 | -23467917.32 | 0.1566 | 0.0336 | | |
| Venus | -68963-12-30 08:09 J | -23466949.33 | -23466949.16 | -23466948.99 | 0.1943 | 0.0226 | | |
| Mercury | -68960-01-15 17:16 J | -23466201.90 | -23466201.78 | -23466201.67 | 0.1982 | 0.0084 | | |
| Mercury | -68956-09-26 02:37 J | -23464487.50 | -23464487.39 | -23464487.28 | 0.1565 | 0.1208 | | |
| Mercury | -68951-06-08 00:42 J | -23462771.57 | -23462771.47 | -23462771.38 | 0.1983 | 0.1058 | | |
| Mercury | -68944-01-22 20:23 J | -23460350.67 | -23460350.65 | -23460350.63 | 0.1567 | 0.1552 | | |
| Mercury | -68935-06-14 22:33 J | -23456920.71 | -23456920.56 | -23456920.40 | 0.1566 | 0.0670 | | |
| Mercury | -68930-02-24 09:35 J | -23455205.19 | -23455205.10 | -23455205.01 | 0.1981 | 0.1219 | | |
| Venus | -68926-08-03 15:06 J | -23453584.05 | -23453583.87 | -23453583.70 | 0.1606 | 0.0110 | | |
| Mercury | -68926-11-05 00:57 J | -23453490.62 | -23453490.46 | -23453490.29 | 0.1566 | 0.0202 | | |
| Moon | -68924-12-20 18:13 J | -23452713.86 | -23452713.74 | -23452713.62 | 0.1618 | 0.1233 | | |
| Earth | -68924-12-21 00:42 J | -23452713.61 | -23452713.47 | -23452713.32 | 0.1619 | 0.1073 | | |
| Mercury | -68921-07-16 17:16 J | -23451774.89 | -23451774.78 | -23451774.67 | 0.1982 | 0.0149 | | |
| Mercury | -68916-03-27 03:21 J | -23450060.48 | -23450060.36 | -23450060.24 | 0.1566 | 0.1071 | | |
| Mercury | -68912-12-07 00:42 J | -23448344.57 | -23448344.47 | -23448344.37 | 0.1982 | 0.0946 | | |

Venus -68897-10-26 10:18 J -23442907.23 -23442907.07 -23442906.91 0.1940 0.0688

Mercury -68896-12-13 23:30 J -23442493.66 -23442493.52 -23442493.38 0.1566 0.0814

Mercury -68891-08-25 09:35 J -23440778.18 -23440778.10 -23440778.01 0.1981 0.1345

Mercury -68886-05-06 01:40 J -23439063.60 -23439063.43 -23439063.26 0.1566 0.0066

Mercury -68881-01-15 17:16 J -23437347.90 -23437347.78 -23437347.67 0.1982 0.0265

Mercury -68877-09-25 04:04 J -23435633.47 -23435633.33 -23435633.20 0.1566 0.0938

Earth -68877-12-14 13:40 J -23435553.01 -23435552.93 -23435552.85 0.1604 0.1452

Mercury -68872-06-07 00:28 J -23433917.58 -23433917.48 -23433917.37 0.1983 0.0846

Earth -68870-06-17 02:23 J -23433177.47 -23433177.40 -23433177.33 0.1943 0.1800

Mercury -68863-10-28 08:09 J -23430487.18 -23430487.16 -23430487.14 0.1982 0.1924

Venus -68860-05-31 03:06 J -23429541.54 -23429541.37 -23429541.19 0.1608 0.0151

Mercury -68856-06-14 00:13 J -23428066.63 -23428066.49 -23428066.36 0.1566 0.0948

Mercury -68851-02-23 09:49 J -23426351.17 -23426351.09 -23426351.02 0.1981 0.1462

Mercury -68847-11-04 02:37 J -23424636.56 -23424636.39 -23424636.22 0.1566 0.0087

Mercury -68842-07-16 17:01 J -23422920.90 -23422920.79 -23422920.67 0.1982 0.0374

Mercury -68837-03-26 04:47 J -23421206.45 -23421206.30 -23421206.16 0.1565 0.0801

Mercury -68833-12-06 00:42 J -23419490.58 -23419490.47 -23419490.37 0.1982 0.0726

Venus -68831-08-23 13:25 J -23418865.04 -23418864.94 -23418864.84 0.1935 0.1554

Mercury -68823-04-28 07:54 J -23416060.21 -23416060.17 -23416060.13 0.1982 0.1829

Mercury -68817-12-13 00:42 J -23413639.59 -23413639.47 -23413639.34 0.1566 0.1084

Mercury -68812-08-24 09:35 J -23411924.17 -23411924.10 -23411924.03 0.1981 0.1561

Mercury -68807-05-05 03:06 J -23410209.54 -23410209.37 -23410209.20 0.1566 0.0211

Mercury -68802-01-14 17:16 J -23408493.89 -23408493.78 -23408493.67 0.1982 0.0487

Mercury -68798-09-25 05:30 J -23406779.43 -23406779.27 -23406779.12 0.1566 0.0664

Earth -68798-12-17 17:30 J -23406695.95 -23406695.77 -23406695.59 0.1607 0.0531

Moon -68798-12-17 18:42 J -23406695.93 -23406695.72 -23406695.52 0.1607 0.0383 *

Venus -68794-03-28 15:06 J -23405499.04 -23405498.87 -23405498.70 0.1610 0.0411

Mercury -68793-06-06 00:42 J -23405063.58 -23405063.47 -23405063.37 0.1982 0.0613

Moon -68791-06-20 13:11 J -23404319.10 -23404318.95 -23404318.79 0.1936 0.0928

Earth -68791-06-20 15:06 J -23404319.05 -23404318.87 -23404318.68 0.1936 0.0649 *

Mercury -68788-02-14 07:40 J -23403349.20 -23403349.18 -23403349.15 0.1565 0.1535

Mercury -68784-10-27 07:54 J -23401633.22 -23401633.17 -23401633.11 0.1982 0.1710

Mercury -68777-06-13 01:40 J -23399212.54 -23399212.43 -23399212.33 0.1566 0.1222

Mercury -68772-02-22 09:35 J -23397497.16 -23397497.10 -23397497.04 0.1981 0.1678

Mercury -68768-11-03 03:49 J -23395782.51 -23395782.34 -23395782.18 0.1566 0.0343

Mercury -68763-07-15 17:01 J -23394066.89 -23394066.79 -23394066.68 0.1982 0.0594

Mercury -68758-03-26 06:13 J -23392352.40 -23392352.24 -23392352.08 0.1566 0.0532

Mercury -68754-12-06 00:28 J -23390636.59 -23390636.48 -23390636.37 0.1983 0.0508

Mercury -68749-08-15 08:23 J -23388922.22 -23388922.15 -23388922.07 0.1566 0.1401

Mercury -68744-04-27 08:09 J -23387206.23 -23387206.16 -23387206.10 0.1983 0.1590

Mercury -68738-12-13 02:09 J -23384785.49 -23384785.41 -23384785.32 0.1567 0.1359

Mercury -68733-08-23 09:35 J -23383070.14 -23383070.10 -23383070.05 0.1981 0.1802

Venus -68728-01-23 03:21 J -23381456.52 -23381456.36 -23381456.20 0.1613 0.0663

Mercury -68728-05-04 04:33 J -23381355.47 -23381355.31 -23381355.14 0.1566 0.0486

Mercury -68723-01-13 17:01 J -23379639.89 -23379639.79 -23379639.68 0.1982 0.0700

Mercury -68719-09-24 06:57 J -23377925.38 -23377925.21 -23377925.05 0.1565 0.0392

Earth -68719-12-19 22:04 J -23377838.76 -23377838.58 -23377838.39 0.1610 0.0423

Moon -68719-12-20 05:01 J -23377838.48 -23377838.29 -23377838.11 0.1611 0.0316 *

Mercury -68714-06-06 00:42 J -23376209.59 -23376209.47 -23376209.36 0.1982 0.0390

Mercury -68709-02-14 09:06 J -23374495.22 -23374495.12 -23374495.02 0.1565 0.1269

Mercury -68705-10-26 07:54 J -23372779.24 -23372779.17 -23372779.10 0.1982 0.1491

Mercury -68698-06-13 02:52 J -23370358.43 -23370358.38 -23370358.33 0.1566 0.1489

Venus -68696-01-21 20:52 J -23369769.71 -23369769.63 -23369769.55 0.1605 0.1407

Mercury -68693-02-22 09:35 J -23368643.13 -23368643.10 -23368643.07 0.1981 0.1894

Mercury -68689-11-02 05:16 J -23366928.43 -23366928.28 -23366928.12 0.1566 0.0620

Mercury -68684-07-14 17:16 J -23365212.89 -23365212.78 -23365212.68 0.1982 0.0827

Mercury -68679-03-25 07:40 J -23363498.35 -23363498.18 -23363498.02 0.1566 0.0256

Mercury -68675-12-05 00:28 J -23361782.59 -23361782.48 -23361782.36 0.1982 0.0281

Mercury -68670-08-15 09:49 J -23360068.20 -23360068.09 -23360067.97 0.1565 0.1129

Venus -68667-04-16 18:42 J -23359092.85 -23359092.72 -23359092.58 0.1941 0.1250

Mercury -68665-04-26 07:54 J -23358352.25 -23358352.17 -23358352.09 0.1983 0.1376

Venus -68663-11-20 14:52 J -23357414.02 -23357413.88 -23357413.73 0.1615 0.0941

Mercury -68649-05-03 05:59 J -23352501.40 -23352501.25 -23352501.10 0.1566 0.0753

Mercury -68644-01-12 17:01 J -23350785.89 -23350785.79 -23350785.69 0.1982 0.0925

Mercury -68640-09-23 08:09 J -23349071.33 -23349071.16 -23349070.99 0.1566 0.0127

Earth -68640-12-22 03:06 J -23348981.46 -23348981.37 -23348981.27 0.1614 0.1382

Mercury -68635-06-05 00:28 J -23347355.59 -23347355.48 -23347355.37 0.1983 0.0170

Venus -68631-11-19 08:52 J -23345727.25 -23345727.13 -23345727.01 0.1607 0.1152

Mercury -68630-02-13 10:33 J -23345641.19 -23345641.06 -23345640.93 0.1566 0.0995

Mercury -68626-10-26 08:09 J -23343925.25 -23343925.16 -23343925.08 0.1982 0.1251

Mercury -68610-11-02 06:42 J -23338074.36 -23338074.22 -23338074.08 0.1566 0.0895

Mercury -68605-07-13 17:01 J -23336358.88 -23336358.79 -23336358.69 0.1982 0.1039

Venus -68601-02-11 21:06 J -23335050.79 -23335050.62 -23335050.45 0.1937 0.0342

Mercury -68600-03-24 08:52 J -23334644.30 -23334644.13 -23334643.96 0.1565 0.0042

Venus -68597-09-17 03:06 J -23333371.49 -23333371.37 -23333371.25 0.1618 0.1202

Mercury -68596-12-04 00:28 J -23332928.59 -23332928.48 -23332928.36 0.1982 0.0064

Moon -68593-12-15 15:35 J -23331820.96 -23331820.85 -23331820.73 0.1600 0.1230

Earth -68593-12-15 17:59 J -23331820.89 -23331820.75 -23331820.61 0.1600 0.1121 *

Mercury -68591-08-14 11:16 J -23331214.17 -23331214.03 -23331213.89 0.1565 0.0861

Mercury -68586-04-26 07:54 J -23329498.26 -23329498.17 -23329498.08 0.1982 0.1157

Mercury -68570-05-03 07:25 J -23323647.32 -23323647.19 -23323647.06 0.1566 0.1028

Mercury -68565-01-12 17:01 J -23321931.88 -23321931.79 -23321931.70 0.1982 0.1159

Venus -68565-09-15 21:21 J -23321684.76 -23321684.61 -23321684.47 0.1609 0.0905

Mercury -68561-09-22 09:49 J -23320217.26 -23320217.09 -23320216.93 0.1566 0.0160

Mercury -68556-06-04 00:28 J -23318501.59 -23318501.48 -23318501.36 0.1982 0.0079

Mercury -68551-02-12 11:59 J -23316787.15 -23316787.00 -23316786.85 0.1565 0.0720

Mercury -68547-10-25 07:54 J -23315071.27 -23315071.17 -23315071.07 0.1983 0.1034

Venus -68536-12-08 23:45 J -23311008.67 -23311008.51 -23311008.34 0.1933 0.0540

Venus -68531-07-15 14:52 J -23309328.94 -23309328.88 -23309328.80 0.1620 0.1477

Mercury -68531-11-01 08:09 J -23309220.28 -23309220.16 -23309220.05 0.1566 0.1162

Mercury -68526-07-13 17:01 J -23307504.88 -23307504.79 -23307504.70 0.1982 0.1265
 Mercury -68521-03-23 10:18 J -23305790.23 -23305790.07 -23305789.90 0.1566 0.0290
 Mercury -68517-12-03 00:28 J -23304074.59 -23304074.48 -23304074.37 0.1983 0.0170
 Moon -68514-12-18 14:37 J -23302964.08 -23302963.89 -23302963.70 0.1603 0.0087
 Earth -68514-12-18 21:49 J -23302963.78 -23302963.59 -23302963.40 0.1603 0.0199 *
 Mercury -68512-08-13 12:42 J -23302360.13 -23302359.97 -23302359.81 0.1566 0.0586
 Mercury -68507-04-25 07:54 J -23300644.27 -23300644.17 -23300644.07 0.1982 0.0917
 Earth -68507-06-19 20:09 J -23300588.85 -23300588.66 -23300588.46 0.1944 0.0233
 Moon -68507-06-20 04:33 J -23300588.51 -23300588.31 -23300588.11 0.1944 0.0194 *
 Mercury -68502-01-03 15:06 J -23298929.93 -23298929.87 -23298929.81 0.1566 0.1457
 Venus -68499-07-14 09:06 J -23297642.28 -23297642.12 -23297641.95 0.1612 0.0644
 Mercury -68491-05-02 08:52 J -23294793.22 -23294793.13 -23294793.04 0.1566 0.1304
 Mercury -68486-01-11 17:01 J -23293077.87 -23293077.79 -23293077.71 0.1982 0.1375
 Mercury -68482-09-22 11:01 J -23291363.20 -23291363.04 -23291362.87 0.1565 0.0427
 Mercury -68477-06-03 00:28 J -23289647.59 -23289647.48 -23289647.37 0.1982 0.0291
 Mercury -68472-02-11 13:11 J -23287933.11 -23287932.95 -23287932.78 0.1565 0.0456
 Venus -68470-10-06 02:23 J -23286966.51 -23286966.40 -23286966.28 0.1928 0.1416
 Mercury -68468-10-24 07:54 J -23286217.28 -23286217.17 -23286217.07 0.1982 0.0819
 Mercury -68463-07-04 15:35 J -23284502.93 -23284502.85 -23284502.76 0.1566 0.1326
 Mercury -68458-03-16 15:21 J -23282786.89 -23282786.86 -23282786.83 0.1982 0.1902
 Mercury -68452-10-31 09:35 J -23280366.17 -23280366.10 -23280366.04 0.1566 0.1439
 Mercury -68447-07-12 17:01 J -23278650.86 -23278650.79 -23278650.71 0.1982 0.1502
 Mercury -68442-03-23 11:45 J -23276936.17 -23276936.01 -23276935.85 0.1566 0.0564
 Mercury -68438-12-03 00:28 J -23275220.59 -23275220.48 -23275220.37 0.1982 0.0399
 Moon -68435-12-20 22:33 J -23274106.75 -23274106.56 -23274106.36 0.1606 0.0513
 Earth -68435-12-21 01:40 J -23274106.60 -23274106.43 -23274106.26 0.1606 0.0740 *
 Venus -68433-05-10 21:21 J -23273599.78 -23273599.61 -23273599.44 0.1614 0.0388
 Mercury -68433-08-12 14:09 J -23273506.08 -23273505.91 -23273505.74 0.1565 0.0312
 Mercury -68428-04-24 07:54 J -23271790.28 -23271790.17 -23271790.07 0.1983 0.0699
 Mercury -68423-01-02 16:18 J -23270075.93 -23270075.82 -23270075.71 0.1566 0.1189

Mercury -68419-09-14 15:21 J -23268359.91 -23268359.86 -23268359.81 0.1982 0.1788

Mercury -68407-01-10 17:01 J -23264223.86 -23264223.79 -23264223.73 0.1982 0.1599

Mercury -68403-09-21 12:28 J -23262509.13 -23262508.98 -23262508.83 0.1566 0.0698

Mercury -68398-06-03 00:28 J -23260793.59 -23260793.48 -23260793.37 0.1983 0.0510

Mercury -68393-02-11 14:52 J -23259079.05 -23259078.88 -23259078.71 0.1566 0.0177

Mercury -68389-10-23 07:54 J -23257363.27 -23257363.17 -23257363.06 0.1982 0.0577

Mercury -68384-07-03 17:16 J -23255648.91 -23255648.78 -23255648.66 0.1566 0.1050

Mercury -68379-03-15 15:21 J -23253932.92 -23253932.86 -23253932.81 0.1982 0.1686

Mercury -68368-07-11 17:01 J -23249796.85 -23249796.79 -23249796.74 0.1982 0.1715

Venus -68367-03-08 09:06 J -23249557.29 -23249557.12 -23249556.94 0.1617 0.0118

Mercury -68363-03-22 13:11 J -23248082.09 -23248081.95 -23248081.80 0.1566 0.0835

Mercury -68359-12-02 00:28 J -23246366.59 -23246366.48 -23246366.37 0.1982 0.0629

Mercury -68354-08-12 15:35 J -23244652.02 -23244651.85 -23244651.68 0.1565 0.0057

Mercury -68349-04-23 07:40 J -23242936.29 -23242936.18 -23242936.07 0.1982 0.0487

Mercury -68344-01-01 17:45 J -23241221.89 -23241221.76 -23241221.62 0.1566 0.0917

Mercury -68340-09-13 15:21 J -23239505.93 -23239505.86 -23239505.79 0.1982 0.1561

Mercury -68328-01-09 17:01 J -23235369.83 -23235369.79 -23235369.75 0.1982 0.1837

Mercury -68324-09-20 13:54 J -23233655.05 -23233654.92 -23233654.78 0.1566 0.0976

Mercury -68319-06-02 00:28 J -23231939.59 -23231939.48 -23231939.38 0.1982 0.0738

Mercury -68314-02-10 16:18 J -23230224.99 -23230224.82 -23230224.65 0.1565 0.0098

Mercury -68310-10-23 07:54 J -23228509.28 -23228509.17 -23228509.06 0.1983 0.0357

Earth -68309-12-16 22:33 J -23228088.73 -23228088.56 -23228088.39 0.1597 0.0787

Moon -68309-12-17 05:16 J -23228088.44 -23228088.28 -23228088.12 0.1597 0.0874 *

Venus -68306-05-30 08:09 J -23227194.27 -23227194.16 -23227194.04 0.1934 0.1387

Mercury -68305-07-02 18:28 J -23226794.88 -23226794.73 -23226794.58 0.1566 0.0783

Venus -68301-01-03 21:06 J -23225514.80 -23225514.62 -23225514.44 0.1619 0.0146

Mercury -68300-03-14 15:21 J -23225078.94 -23225078.86 -23225078.79 0.1982 0.1457

Mercury -68289-07-10 17:01 J -23220942.81 -23220942.79 -23220942.77 0.1982 0.1940

Mercury -68284-03-21 14:37 J -23219228.01 -23219227.89 -23219227.77 0.1566 0.1108

Mercury -68280-12-01 00:28 J -23217512.59 -23217512.48 -23217512.38 0.1983 0.0850

Mercury -68275-08-11 17:01 J -23215797.96 -23215797.79 -23215797.62 0.1566 0.0234
 Mercury -68270-04-23 07:54 J -23214082.28 -23214082.17 -23214082.06 0.1982 0.0240
 Mercury -68265-01-01 19:25 J -23212367.85 -23212367.69 -23212367.54 0.1566 0.0640
 Mercury -68261-09-12 15:21 J -23210651.94 -23210651.86 -23210651.78 0.1982 0.1342
 Mercury -68256-05-23 21:35 J -23208937.64 -23208937.60 -23208937.56 0.1566 0.1517
 Mercury -68245-09-19 15:21 J -23204800.96 -23204800.86 -23204800.76 0.1566 0.1244
 Venus -68240-03-26 10:47 J -23203152.21 -23203152.05 -23203151.88 0.1930 0.0503
 Mercury -68240-06-01 00:28 J -23203085.58 -23203085.48 -23203085.38 0.1982 0.0966
 Venus -68236-10-31 08:37 J -23201472.31 -23201472.14 -23201471.97 0.1622 0.0427
 Mercury -68235-02-09 17:30 J -23201370.93 -23201370.77 -23201370.60 0.1565 0.0369
 Mercury -68231-10-22 07:40 J -23199655.29 -23199655.18 -23199655.06 0.1982 0.0160
 Earth -68230-12-20 02:37 J -23199231.59 -23199231.39 -23199231.20 0.1600 0.0137
 Moon -68230-12-20 04:04 J -23199231.51 -23199231.33 -23199231.15 0.1600 0.0301 *
 Mercury -68226-07-02 19:54 J -23197940.83 -23197940.67 -23197940.51 0.1566 0.0507
 Moon -68223-06-18 15:06 J -23196859.02 -23196858.87 -23196858.71 0.1953 0.1263
 Earth -68223-06-18 23:45 J -23196858.67 -23196858.51 -23196858.36 0.1952 0.1207
 Mercury -68221-03-13 15:21 J -23196224.95 -23196224.86 -23196224.77 0.1982 0.1224
 Mercury -68217-11-21 22:18 J -23194510.65 -23194510.57 -23194510.49 0.1566 0.1378
 Mercury -68205-03-20 16:04 J -23190373.90 -23190373.83 -23190373.75 0.1566 0.1384
 Mercury -68201-11-30 00:28 J -23188658.58 -23188658.48 -23188658.39 0.1982 0.1076
 Mercury -68196-08-10 18:28 J -23186943.89 -23186943.73 -23186943.57 0.1565 0.0508
 Mercury -68191-04-22 07:54 J -23185228.29 -23185228.17 -23185228.06 0.1983 0.0045
 Mercury -68187-12-31 20:37 J -23183513.80 -23183513.64 -23183513.47 0.1566 0.0371
 Mercury -68182-09-12 15:21 J -23181797.96 -23181797.86 -23181797.77 0.1982 0.1115
 Mercury -68177-05-22 22:47 J -23180083.64 -23180083.55 -23180083.44 0.1566 0.1248
 Venus -68174-01-21 13:40 J -23179110.10 -23179109.93 -23179109.76 0.1926 0.0369
 Venus -68170-08-28 20:37 J -23177429.80 -23177429.64 -23177429.48 0.1625 0.0694
 Mercury -68166-09-19 16:47 J -23175946.84 -23175946.80 -23175946.76 0.1566 0.1519
 Mercury -68161-05-31 00:28 J -23174231.57 -23174231.48 -23174231.39 0.1983 0.1191
 Mercury -68156-02-08 19:11 J -23172516.86 -23172516.70 -23172516.55 0.1566 0.0645

Mercury -68152-10-21 07:54 J -23170801.28 -23170801.17 -23170801.06 0.1982 0.0104
 Moon -68151-12-21 23:59 J -23170374.66 -23170374.50 -23170374.34 0.1602 0.0831
 Earth -68151-12-22 05:45 J -23170374.40 -23170374.26 -23170374.11 0.1602 0.1071 *
 Mercury -68147-07-01 21:21 J -23169086.77 -23169086.61 -23169086.44 0.1566 0.0234
 Earth -68144-06-22 11:59 J -23168000.14 -23168000.00 -23167999.85 0.1947 0.1326
 Moon -68144-06-22 15:49 J -23168000.00 -23167999.84 -23167999.68 0.1947 0.1254 *
 Mercury -68142-03-13 15:06 J -23167370.96 -23167370.87 -23167370.77 0.1982 0.1011
 Venus -68138-08-27 15:21 J -23165742.94 -23165742.86 -23165742.79 0.1616 0.1443
 Mercury -68138-11-21 23:45 J -23165656.63 -23165656.51 -23165656.39 0.1566 0.1108
 Mercury -68122-11-30 00:28 J -23159804.57 -23159804.48 -23159804.40 0.1982 0.1307
 Mercury -68117-08-09 19:40 J -23158089.82 -23158089.68 -23158089.53 0.1565 0.0779
 Mercury -68112-04-21 07:40 J -23156374.29 -23156374.18 -23156374.06 0.1983 0.0199
 Venus -68109-11-17 16:47 J -23155067.93 -23155067.80 -23155067.67 0.1921 0.1210
 Mercury -68108-12-30 22:04 J -23154659.75 -23154659.58 -23154659.41 0.1566 0.0098
 Venus -68104-06-25 08:23 J -23153387.29 -23153387.15 -23153387.01 0.1627 0.0974
 Moon -68104-12-15 18:13 J -23153213.85 -23153213.74 -23153213.64 0.1591 0.1316
 Earth -68104-12-16 00:28 J -23153213.57 -23153213.48 -23153213.38 0.1591 0.1358
 Mercury -68103-09-11 15:21 J -23152943.96 -23152943.86 -23152943.76 0.1982 0.0880
 Mercury -68098-05-23 00:28 J -23151229.61 -23151229.48 -23151229.35 0.1566 0.0970
 Mercury -68093-02-01 22:47 J -23149513.55 -23149513.55 -23149513.55 0.1981 0.1978
 Mercury -68082-05-31 00:28 J -23145377.56 -23145377.48 -23145377.41 0.1982 0.1415
 Mercury -68077-02-08 20:37 J -23143662.78 -23143662.64 -23143662.51 0.1565 0.0918
 Mercury -68073-10-20 07:54 J -23141947.28 -23141947.17 -23141947.06 0.1983 0.0327
 Venus -68072-06-24 03:06 J -23141700.49 -23141700.37 -23141700.25 0.1619 0.1178
 Mercury -68068-06-30 22:47 J -23140232.72 -23140232.55 -23140232.38 0.1565 0.0038
 Mercury -68063-03-12 15:06 J -23138516.97 -23138516.87 -23138516.76 0.1982 0.0782
 Mercury -68059-11-21 01:11 J -23136802.59 -23136802.45 -23136802.31 0.1566 0.0835
 Mercury -68054-08-02 22:47 J -23135086.59 -23135086.55 -23135086.52 0.1981 0.1873
 Mercury -68043-11-29 00:28 J -23130950.55 -23130950.48 -23130950.41 0.1983 0.1530
 Venus -68038-04-22 19:54 J -23129344.78 -23129344.67 -23129344.56 0.1630 0.1258

Mercury -68038-08-09 21:21 J -23129235.74 -23129235.61 -23129235.49 0.1566 0.1055

Mercury -68033-04-20 07:54 J -23127520.28 -23127520.17 -23127520.06 0.1982 0.0441

Mercury -68029-12-29 23:45 J -23125805.68 -23125805.51 -23125805.35 0.1566 0.0186

Moon -68025-12-18 03:35 J -23124356.55 -23124356.35 -23124356.16 0.1593 0.0574

Earth -68025-12-18 04:18 J -23124356.50 -23124356.32 -23124356.13 0.1593 0.0440 *

Mercury -68024-09-10 15:21 J -23124089.97 -23124089.86 -23124089.76 0.1982 0.0666

Mercury -68019-05-22 01:54 J -23122375.57 -23122375.42 -23122375.27 0.1566 0.0700

Mercury -68014-01-31 22:47 J -23120659.60 -23120659.55 -23120659.50 0.1981 0.1752

Venus -68006-04-21 15:06 J -23117658.01 -23117657.87 -23117657.72 0.1621 0.0917

Mercury -68003-05-30 00:28 J -23116523.55 -23116523.48 -23116523.42 0.1982 0.1645

68TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 68th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -67998-02-07 21:49 J | -23114808.69 | -23114808.59 | -23114808.48 | 0.1566 | 0.1191 | | |
| Mercury | -67994-10-20 07:40 J | -23113093.29 | -23113093.18 | -23113093.07 | 0.1983 | 0.0545 | | |
| Mercury | -67989-06-30 00:13 J | -23111378.66 | -23111378.49 | -23111378.32 | 0.1566 | 0.0314 | | |
| Mercury | -67984-03-11 15:21 J | -23109662.97 | -23109662.86 | -23109662.75 | 0.1982 | 0.0545 | | |
| Mercury | -67980-11-20 02:37 J | -23107948.55 | -23107948.39 | -23107948.23 | 0.1566 | 0.0559 | | |
| Mercury | -67975-08-01 22:47 J | -23106232.61 | -23106232.55 | -23106232.49 | 0.1981 | 0.1638 | | |
| Venus | -67972-02-17 07:54 J | -23105302.23 | -23105302.17 | -23105302.12 | 0.1633 | 0.1537 | | |
| Mercury | -67970-04-12 05:01 J | -23104518.36 | -23104518.29 | -23104518.23 | 0.1566 | 0.1433 | | |
| Mercury | -67964-11-28 00:28 J | -23102096.53 | -23102096.48 | -23102096.43 | 0.1982 | 0.1755 | | |

Mercury -67959-08-08 22:47 J -23100381.64 -23100381.55 -23100381.46 0.1565 0.1330

Mercury -67954-04-20 07:54 J -23098666.28 -23098666.17 -23098666.07 0.1983 0.0666

Mercury -67950-12-30 00:57 J -23096951.62 -23096951.46 -23096951.30 0.1565 0.0450

Earth -67946-12-21 07:40 J -23095499.37 -23095499.18 -23095499.00 0.1596 0.0473

Moon -67946-12-21 13:40 J -23095499.11 -23095498.93 -23095498.75 0.1596 0.0707 *

Venus -67945-07-11 21:35 J -23095295.70 -23095295.60 -23095295.49 0.1926 0.1524

Mercury -67945-09-09 15:21 J -23095235.98 -23095235.86 -23095235.75 0.1982 0.0443

Venus -67940-02-16 02:52 J -23093615.54 -23093615.38 -23093615.22 0.1624 0.0643

Mercury -67940-05-21 03:21 J -23093521.53 -23093521.36 -23093521.20 0.1566 0.0427

Mercury -67935-01-30 22:33 J -23091805.63 -23091805.56 -23091805.49 0.1981 0.1536

Mercury -67931-10-11 05:30 J -23090091.36 -23090091.27 -23090091.17 0.1567 0.1300

Mercury -67924-05-29 00:28 J -23087669.52 -23087669.48 -23087669.45 0.1983 0.1871

Mercury -67919-02-06 23:30 J -23085954.58 -23085954.52 -23085954.47 0.1566 0.1466

Mercury -67915-10-19 07:54 J -23084239.28 -23084239.17 -23084239.07 0.1982 0.0782

Mercury -67910-06-30 01:40 J -23082524.58 -23082524.43 -23082524.27 0.1565 0.0593

Mercury -67905-03-10 15:06 J -23080808.98 -23080808.87 -23080808.75 0.1982 0.0332

Mercury -67901-11-19 04:04 J -23079094.50 -23079094.33 -23079094.16 0.1566 0.0287

Mercury -67896-07-31 22:47 J -23077378.63 -23077378.55 -23077378.47 0.1981 0.1408

Mercury -67891-04-11 06:13 J -23075664.35 -23075664.24 -23075664.12 0.1566 0.1165

Venus -67879-05-09 01:25 J -23071253.60 -23071253.44 -23071253.28 0.1922 0.0702

Mercury -67875-04-19 07:40 J -23069812.28 -23069812.18 -23069812.08 0.1983 0.0877

Venus -67875-12-14 14:37 J -23069573.06 -23069572.89 -23069572.72 0.1627 0.0373

Mercury -67871-12-29 02:23 J -23068097.55 -23068097.40 -23068097.25 0.1566 0.0727

Earth -67867-12-23 11:01 J -23066642.13 -23066642.04 -23066641.95 0.1599 0.1409

Moon -67867-12-23 16:04 J -23066641.94 -23066641.83 -23066641.72 0.1599 0.1257

Mercury -67866-09-09 15:21 J -23066381.97 -23066381.86 -23066381.75 0.1982 0.0197

Mercury -67861-05-20 04:47 J -23064667.47 -23064667.30 -23064667.13 0.1566 0.0148

Moon -67860-06-21 07:11 J -23064270.38 -23064270.20 -23064270.01 0.1955 0.0326

Earth -67860-06-21 15:35 J -23064270.04 -23064269.85 -23064269.65 0.1954 0.0369 *

Mercury -67856-01-29 22:47 J -23062951.64 -23062951.55 -23062951.47 0.1981 0.1302

Mercury -67852-10-10 07:11 J -23061237.33 -23061237.20 -23061237.08 0.1566 0.1024
 Mercury -67836-10-18 07:54 J -23055385.27 -23055385.17 -23055385.08 0.1983 0.1007
 Mercury -67831-06-29 03:06 J -23053670.51 -23053670.37 -23053670.23 0.1565 0.0861
 Mercury -67826-03-10 15:06 J -23051954.98 -23051954.87 -23051954.75 0.1982 0.0113
 Mercury -67822-11-19 05:30 J -23050240.44 -23050240.27 -23050240.10 0.1566 0.0020
 Earth -67820-12-17 06:57 J -23049481.36 -23049481.21 -23049481.06 0.1588 0.1008
 Moon -67820-12-17 07:54 J -23049481.32 -23049481.17 -23049481.02 0.1588 0.0890 *
 Mercury -67817-07-30 22:47 J -23048524.64 -23048524.55 -23048524.46 0.1981 0.1192
 Venus -67813-03-05 04:18 J -23047211.50 -23047211.32 -23047211.15 0.1918 0.0162
 Mercury -67812-04-10 07:40 J -23046810.31 -23046810.18 -23046810.04 0.1566 0.0891
 Venus -67809-10-11 02:09 J -23045530.58 -23045530.41 -23045530.23 0.1629 0.0088
 Mercury -67796-04-18 07:54 J -23040958.27 -23040958.17 -23040958.08 0.1982 0.1121
 Mercury -67792-12-28 04:04 J -23039243.46 -23039243.33 -23039243.20 0.1565 0.1006
 Mercury -67787-09-08 15:21 J -23037527.98 -23037527.86 -23037527.75 0.1982 0.0085
 Mercury -67782-05-20 06:13 J -23035813.41 -23035813.24 -23035813.07 0.1566 0.0126
 Mercury -67777-01-29 22:47 J -23034097.65 -23034097.55 -23034097.46 0.1981 0.1073
 Mercury -67773-10-09 08:23 J -23032383.29 -23032383.15 -23032383.00 0.1566 0.0754
 Mercury -67757-10-17 07:40 J -23026531.27 -23026531.18 -23026531.09 0.1983 0.1222
 Mercury -67752-06-28 04:33 J -23024816.42 -23024816.31 -23024816.19 0.1566 0.1137
 Venus -67748-12-31 07:40 J -23023169.33 -23023169.18 -23023169.03 0.1914 0.0977
 Mercury -67747-03-09 15:21 J -23023100.98 -23023100.86 -23023100.75 0.1982 0.0144
 Venus -67743-08-08 13:54 J -23021488.09 -23021487.92 -23021487.74 0.1632 0.0191
 Mercury -67743-11-18 06:57 J -23021386.38 -23021386.21 -23021386.04 0.1566 0.0265
 Moon -67741-12-19 04:47 J -23020624.48 -23020624.30 -23020624.11 0.1590 0.0289
 Earth -67741-12-19 10:33 J -23020624.25 -23020624.06 -23020623.87 0.1590 0.0090 *
 Mercury -67738-07-30 22:47 J -23019670.65 -23019670.55 -23019670.45 0.1981 0.0958
 Mercury -67733-04-09 09:21 J -23017956.27 -23017956.11 -23017955.96 0.1566 0.0613
 Mercury -67724-08-30 11:30 J -23014526.07 -23014526.02 -23014525.97 0.1567 0.1493
 Mercury -67717-04-17 07:40 J -23012104.26 -23012104.18 -23012104.09 0.1983 0.1343
 Mercury -67713-12-27 05:16 J -23010389.38 -23010389.28 -23010389.18 0.1565 0.1273

Mercury -67708-09-07 15:06 J -23008673.98 -23008673.87 -23008673.75 0.1982 0.0253

Mercury -67703-05-19 07:40 J -23006959.35 -23006959.18 -23006959.02 0.1566 0.0399

Mercury -67698-01-28 22:47 J -23005243.66 -23005243.55 -23005243.45 0.1981 0.0853

Mercury -67694-10-09 09:49 J -23003529.25 -23003529.09 -23003528.92 0.1566 0.0480

Mercury -67689-06-20 06:13 J -23001813.26 -23001813.24 -23001813.22 0.1979 0.1930

Mercury -67684-02-28 12:13 J -23000099.07 -23000098.99 -23000098.90 0.1567 0.1352

Venus -67682-10-28 11:01 J -22999127.10 -22999127.04 -22999126.98 0.1909 0.1787

Mercury -67678-10-17 07:54 J -22997677.25 -22997677.17 -22997677.10 0.1982 0.1462

Venus -67677-06-05 01:25 J -22997445.61 -22997445.44 -22997445.27 0.1635 0.0478

Mercury -67673-06-27 06:13 J -22995962.31 -22995962.24 -22995962.17 0.1565 0.1416

Mercury -67668-03-08 15:06 J -22994246.98 -22994246.87 -22994246.75 0.1982 0.0363

Mercury -67664-11-17 08:23 J -22992532.31 -22992532.15 -22992531.99 0.1566 0.0536

Moon -67662-12-22 09:35 J -22991767.26 -22991767.10 -22991766.94 0.1592 0.0970

Earth -67662-12-22 13:54 J -22991767.09 -22991766.92 -22991766.76 0.1593 0.0825 *

Mercury -67659-07-29 22:47 J -22990816.66 -22990816.55 -22990816.45 0.1981 0.0729

Mercury -67654-04-09 10:33 J -22989102.22 -22989102.06 -22989101.89 0.1566 0.0344

Mercury -67650-12-20 05:59 J -22987386.29 -22987386.25 -22987386.21 0.1979 0.1837

Mercury -67645-08-29 12:57 J -22985672.06 -22985671.96 -22985671.85 0.1567 0.1218

Mercury -67638-04-17 07:40 J -22983250.25 -22983250.18 -22983250.11 0.1983 0.1559

Mercury -67634-12-27 06:42 J -22981535.24 -22981535.22 -22981535.20 0.1566 0.1551

Mercury -67629-09-06 15:21 J -22979819.97 -22979819.86 -22979819.75 0.1982 0.0485

Mercury -67624-05-18 09:06 J -22978105.27 -22978105.12 -22978104.97 0.1566 0.0676

Mercury -67619-01-27 22:47 J -22976389.66 -22976389.55 -22976389.45 0.1981 0.0626

Mercury -67615-10-08 11:30 J -22974675.19 -22974675.02 -22974674.85 0.1566 0.0205

Earth -67615-12-16 11:45 J -22974606.06 -22974606.01 -22974605.97 0.1583 0.1535

Moon -67615-12-16 11:59 J -22974606.01 -22974606.00 -22974605.99 0.1583 0.1576 *

Venus -67611-04-02 12:57 J -22973403.11 -22973402.96 -22973402.81 0.1638 0.0770

Mercury -67610-06-20 06:13 J -22972959.30 -22972959.24 -22972959.19 0.1980 0.1712

Mercury -67605-02-28 13:40 J -22971245.05 -22971244.93 -22971244.81 0.1567 0.1083

Mercury -67599-10-16 07:54 J -22968823.23 -22968823.17 -22968823.12 0.1983 0.1688

Mercury -67589-03-07 15:06 J -22965392.98 -22965392.87 -22965392.76 0.1982 0.0580
 Mercury -67585-11-16 09:49 J -22963678.24 -22963678.09 -22963677.95 0.1566 0.0810
 Venus -67584-08-24 12:28 J -22963397.05 -22963396.98 -22963396.91 0.1919 0.1728
 Moon -67583-12-24 20:09 J -22962909.70 -22962909.66 -22962909.62 0.1595 0.1561
 Mercury -67580-07-28 22:47 J -22961962.66 -22961962.55 -22961962.44 0.1981 0.0511
 Venus -67579-04-01 08:37 J -22961716.22 -22961716.14 -22961716.06 0.1628 0.1441
 Earth -67576-06-20 16:33 J -22960539.99 -22960539.81 -22960539.63 0.1961 0.0719
 Moon -67576-06-21 00:42 J -22960539.66 -22960539.47 -22960539.29 0.1961 0.0295 *
 Mercury -67575-04-08 11:59 J -22960248.17 -22960248.00 -22960247.83 0.1566 0.0079
 Mercury -67571-12-19 06:13 J -22958532.31 -22958532.24 -22958532.17 0.1979 0.1592
 Mercury -67566-08-29 14:23 J -22956818.03 -22956817.90 -22956817.76 0.1567 0.0941
 Mercury -67559-04-16 07:40 J -22954396.22 -22954396.18 -22954396.13 0.1982 0.1797
 Mercury -67550-09-06 15:06 J -22950965.97 -22950965.87 -22950965.76 0.1982 0.0704
 Venus -67545-01-29 00:42 J -22949360.60 -22949360.47 -22949360.34 0.1641 0.1054
 Mercury -67545-05-17 10:33 J -22949251.20 -22949251.06 -22949250.93 0.1566 0.0946
 Mercury -67540-01-26 22:47 J -22947535.67 -22947535.55 -22947535.44 0.1981 0.0396
 Mercury -67536-10-07 12:42 J -22945821.14 -22945820.97 -22945820.80 0.1566 0.0077
 Earth -67536-12-18 14:09 J -22945749.09 -22945748.91 -22945748.74 0.1585 0.0650
 Moon -67536-12-18 20:52 J -22945748.82 -22945748.63 -22945748.45 0.1585 0.0509 *
 Mercury -67531-06-19 05:59 J -22944105.32 -22944105.25 -22944105.17 0.1980 0.1495
 Mercury -67526-02-27 15:06 J -22942391.01 -22942390.87 -22942390.72 0.1567 0.0809
 Mercury -67520-10-15 07:40 J -22939969.21 -22939969.18 -22939969.15 0.1983 0.1902
 Venus -67518-06-21 15:35 J -22939355.00 -22939354.85 -22939354.70 0.1914 0.0892
 Venus -67513-01-27 20:09 J -22937673.78 -22937673.66 -22937673.53 0.1631 0.1161
 Mercury -67510-03-07 15:21 J -22936538.97 -22936538.86 -22936538.76 0.1982 0.0823
 Mercury -67506-11-16 11:16 J -22934824.15 -22934824.03 -22934823.91 0.1566 0.1089
 Mercury -67501-07-27 22:47 J -22933108.67 -22933108.55 -22933108.44 0.1981 0.0282
 Moon -67497-06-24 04:33 J -22931681.40 -22931681.31 -22931681.22 0.1957 0.1676
 Mercury -67496-04-07 13:40 J -22931394.10 -22931393.93 -22931393.77 0.1566 0.0211
 Mercury -67492-12-18 06:13 J -22929678.32 -22929678.24 -22929678.16 0.1980 0.1375

Mercury -67487-08-28 15:49 J -22927963.99 -22927963.84 -22927963.69 0.1567 0.0674

Venus -67480-11-25 11:45 J -22925318.11 -22925318.01 -22925317.91 0.1644 0.1361

Mercury -67477-01-18 18:13 J -22924533.76 -22924533.74 -22924533.72 0.1568 0.1548

Mercury -67471-09-05 15:06 J -22922111.97 -22922111.87 -22922111.77 0.1982 0.0926

Mercury -67466-05-17 11:59 J -22920397.11 -22920397.00 -22920396.90 0.1566 0.1222

Mercury -67461-01-26 22:33 J -22918681.67 -22918681.56 -22918681.44 0.1981 0.0185

Mercury -67457-10-06 14:09 J -22916967.07 -22916966.91 -22916966.74 0.1566 0.0346

Earth -67457-12-20 16:33 J -22916892.00 -22916891.81 -22916891.62 0.1587 0.0259

Moon -67457-12-20 20:37 J -22916891.82 -22916891.64 -22916891.45 0.1587 0.0128 *

Venus -67452-04-17 19:25 J -22915312.86 -22915312.69 -22915312.51 0.1910 0.0105

Mercury -67452-06-18 06:13 J -22915251.33 -22915251.24 -22915251.15 0.1980 0.1253

Venus -67448-11-24 07:40 J -22913631.32 -22913631.18 -22913631.03 0.1634 0.0882

Mercury -67447-02-26 16:33 J -22913536.97 -22913536.81 -22913536.65 0.1567 0.0532

Mercury -67438-07-19 18:57 J -22910106.78 -22910106.71 -22910106.64 0.1568 0.1412

Mercury -67431-03-06 15:06 J -22907684.96 -22907684.87 -22907684.77 0.1982 0.1039

Mercury -67427-11-15 12:42 J -22905970.05 -22905969.97 -22905969.89 0.1566 0.1357

Mercury -67422-07-27 22:47 J -22904254.67 -22904254.55 -22904254.44 0.1981 0.0074

Mercury -67417-04-06 14:52 J -22902540.04 -22902539.88 -22902539.72 0.1566 0.0480

Mercury -67413-12-17 05:59 J -22900824.34 -22900824.25 -22900824.16 0.1980 0.1157

Mercury -67408-08-27 17:16 J -22899109.94 -22899109.78 -22899109.61 0.1567 0.0397

Mercury -67398-01-17 19:40 J -22895679.78 -22895679.68 -22895679.58 0.1568 0.1274

Mercury -67392-09-04 15:21 J -22893257.95 -22893257.86 -22893257.77 0.1982 0.1164

Mercury -67387-05-16 13:25 J -22891542.98 -22891542.94 -22891542.89 0.1566 0.1499

Venus -67386-02-12 22:47 J -22891270.71 -22891270.55 -22891270.39 0.1905 0.0724

Mercury -67382-01-25 22:33 J -22889827.67 -22889827.56 -22889827.44 0.1981 0.0081

Venus -67382-09-21 19:11 J -22889588.86 -22889588.70 -22889588.54 0.1637 0.0590

Mercury -67378-10-06 15:49 J -22888113.00 -22888112.84 -22888112.69 0.1566 0.0621

Moon -67378-12-23 16:47 J -22888034.89 -22888034.80 -22888034.70 0.1589 0.1347

Earth -67378-12-23 19:54 J -22888034.80 -22888034.67 -22888034.54 0.1589 0.1173 *

Mercury -67373-06-17 06:13 J -22886397.34 -22886397.24 -22886397.15 0.1980 0.1030

Mercury -67368-02-25 17:59 J -22884682.92 -22884682.75 -22884682.58 0.1567 0.0264

Mercury -67359-07-18 20:23 J -22881252.77 -22881252.65 -22881252.54 0.1568 0.1141

Mercury -67352-03-05 15:06 J -22878830.96 -22878830.87 -22878830.78 0.1982 0.1257

Mercury -67343-07-26 22:47 J -22875400.67 -22875400.55 -22875400.44 0.1982 0.0187

Mercury -67338-04-06 16:18 J -22873685.96 -22873685.82 -22873685.67 0.1566 0.0757

Mercury -67334-12-17 06:13 J -22871970.34 -22871970.24 -22871970.14 0.1980 0.0916

Moon -67331-12-17 12:28 J -22870874.08 -22870873.98 -22870873.88 0.1580 0.1333

Earth -67331-12-17 18:57 J -22870873.83 -22870873.71 -22870873.58 0.1580 0.1177

Mercury -67329-08-26 18:42 J -22870255.89 -22870255.72 -22870255.55 0.1567 0.0124

Venus -67321-12-10 02:37 J -22867228.49 -22867228.39 -22867228.29 0.1901 0.1510

Mercury -67319-01-16 20:52 J -22866825.75 -22866825.63 -22866825.50 0.1568 0.1005

Venus -67316-07-19 06:42 J -22865546.39 -22865546.22 -22865546.05 0.1640 0.0303

Mercury -67313-09-03 15:06 J -22864403.95 -22864403.87 -22864403.79 0.1982 0.1383

Mercury -67303-01-24 22:33 J -22860973.67 -22860973.56 -22860973.44 0.1981 0.0297

Mercury -67299-10-05 17:01 J -22859258.93 -22859258.79 -22859258.65 0.1566 0.0891

Mercury -67294-06-17 05:59 J -22857543.35 -22857543.25 -22857543.14 0.1980 0.0816

Moon -67292-06-19 12:57 J -22856810.08 -22856809.96 -22856809.84 0.1968 0.1634

Earth -67292-06-19 14:52 J -22856809.91 -22856809.88 -22856809.85 0.1968 0.1930 *

Mercury -67289-02-25 19:25 J -22855828.86 -22855828.69 -22855828.52 0.1567 0.0018

Mercury -67285-11-06 13:40 J -22854112.96 -22854112.93 -22854112.90 0.1978 0.1894

Mercury -67280-07-17 21:49 J -22852398.73 -22852398.59 -22852398.45 0.1568 0.0864

Mercury -67273-03-04 15:21 J -22849976.94 -22849976.86 -22849976.79 0.1982 0.1502

Mercury -67264-07-25 22:33 J -22846546.67 -22846546.56 -22846546.45 0.1981 0.0403

Mercury -67259-04-05 17:45 J -22844831.88 -22844831.76 -22844831.63 0.1566 0.1029

Mercury -67255-12-16 06:13 J -22843116.35 -22843116.24 -22843116.14 0.1980 0.0697

Moon -67252-12-19 17:16 J -22842016.98 -22842016.78 -22842016.57 0.1582 0.0180

Earth -67252-12-19 21:21 J -22842016.80 -22842016.61 -22842016.42 0.1583 0.0296 *

Venus -67250-05-16 17:45 J -22841503.93 -22841503.76 -22841503.58 0.1643 0.0033

Mercury -67250-08-26 20:09 J -22841401.83 -22841401.66 -22841401.49 0.1567 0.0149

Mercury -67245-05-07 13:25 J -22839685.98 -22839685.94 -22839685.89 0.1977 0.1794

Mercury -67240-01-15 22:33 J -22837971.71 -22837971.56 -22837971.41 0.1568 0.0731

Mercury -67234-09-03 15:06 J -22835549.94 -22835549.87 -22835549.80 0.1982 0.1599

Mercury -67224-01-23 22:33 J -22832119.67 -22832119.56 -22832119.45 0.1982 0.0519

Venus -67223-10-07 02:37 J -22831498.39 -22831498.39 -22831498.39 0.1911 0.1911

Mercury -67220-10-04 18:28 J -22830404.84 -22830404.73 -22830404.61 0.1566 0.1167

Mercury -67215-06-16 06:13 J -22828689.35 -22828689.24 -22828689.13 0.1980 0.0578

Earth -67213-06-23 09:06 J -22827951.29 -22827951.12 -22827950.95 0.1963 0.0925

Moon -67213-06-23 18:57 J -22827950.89 -22827950.71 -22827950.53 0.1963 0.0763

Mercury -67210-02-24 20:52 J -22826974.79 -22826974.63 -22826974.46 0.1567 0.0291

Mercury -67206-11-06 13:25 J -22825258.99 -22825258.94 -22825258.88 0.1978 0.1678

Mercury -67201-07-16 23:01 J -22823544.69 -22823544.54 -22823544.38 0.1568 0.0596

Mercury -67194-03-04 15:06 J -22821122.92 -22821122.87 -22821122.81 0.1982 0.1716

Mercury -67192-12-07 01:25 J -22820114.50 -22820114.44 -22820114.39 0.1569 0.1475

Mercury -67185-07-24 22:33 J -22817692.66 -22817692.56 -22817692.45 0.1981 0.0630

Venus -67184-03-13 05:16 J -22817461.45 -22817461.28 -22817461.11 0.1646 0.0298

Mercury -67180-04-04 19:11 J -22815977.79 -22815977.70 -22815977.61 0.1566 0.1301

Mercury -67176-12-15 05:59 J -22814262.36 -22814262.25 -22814262.14 0.1980 0.0477

Earth -67173-12-21 23:30 J -22813159.70 -22813159.52 -22813159.34 0.1584 0.0614

Moon -67173-12-22 04:18 J -22813159.51 -22813159.32 -22813159.12 0.1585 0.0504 *

Mercury -67171-08-25 21:35 J -22812547.77 -22812547.60 -22812547.44 0.1567 0.0423

Mercury -67166-05-07 13:40 J -22810832.00 -22810831.93 -22810831.87 0.1978 0.1558

Mercury -67161-01-15 23:45 J -22809117.67 -22809117.51 -22809117.34 0.1568 0.0457

Venus -67157-08-03 06:42 J -22807456.36 -22807456.22 -22807456.08 0.1907 0.1128

Mercury -67155-09-02 15:06 J -22806695.90 -22806695.87 -22806695.83 0.1982 0.1843

Mercury -67152-06-07 02:09 J -22805687.49 -22805687.41 -22805687.32 0.1569 0.1335

Mercury -67145-01-23 22:33 J -22803265.66 -22803265.56 -22803265.45 0.1981 0.0735

Mercury -67141-10-03 19:54 J -22801550.73 -22801550.67 -22801550.60 0.1566 0.1441

Mercury -67136-06-15 06:13 J -22799835.36 -22799835.24 -22799835.13 0.1980 0.0360

Mercury -67131-02-23 22:04 J -22798120.73 -22798120.58 -22798120.42 0.1567 0.0558

Mercury -67127-11-05 13:25 J -22796405.01 -22796404.94 -22796404.86 0.1978 0.1456

Mercury -67122-07-17 00:28 J -22794690.64 -22794690.48 -22794690.31 0.1568 0.0323

Venus -67118-01-08 16:33 J -22793418.97 -22793418.81 -22793418.65 0.1650 0.0599

Mercury -67115-03-03 15:06 J -22792268.89 -22792268.87 -22792268.85 0.1982 0.1933

Mercury -67113-12-06 02:52 J -22791260.49 -22791260.38 -22791260.27 0.1569 0.1200

Mercury -67106-07-24 22:33 J -22788838.66 -22788838.56 -22788838.45 0.1982 0.0862

Mercury -67097-12-14 05:59 J -22785408.36 -22785408.25 -22785408.13 0.1980 0.0253

Earth -67094-12-25 01:40 J -22784302.48 -22784302.43 -22784302.37 0.1587 0.1516

Mercury -67092-08-24 23:01 J -22783693.69 -22783693.54 -22783693.39 0.1567 0.0699

Venus -67091-05-31 10:18 J -22783414.24 -22783414.07 -22783413.90 0.1902 0.0327

Mercury -67087-05-06 13:25 J -22781978.02 -22781977.94 -22781977.86 0.1978 0.1343

Mercury -67082-01-15 01:11 J -22780263.62 -22780263.45 -22780263.28 0.1568 0.0186

Mercury -67073-06-06 03:35 J -22776833.48 -22776833.35 -22776833.23 0.1569 0.1067

Mercury -67066-01-22 22:33 J -22774411.66 -22774411.56 -22774411.46 0.1981 0.0961

Mercury -67057-06-14 05:59 J -22770981.36 -22770981.25 -22770981.14 0.1980 0.0138

Venus -67053-11-05 03:35 J -22769376.50 -22769376.35 -22769376.21 0.1653 0.0917

Mercury -67052-02-22 23:45 J -22769266.66 -22769266.51 -22769266.37 0.1567 0.0833

Mercury -67048-11-04 13:40 J -22767551.02 -22767550.93 -22767550.84 0.1978 0.1217

Earth -67047-12-19 02:09 J -22767141.57 -22767141.41 -22767141.25 0.1578 0.0825

Moon -67047-12-19 04:04 J -22767141.48 -22767141.33 -22767141.18 0.1578 0.0890 *

Mercury -67043-07-16 01:54 J -22765836.59 -22765836.42 -22765836.25 0.1568 0.0060

Mercury -67034-12-06 04:18 J -22762406.46 -22762406.32 -22762406.18 0.1569 0.0926

Mercury -67027-07-23 22:33 J -22759984.65 -22759984.56 -22759984.46 0.1981 0.1073

Venus -67025-03-27 14:23 J -22759372.06 -22759371.90 -22759371.73 0.1897 0.0441

Venus -67021-11-04 00:13 J -22757689.59 -22757689.49 -22757689.40 0.1642 0.1368

Mercury -67018-12-14 05:59 J -22756554.36 -22756554.25 -22756554.13 0.1980 0.0057

Mercury -67013-08-24 00:13 J -22754839.62 -22754839.49 -22754839.35 0.1567 0.0968

Mercury -67008-05-05 13:25 J -22753124.03 -22753123.94 -22753123.85 0.1978 0.1121

Mercury -67003-01-14 02:37 J -22751409.56 -22751409.39 -22751409.22 0.1568 0.0089

67TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 67th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -66994-06-06 05:01 J | -22747979.44 | -22747979.29 | -22747979.15 | 0.1569 | 0.0795 | | |
| Mercury | -66987-01-21 22:33 J | -22745557.65 | -22745557.56 | -22745557.47 | 0.1982 | 0.1192 | | |
| Venus | -66987-09-02 14:52 J | -22745333.99 | -22745333.88 | -22745333.76 | 0.1656 | 0.1216 | | |
| Mercury | -66978-06-14 05:59 J | -22742127.36 | -22742127.25 | -22742127.13 | 0.1980 | 0.0124 | | |
| Mercury | -66973-02-23 01:11 J | -22740412.57 | -22740412.45 | -22740412.33 | 0.1567 | 0.1109 | | |
| Mercury | -66969-11-03 13:25 J | -22738697.04 | -22738696.94 | -22738696.84 | 0.1978 | 0.1003 | | |
| Moon | -66968-12-20 23:30 J | -22738284.71 | -22738284.52 | -22738284.34 | 0.1580 | 0.0179 | | |
| Earth | -66968-12-21 04:18 J | -22738284.51 | -22738284.32 | -22738284.13 | 0.1580 | 0.0063 | * | |
| Mercury | -66964-07-15 03:21 J | -22736982.53 | -22736982.36 | -22736982.19 | 0.1568 | 0.0223 | | |
| Venus | -66959-01-22 18:13 J | -22735329.87 | -22735329.74 | -22735329.61 | 0.1892 | 0.1225 | | |
| Venus | -66955-09-01 11:16 J | -22733647.16 | -22733647.03 | -22733646.89 | 0.1646 | 0.1069 | | |
| Mercury | -66955-12-05 05:45 J | -22733552.42 | -22733552.26 | -22733552.11 | 0.1569 | 0.0659 | | |
| Mercury | -66948-07-22 22:33 J | -22731130.64 | -22731130.56 | -22731130.48 | 0.1981 | 0.1302 | | |
| Mercury | -66945-04-26 07:54 J | -22730122.20 | -22730122.17 | -22730122.13 | 0.1571 | 0.1536 | | |
| Mercury | -66939-12-13 05:59 J | -22727700.37 | -22727700.25 | -22727700.14 | 0.1980 | 0.0202 | | |
| Mercury | -66934-08-24 01:40 J | -22725985.53 | -22725985.43 | -22725985.32 | 0.1567 | 0.1242 | | |
| Mercury | -66929-05-04 13:25 J | -22724270.04 | -22724269.94 | -22724269.83 | 0.1978 | 0.0884 | | |
| Moon | -66929-06-21 22:18 J | -22724221.76 | -22724221.57 | -22724221.37 | 0.1969 | 0.0715 | | |
| Earth | -66929-06-22 06:42 J | -22724221.41 | -22724221.22 | -22724221.02 | 0.1969 | 0.0295 | * | |
| Mercury | -66924-01-13 04:04 J | -22722555.49 | -22722555.33 | -22722555.16 | 0.1568 | 0.0365 | | |

Venus -66921-06-30 01:54 J -22721291.49 -22721291.42 -22721291.36 0.1660 0.1540

Mercury -66915-06-05 06:28 J -22719125.39 -22719125.23 -22719125.07 0.1569 0.0519

Mercury -66908-01-20 22:33 J -22716703.64 -22716703.56 -22716703.48 0.1981 0.1409

Mercury -66906-10-26 08:37 J -22715695.21 -22715695.14 -22715695.07 0.1571 0.1402

Mercury -66899-06-13 05:59 J -22713273.36 -22713273.25 -22713273.14 0.1980 0.0325

Mercury -66894-02-22 02:23 J -22711558.48 -22711558.40 -22711558.32 0.1567 0.1375

Mercury -66890-11-03 13:25 J -22709843.05 -22709842.94 -22709842.84 0.1978 0.0784

Venus -66889-06-28 22:33 J -22709604.71 -22709604.56 -22709604.40 0.1649 0.0771

Moon -66889-12-23 00:13 J -22709427.67 -22709427.49 -22709427.32 0.1582 0.0717

Earth -66889-12-23 06:28 J -22709427.38 -22709427.23 -22709427.08 0.1582 0.0966 *

Mercury -66885-07-14 04:47 J -22708128.46 -22708128.30 -22708128.14 0.1568 0.0497

Mercury -66880-03-25 20:52 J -22706412.66 -22706412.63 -22706412.60 0.1976 0.1869

Mercury -66876-12-04 06:57 J -22704698.37 -22704698.21 -22704698.04 0.1569 0.0386

Mercury -66869-07-21 22:33 J -22702276.63 -22702276.56 -22702276.49 0.1982 0.1533

Mercury -66866-04-26 09:35 J -22701268.20 -22701268.10 -22701268.01 0.1571 0.1261

Mercury -66860-12-12 05:59 J -22698846.36 -22698846.25 -22698846.14 0.1980 0.0433

Mercury -66855-08-23 03:21 J -22697131.40 -22697131.36 -22697131.32 0.1567 0.1518

Mercury -66850-05-04 13:25 J -22695416.05 -22695415.94 -22695415.83 0.1978 0.0668

Mercury -66845-01-13 05:30 J -22693701.43 -22693701.27 -22693701.12 0.1568 0.0634

Moon -66842-12-18 05:59 J -22692266.36 -22692266.25 -22692266.13 0.1575 0.1291

Earth -66842-12-18 08:09 J -22692266.26 -22692266.16 -22692266.06 0.1575 0.1343 *

Mercury -66841-09-23 20:52 J -22691985.68 -22691985.63 -22691985.58 0.1975 0.1750

Mercury -66836-06-04 07:40 J -22690271.35 -22690271.18 -22690271.01 0.1569 0.0251

Mercury -66829-01-20 22:33 J -22687849.63 -22687849.56 -22687849.50 0.1981 0.1634

Mercury -66827-10-25 10:04 J -22686841.20 -22686841.08 -22686840.96 0.1571 0.1130

Venus -66823-04-26 09:35 J -22685562.27 -22685562.10 -22685561.93 0.1652 0.0458

Mercury -66820-06-12 05:59 J -22684419.36 -22684419.25 -22684419.14 0.1980 0.0540

Mercury -66811-11-02 13:25 J -22680989.05 -22680988.94 -22680988.83 0.1978 0.0544

Mercury -66806-07-14 06:13 J -22679274.39 -22679274.24 -22679274.09 0.1568 0.0774

Mercury -66801-03-24 20:52 J -22677558.69 -22677558.63 -22677558.57 0.1975 0.1648

Mercury -66797-12-03 08:23 J -22675844.31 -22675844.15 -22675843.98 0.1569 0.0117
 Venus -66796-09-15 21:35 J -22675557.72 -22675557.60 -22675557.48 0.1898 0.1345
 Mercury -66790-07-21 22:33 J -22673422.61 -22673422.56 -22673422.51 0.1981 0.1747
 Mercury -66787-04-25 10:47 J -22672414.18 -22672414.05 -22672413.92 0.1571 0.0994
 Mercury -66781-12-11 05:59 J -22669992.36 -22669992.25 -22669992.14 0.1980 0.0660
 Mercury -66771-05-03 13:11 J -22666562.06 -22666561.95 -22666561.84 0.1978 0.0454
 Mercury -66766-01-12 06:57 J -22664847.35 -22664847.21 -22664847.08 0.1568 0.0907
 Earth -66763-12-20 09:06 J -22663409.30 -22663409.12 -22663408.94 0.1576 0.0473
 Moon -66763-12-20 14:09 J -22663409.09 -22663408.91 -22663408.72 0.1576 0.0544 *
 Mercury -66762-09-23 20:52 J -22663131.70 -22663131.63 -22663131.56 0.1976 0.1528
 Venus -66757-02-21 20:37 J -22661519.81 -22661519.64 -22661519.46 0.1655 0.0148
 Mercury -66757-06-03 09:06 J -22661417.29 -22661417.12 -22661416.95 0.1569 0.0030
 Mercury -66750-01-19 22:33 J -22658995.60 -22658995.56 -22658995.53 0.1982 0.1867
 Mercury -66748-10-24 11:30 J -22657987.16 -22657987.02 -22657986.88 0.1571 0.0852
 Mercury -66741-06-11 05:59 J -22655565.36 -22655565.25 -22655565.15 0.1980 0.0770
 Mercury -66732-11-01 13:25 J -22652135.05 -22652134.94 -22652134.83 0.1978 0.0331
 Venus -66730-07-14 01:54 J -22651515.59 -22651515.42 -22651515.26 0.1893 0.0593
 Mercury -66727-07-13 07:25 J -22650420.31 -22650420.19 -22650420.06 0.1568 0.1042
 Mercury -66722-03-24 20:52 J -22648704.71 -22648704.63 -22648704.55 0.1975 0.1418
 Mercury -66718-12-03 09:49 J -22646990.26 -22646990.09 -22646989.92 0.1569 0.0162
 Mercury -66711-07-20 22:33 J -22644568.57 -22644568.56 -22644568.56 0.1981 0.1972
 Mercury -66708-04-24 12:13 J -22643560.14 -22643559.99 -22643559.84 0.1571 0.0721
 Mercury -66702-12-11 05:45 J -22641138.36 -22641138.26 -22641138.15 0.1980 0.0878
 Mercury -66692-05-02 13:25 J -22637708.05 -22637707.94 -22637707.83 0.1978 0.0208
 Venus -66692-12-19 07:40 J -22637477.36 -22637477.18 -22637477.01 0.1659 0.0173
 Mercury -66687-01-11 08:23 J -22635993.26 -22635993.15 -22635993.04 0.1568 0.1185
 Earth -66684-12-22 11:30 J -22634552.21 -22634552.02 -22634551.83 0.1578 0.0417
 Moon -66684-12-22 16:33 J -22634551.99 -22634551.81 -22634551.64 0.1578 0.0600 *
 Mercury -66683-09-22 20:52 J -22634277.72 -22634277.63 -22634277.55 0.1975 0.1306
 Mercury -66678-06-03 10:33 J -22632563.23 -22632563.06 -22632562.89 0.1569 0.0299

Mercury -66669-10-23 12:42 J -22629133.12 -22629132.97 -22629132.81 0.1571 0.0589

Venus -66664-05-10 05:59 J -22627473.42 -22627473.25 -22627473.08 0.1888 0.0171

Mercury -66662-06-11 05:59 J -22626711.35 -22626711.25 -22626711.15 0.1980 0.0997

Mercury -66659-03-15 15:06 J -22625702.93 -22625702.87 -22625702.81 0.1572 0.1469

Mercury -66653-10-31 13:11 J -22623281.06 -22623280.95 -22623280.83 0.1978 0.0127

Mercury -66648-07-12 08:52 J -22621566.21 -22621566.13 -22621566.03 0.1568 0.1317

Earth -66645-06-21 01:54 J -22620491.53 -22620491.42 -22620491.31 0.1974 0.1633

Moon -66645-06-21 02:09 J -22620491.48 -22620491.41 -22620491.34 0.1974 0.1804 *

Mercury -66643-03-23 20:52 J -22619850.72 -22619850.63 -22619850.54 0.1976 0.1195

Mercury -66639-12-02 11:16 J -22618136.19 -22618136.03 -22618135.87 0.1569 0.0435

Mercury -66629-04-23 13:40 J -22614706.09 -22614705.93 -22614705.77 0.1570 0.0444

Venus -66626-10-16 18:28 J -22613434.90 -22613434.73 -22613434.56 0.1662 0.0492

Mercury -66623-12-10 05:59 J -22612284.35 -22612284.25 -22612284.16 0.1980 0.1106

Mercury -66620-09-13 15:49 J -22611275.93 -22611275.84 -22611275.75 0.1572 0.1332

Mercury -66613-05-01 13:25 J -22608854.06 -22608853.94 -22608853.83 0.1978 0.0082

Mercury -66608-01-10 09:35 J -22607139.16 -22607139.10 -22607139.04 0.1568 0.1451

Moon -66605-12-24 11:16 J -22605695.16 -22605695.03 -22605694.91 0.1580 0.1127

Earth -66605-12-24 13:11 J -22605695.05 -22605694.95 -22605694.84 0.1580 0.1317 *

Mercury -66604-09-21 20:52 J -22605423.73 -22605423.63 -22605423.54 0.1975 0.1079

Mercury -66599-06-02 11:59 J -22603709.16 -22603709.00 -22603708.84 0.1569 0.0569

Venus -66598-03-07 10:18 J -22603431.22 -22603431.07 -22603430.92 0.1884 0.0909

Mercury -66590-10-23 14:23 J -22600279.07 -22600278.90 -22600278.74 0.1571 0.0315

Mercury -66583-06-10 05:45 J -22597857.34 -22597857.26 -22597857.17 0.1980 0.1216

Mercury -66580-03-14 16:33 J -22596848.92 -22596848.81 -22596848.70 0.1572 0.1193

Mercury -66574-10-31 13:25 J -22594427.05 -22594426.94 -22594426.83 0.1978 0.0133

Moon -66566-06-25 09:35 J -22591633.26 -22591633.10 -22591632.94 0.1971 0.1152

Earth -66566-06-25 19:11 J -22591632.85 -22591632.70 -22591632.54 0.1971 0.1250

Mercury -66564-03-22 20:37 J -22590996.73 -22590996.64 -22590996.54 0.1975 0.0978

Venus -66560-08-13 05:30 J -22589392.42 -22589392.27 -22589392.11 0.1666 0.0808

Mercury -66560-12-01 12:42 J -22589282.12 -22589281.97 -22589281.82 0.1569 0.0709

Moon -66558-12-19 10:18 J -22588534.21 -22588534.07 -22588533.92 0.1573 0.0986
 Earth -66558-12-19 16:18 J -22588533.97 -22588533.82 -22588533.67 0.1573 0.0987 *
 Mercury -66550-04-23 14:52 J -22585852.05 -22585851.88 -22585851.71 0.1570 0.0179
 Mercury -66544-12-09 05:59 J -22583430.34 -22583430.25 -22583430.17 0.1980 0.1334
 Mercury -66541-09-12 17:16 J -22582421.90 -22582421.78 -22582421.66 0.1572 0.1061
 Mercury -66534-05-01 13:11 J -22580000.06 -22579999.95 -22579999.84 0.1978 0.0223
 Venus -66532-01-01 14:37 J -22579388.97 -22579388.89 -22579388.81 0.1878 0.1648
 Venus -66528-08-12 02:37 J -22577705.45 -22577705.39 -22577705.32 0.1654 0.1522
 Mercury -66525-09-20 20:52 J -22576569.73 -22576569.63 -22576569.53 0.1976 0.0852
 Mercury -66520-06-01 13:25 J -22574855.08 -22574854.94 -22574854.80 0.1569 0.0845
 Mercury -66515-02-11 04:18 J -22573139.34 -22573139.32 -22573139.30 0.1972 0.1936
 Mercury -66511-10-22 15:49 J -22571425.01 -22571424.84 -22571424.67 0.1570 0.0045
 Mercury -66504-06-09 05:45 J -22569003.33 -22569003.26 -22569003.18 0.1980 0.1442
 Mercury -66501-03-13 17:59 J -22567994.89 -22567994.75 -22567994.62 0.1572 0.0926
 Mercury -66495-10-30 13:11 J -22565573.06 -22565572.95 -22565572.83 0.1978 0.0356
 Venus -66494-06-10 16:04 J -22565349.95 -22565349.83 -22565349.70 0.1669 0.1143
 Mercury -66485-03-21 20:52 J -22562142.74 -22562142.63 -22562142.53 0.1975 0.0748
 Mercury -66481-11-30 14:09 J -22560428.04 -22560427.91 -22560427.78 0.1569 0.0981
 Moon -66479-12-21 11:59 J -22559677.20 -22559677.00 -22559676.80 0.1574 0.0277
 Earth -66479-12-21 17:01 J -22559676.98 -22559676.79 -22559676.60 0.1574 0.0112 *
 Mercury -66476-08-12 04:04 J -22558712.36 -22558712.33 -22558712.29 0.1973 0.1837
 Mercury -66471-04-22 16:18 J -22556997.99 -22556997.82 -22556997.65 0.1570 0.0098
 Mercury -66465-12-08 05:45 J -22554576.33 -22554576.26 -22554576.19 0.1980 0.1549
 Venus -66462-06-09 13:40 J -22553663.05 -22553662.93 -22553662.81 0.1658 0.1214
 Mercury -66462-09-12 18:42 J -22553567.87 -22553567.72 -22553567.57 0.1572 0.0784
 Mercury -66455-04-30 13:25 J -22551146.05 -22551145.94 -22551145.83 0.1978 0.0469
 Mercury -66446-09-20 20:52 J -22547715.74 -22547715.63 -22547715.53 0.1976 0.0638
 Mercury -66441-05-31 14:52 J -22546001.00 -22546000.88 -22546000.77 0.1569 0.1117
 Mercury -66436-02-10 04:18 J -22544285.38 -22544285.32 -22544285.27 0.1973 0.1716
 Venus -66435-10-29 13:11 J -22543659.03 -22543658.95 -22543658.86 0.1890 0.1627

Mercury -66432-10-21 17:01 J -22542570.96 -22542570.79 -22542570.62 0.1570 0.0231
 Venus -66428-04-07 03:06 J -22541307.45 -22541307.37 -22541307.29 0.1673 0.1469
 Mercury -66425-06-08 05:45 J -22540149.31 -22540149.26 -22540149.20 0.1980 0.1671
 Mercury -66422-03-13 19:25 J -22539140.85 -22539140.69 -22539140.54 0.1572 0.0652
 Mercury -66416-10-29 13:11 J -22536719.06 -22536718.95 -22536718.84 0.1978 0.0565
 Mercury -66413-08-02 21:35 J -22535710.63 -22535710.60 -22535710.57 0.1574 0.1538
 Mercury -66406-03-21 20:52 J -22533288.74 -22533288.63 -22533288.52 0.1976 0.0521
 Mercury -66402-11-30 15:35 J -22531573.95 -22531573.85 -22531573.75 0.1569 0.1255
 Earth -66400-12-23 18:42 J -22530819.88 -22530819.72 -22530819.55 0.1576 0.0773
 Moon -66400-12-23 20:52 J -22530819.79 -22530819.63 -22530819.47 0.1576 0.0954 *
 Mercury -66397-08-11 04:18 J -22529858.39 -22529858.32 -22529858.26 0.1972 0.1598
 Venus -66396-04-06 00:28 J -22529620.62 -22529620.48 -22529620.33 0.1661 0.0894
 Mercury -66392-04-21 17:59 J -22528143.92 -22528143.75 -22528143.59 0.1570 0.0377
 Mercury -66386-12-08 05:45 J -22525722.30 -22525722.26 -22525722.21 0.1980 0.1778
 Mercury -66383-09-11 19:54 J -22524713.82 -22524713.67 -22524713.50 0.1572 0.0518
 Mercury -66376-04-29 13:11 J -22522292.05 -22522291.95 -22522291.84 0.1978 0.0683
 Mercury -66373-02-01 22:18 J -22521283.64 -22521283.57 -22521283.50 0.1574 0.1403
 Venus -66369-08-25 17:30 J -22519616.92 -22519616.77 -22519616.62 0.1885 0.0862
 Mercury -66367-09-19 20:52 J -22518861.75 -22518861.63 -22518861.52 0.1975 0.0413
 Mercury -66362-05-31 16:04 J -22517146.90 -22517146.83 -22517146.75 0.1569 0.1390
 Mercury -66357-02-10 04:04 J -22515431.40 -22515431.33 -22515431.25 0.1973 0.1501
 Mercury -66353-10-20 18:28 J -22513716.89 -22513716.73 -22513716.57 0.1570 0.0507
 Earth -66353-12-17 22:33 J -22513658.61 -22513658.56 -22513658.50 0.1570 0.1500
 Moon -66353-12-18 05:16 J -22513658.35 -22513658.28 -22513658.20 0.1571 0.1447
 Mercury -66346-06-08 05:45 J -22511295.29 -22511295.26 -22511295.23 0.1980 0.1887
 Mercury -66343-03-12 20:52 J -22510286.80 -22510286.63 -22510286.47 0.1572 0.0375
 Mercury -66337-10-28 13:25 J -22507865.05 -22507864.94 -22507864.84 0.1978 0.0808
 Mercury -66334-08-02 23:01 J -22506856.64 -22506856.54 -22506856.44 0.1574 0.1264
 Venus -66330-02-01 11:30 J -22505578.19 -22505578.02 -22505577.86 0.1665 0.0577
 Mercury -66327-03-20 20:37 J -22504434.75 -22504434.64 -22504434.52 0.1976 0.0302

Mercury -66323-11-29 17:01 J -22502719.83 -22502719.79 -22502719.76 0.1569 0.1529

Moon -66321-12-26 03:06 J -22501962.41 -22501962.37 -22501962.33 0.1578 0.1538

Mercury -66318-08-11 04:18 J -22501004.40 -22501004.32 -22501004.24 0.1973 0.1373

Mercury -66313-04-20 19:11 J -22499289.86 -22499289.70 -22499289.55 0.1570 0.0642

Mercury -66304-09-10 21:21 J -22495859.77 -22495859.61 -22495859.44 0.1572 0.0246

Venus -66303-06-22 22:18 J -22495574.74 -22495574.57 -22495574.40 0.1880 0.0149

Mercury -66297-04-28 13:11 J -22493438.05 -22493437.95 -22493437.85 0.1978 0.0899

Mercury -66294-01-31 23:45 J -22492429.63 -22492429.51 -22492429.39 0.1574 0.1128

Mercury -66288-09-18 20:52 J -22490007.75 -22490007.63 -22490007.52 0.1976 0.0175

Earth -66282-06-24 15:06 J -22487903.07 -22487902.87 -22487902.67 0.1975 0.0061

Moon -66282-06-24 21:06 J -22487902.80 -22487902.62 -22487902.43 0.1975 0.0034 *

Mercury -66278-02-09 04:18 J -22486577.41 -22486577.32 -22486577.24 0.1973 0.1265

Mercury -66274-10-20 19:54 J -22484862.81 -22484862.67 -22484862.52 0.1570 0.0785

Earth -66274-12-20 23:59 J -22484801.67 -22484801.50 -22484801.32 0.1571 0.0630

Moon -66274-12-21 04:33 J -22484801.48 -22484801.31 -22484801.14 0.1571 0.0505 *

Venus -66265-11-28 22:04 J -22481535.75 -22481535.58 -22481535.41 0.1668 0.0248

Mercury -66264-03-11 22:04 J -22481432.75 -22481432.58 -22481432.41 0.1572 0.0110

Mercury -66258-10-28 13:11 J -22479011.04 -22479010.95 -22479010.85 0.1978 0.1027

Mercury -66255-08-02 00:28 J -22478002.61 -22478002.48 -22478002.35 0.1574 0.0993

Mercury -66248-03-19 20:37 J -22475580.75 -22475580.64 -22475580.52 0.1976 0.0080

Mercury -66239-08-10 04:04 J -22472150.42 -22472150.33 -22472150.23 0.1973 0.1161

Venus -66237-04-19 02:52 J -22471532.55 -22471532.38 -22471532.22 0.1875 0.0581

Mercury -66234-04-20 20:37 J -22470435.78 -22470435.64 -22470435.50 0.1570 0.0918

Mercury -66225-09-09 23:01 J -22467005.71 -22467005.54 -22467005.37 0.1572 0.0043

Mercury -66218-04-28 13:11 J -22464584.04 -22464583.95 -22464583.85 0.1978 0.1143

Mercury -66215-01-31 01:11 J -22463575.59 -22463575.45 -22463575.31 0.1574 0.0854

Mercury -66209-09-17 20:37 J -22461153.75 -22461153.64 -22461153.52 0.1976 0.0075

Mercury -66199-02-08 04:18 J -22457723.42 -22457723.32 -22457723.23 0.1973 0.1040

Venus -66199-09-26 08:52 J -22457493.30 -22457493.13 -22457492.96 0.1672 0.0084

Mercury -66195-10-19 21:21 J -22456008.74 -22456008.61 -22456008.49 0.1570 0.1054

Moon -66195-12-22 22:04 J -22455944.76 -22455944.58 -22455944.39 0.1573 0.0120
 Earth -66195-12-23 01:25 J -22455944.63 -22455944.44 -22455944.25 0.1573 0.0256 *
 Mercury -66185-03-10 23:30 J -22452578.69 -22452578.52 -22452578.35 0.1572 0.0172
 Mercury -66179-10-27 13:11 J -22450157.04 -22450156.95 -22450156.86 0.1978 0.1239
 Mercury -66176-08-01 01:54 J -22449148.57 -22449148.42 -22449148.27 0.1574 0.0719
 Venus -66171-02-14 07:40 J -22447490.30 -22447490.18 -22447490.05 0.1870 0.1282
 Mercury -66169-03-18 20:52 J -22446726.75 -22446726.63 -22446726.52 0.1976 0.0180
 Mercury -66160-08-09 04:18 J -22443296.42 -22443296.32 -22443296.22 0.1973 0.0923
 Mercury -66155-04-19 22:04 J -22441581.69 -22441581.58 -22441581.47 0.1570 0.1196
 Mercury -66146-09-10 00:13 J -22438151.65 -22438151.49 -22438151.32 0.1572 0.0304
 Mercury -66139-04-27 13:11 J -22435730.03 -22435729.95 -22435729.87 0.1978 0.1358
 Mercury -66136-01-30 02:37 J -22434721.55 -22434721.39 -22434721.24 0.1574 0.0585
 Venus -66133-07-23 19:54 J -22433450.84 -22433450.67 -22433450.50 0.1675 0.0409
 Mercury -66130-09-17 20:37 J -22432299.75 -22432299.64 -22432299.52 0.1976 0.0276
 Mercury -66127-06-22 04:47 J -22431291.36 -22431291.30 -22431291.24 0.1576 0.1471
 Mercury -66120-02-07 04:04 J -22428869.43 -22428869.33 -22428869.22 0.1973 0.0823
 Mercury -66116-10-18 22:47 J -22427154.64 -22427154.55 -22427154.46 0.1570 0.1329
 Moon -66116-12-24 20:23 J -22427087.76 -22427087.65 -22427087.54 0.1574 0.1266
 Earth -66116-12-25 02:52 J -22427087.51 -22427087.38 -22427087.25 0.1574 0.1142
 Mercury -66111-06-30 11:45 J -22425439.04 -22425439.01 -22425438.98 0.1969 0.1886
 Mercury -66106-03-11 00:57 J -22423724.62 -22423724.46 -22423724.29 0.1572 0.0449
 Mercury -66100-10-26 13:11 J -22421303.02 -22421302.95 -22421302.87 0.1978 0.1482
 Mercury -66097-07-31 03:21 J -22420294.52 -22420294.36 -22420294.20 0.1574 0.0444
 Mercury -66090-03-18 20:37 J -22417872.75 -22417872.64 -22417872.53 0.1976 0.0381
 Mercury -66088-12-21 05:30 J -22416864.36 -22416864.27 -22416864.18 0.1576 0.1336
 Mercury -66081-08-08 04:18 J -22414442.43 -22414442.32 -22414442.22 0.1973 0.0698
 Mercury -66076-04-18 23:30 J -22412727.58 -22412727.52 -22412727.47 0.1570 0.1464
 Mercury -66072-12-29 11:30 J -22411012.06 -22411012.02 -22411011.97 0.1969 0.1793
 Moon -66069-12-19 04:04 J -22409926.46 -22409926.33 -22409926.19 0.1569 0.1183
 Earth -66069-12-19 07:25 J -22409926.32 -22409926.19 -22409926.06 0.1569 0.1134 *

Venus -66067-05-21 05:59 J -22409408.40 -22409408.25 -22409408.09 0.1679 0.0758

Mercury -66067-09-09 01:40 J -22409297.58 -22409297.43 -22409297.27 0.1572 0.0581

Mercury -66060-04-26 13:11 J -22406876.02 -22406875.95 -22406875.89 0.1978 0.1576

Mercury -66057-01-30 04:04 J -22405867.50 -22405867.33 -22405867.17 0.1574 0.0308

Mercury -66051-09-16 20:52 J -22403445.74 -22403445.63 -22403445.52 0.1976 0.0508

Mercury -66048-06-21 06:13 J -22402437.35 -22402437.24 -22402437.13 0.1576 0.1194

Mercury -66041-02-07 04:18 J -22400015.43 -22400015.32 -22400015.22 0.1973 0.0593

Venus -66035-05-20 04:18 J -22397721.34 -22397721.32 -22397721.29 0.1667 0.1650

Mercury -66032-06-29 11:45 J -22396585.07 -22396585.01 -22396584.95 0.1970 0.1669

Mercury -66027-03-10 02:23 J -22394870.55 -22394870.40 -22394870.25 0.1572 0.0717

Mercury -66021-10-25 13:11 J -22392449.00 -22392448.95 -22392448.89 0.1978 0.1702

Mercury -66018-07-31 04:33 J -22391440.47 -22391440.31 -22391440.14 0.1574 0.0177

Mercury -66011-03-17 20:37 J -22389018.75 -22389018.64 -22389018.53 0.1976 0.0603

Mercury -66009-12-20 06:57 J -22388010.33 -22388010.21 -22388010.09 0.1576 0.1062

Venus -66008-10-08 10:33 J -22387718.19 -22387718.06 -22387717.93 0.1876 0.1205

Mercury -66002-08-08 04:04 J -22385588.44 -22385588.33 -22385588.22 0.1973 0.0484

Venus -66001-03-17 16:47 J -22385365.93 -22385365.80 -22385365.66 0.1683 0.1094

66TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 66th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|--------|-------------------------|--------------|--------------|--------------|--------|----------|-------|---|
| Earth | -65998-06-23 09:49 J | -22384173.22 | -22384173.09 | -22384172.95 | 0.1978 | 0.1450 | | |
| Moon | -65998-06-23 09:21 J | -22384173.21 | -22384173.11 | -22384173.01 | 0.1978 | 0.1740 * | | |

Mercury -65993-12-28 11:45 J -22382158.08 -22382158.01 -22382157.94 0.1969 0.1549

Earth -65990-12-22 08:37 J -22381069.33 -22381069.14 -22381068.95 0.1570 0.0261

Moon -65990-12-22 13:25 J -22381069.14 -22381068.94 -22381068.74 0.1570 0.0159 *

Mercury -65988-09-08 03:06 J -22380443.51 -22380443.37 -22380443.22 0.1572 0.0861

Mercury -65981-04-25 13:11 J -22378021.99 -22378021.95 -22378021.91 0.1978 0.1814

Mercury -65978-01-29 05:30 J -22377013.44 -22377013.27 -22377013.10 0.1574 0.0051

Mercury -65972-09-15 20:37 J -22374591.74 -22374591.64 -22374591.53 0.1976 0.0722

Venus -65969-03-16 15:06 J -22373678.97 -22373678.87 -22373678.76 0.1671 0.1320

Mercury -65969-06-20 07:40 J -22373583.32 -22373583.18 -22373583.05 0.1576 0.0926

Mercury -65962-02-06 04:18 J -22371161.44 -22371161.32 -22371161.21 0.1973 0.0364

Mercury -65953-06-28 11:45 J -22367731.09 -22367731.01 -22367730.94 0.1969 0.1453

Mercury -65948-03-09 03:49 J -22366016.47 -22366016.34 -22366016.21 0.1572 0.0992

Venus -65942-08-05 15:06 J -22363676.04 -22363675.87 -22363675.71 0.1871 0.0480

Mercury -65942-10-25 13:11 J -22363594.98 -22363594.95 -22363594.93 0.1979 0.1915

Mercury -65939-07-30 06:13 J -22362586.41 -22362586.24 -22362586.08 0.1574 0.0113

Venus -65935-01-13 03:06 J -22361323.46 -22361323.37 -22361323.29 0.1687 0.1452

Mercury -65932-03-16 20:52 J -22360164.74 -22360164.63 -22360164.53 0.1976 0.0845

Mercury -65930-12-20 08:23 J -22359156.29 -22359156.15 -22359156.00 0.1576 0.0782

Mercury -65923-08-07 04:18 J -22356734.44 -22356734.32 -22356734.21 0.1973 0.0252

Earth -65919-06-27 05:01 J -22355314.41 -22355314.29 -22355314.17 0.1976 0.1563

Mercury -65914-12-28 11:45 J -22353304.09 -22353304.01 -22353303.93 0.1970 0.1333

Earth -65911-12-24 09:35 J -22352212.28 -22352212.10 -22352211.92 0.1571 0.0623

Moon -65911-12-24 16:04 J -22352212.01 -22352211.83 -22352211.65 0.1571 0.0518 *

Mercury -65909-09-07 04:33 J -22351589.43 -22351589.31 -22351589.19 0.1572 0.1127

Venus -65903-01-12 01:40 J -22349636.57 -22349636.43 -22349636.29 0.1675 0.0991

Mercury -65899-01-28 06:42 J -22348159.38 -22348159.22 -22348159.05 0.1574 0.0244

Mercury -65893-09-14 20:37 J -22345737.74 -22345737.64 -22345737.54 0.1976 0.0947

Mercury -65890-06-20 09:06 J -22344729.28 -22344729.12 -22344728.97 0.1576 0.0651

Mercury -65883-02-05 04:04 J -22342307.44 -22342307.33 -22342307.21 0.1973 0.0151

Mercury -65881-11-09 11:16 J -22341299.06 -22341299.03 -22341298.99 0.1578 0.1537

Venus -65876-06-01 20:23 J -22339633.82 -22339633.65 -22339633.48 0.1866 0.0200
 Mercury -65874-06-28 11:45 J -22338877.10 -22338877.01 -22338876.92 0.1970 0.1210
 Mercury -65869-03-08 05:16 J -22337162.37 -22337162.28 -22337162.18 0.1572 0.1272
 Mercury -65860-07-29 07:40 J -22333732.35 -22333732.18 -22333732.02 0.1573 0.0382
 Mercury -65853-03-15 20:37 J -22331310.74 -22331310.64 -22331310.54 0.1976 0.1056
 Mercury -65851-12-19 09:49 J -22330302.25 -22330302.09 -22330301.93 0.1576 0.0516
 Mercury -65844-08-06 04:18 J -22327880.44 -22327880.32 -22327880.21 0.1973 0.0052
 Mercury -65841-05-10 11:59 J -22326872.07 -22326872.00 -22326871.92 0.1578 0.1405
 Venus -65838-11-09 12:13 J -22325594.15 -22325593.99 -22325593.83 0.1678 0.0651
 Mercury -65835-12-27 11:30 J -22324450.11 -22324450.02 -22324449.92 0.1970 0.1117
 Earth -65832-12-26 11:16 J -22323355.07 -22323355.03 -22323354.98 0.1573 0.1516
 Mercury -65830-09-07 05:59 J -22322735.32 -22322735.25 -22322735.17 0.1572 0.1405
 Mercury -65820-01-27 08:09 J -22319305.32 -22319305.16 -22319305.00 0.1574 0.0519
 Mercury -65814-09-14 20:52 J -22316883.72 -22316883.63 -22316883.54 0.1976 0.1184
 Mercury -65811-06-19 10:33 J -22315875.22 -22315875.06 -22315874.90 0.1576 0.0372
 Venus -65810-03-30 01:11 J -22315591.60 -22315591.45 -22315591.30 0.1861 0.0892
 Mercury -65804-02-04 04:04 J -22313453.44 -22313453.33 -22313453.21 0.1973 0.0116
 Mercury -65802-11-09 12:42 J -22312445.07 -22312444.97 -22312444.87 0.1578 0.1267
 Mercury -65795-06-27 11:45 J -22310023.11 -22310023.01 -22310022.91 0.1970 0.0990
 Mercury -65790-03-08 06:42 J -22308308.25 -22308308.22 -22308308.19 0.1572 0.1539
 Moon -65785-12-20 12:13 J -22306194.14 -22306193.99 -22306193.84 0.1568 0.0859
 Earth -65785-12-20 16:33 J -22306193.98 -22306193.81 -22306193.65 0.1568 0.0761 *
 Mercury -65781-07-28 08:52 J -22304878.28 -22304878.13 -22304877.97 0.1574 0.0652
 Mercury -65774-03-15 20:37 J -22302456.73 -22302456.64 -22302456.56 0.1976 0.1279
 Venus -65772-09-05 22:47 J -22301551.72 -22301551.55 -22301551.38 0.1682 0.0313
 Mercury -65772-12-18 11:16 J -22301448.20 -22301448.03 -22301447.87 0.1576 0.0240
 Mercury -65765-08-05 04:18 J -22299026.44 -22299026.32 -22299026.21 0.1974 0.0214
 Mercury -65762-05-10 13:25 J -22298018.05 -22298017.94 -22298017.82 0.1578 0.1126
 Mercury -65756-12-26 11:45 J -22295596.11 -22295596.01 -22295595.91 0.1970 0.0873
 Mercury -65746-05-18 19:11 J -22292165.70 -22292165.70 -22292165.70 0.1966 0.1961

Venus -65744-01-24 06:42 J -22291549.31 -22291549.22 -22291549.13 0.1856 0.1556
 Mercury -65741-01-27 09:35 J -22290451.24 -22290451.10 -22290450.95 0.1573 0.0792
 Mercury -65735-09-13 20:37 J -22288029.72 -22288029.64 -22288029.56 0.1976 0.1399
 Mercury -65732-06-18 11:59 J -22287021.17 -22287021.00 -22287020.84 0.1576 0.0111
 Mercury -65725-02-04 04:18 J -22284599.44 -22284599.32 -22284599.21 0.1973 0.0325
 Mercury -65723-11-08 14:09 J -22283591.04 -22283590.91 -22283590.78 0.1578 0.0994
 Mercury -65716-06-26 11:45 J -22281169.12 -22281169.01 -22281168.91 0.1970 0.0778
 Mercury -65707-11-16 19:11 J -22277738.73 -22277738.70 -22277738.66 0.1966 0.1839
 Venus -65706-07-04 09:21 J -22277509.28 -22277509.11 -22277508.93 0.1686 0.0052
 Moon -65706-12-23 11:45 J -22277337.20 -22277337.01 -22277336.81 0.1569 0.0187
 Earth -65706-12-23 17:45 J -22277336.96 -22277336.76 -22277336.57 0.1569 0.0115 *
 Mercury -65702-07-28 10:18 J -22276024.20 -22276024.07 -22276023.93 0.1574 0.0932
 Mercury -65695-03-14 20:37 J -22273602.71 -22273602.64 -22273602.56 0.1976 0.1521
 Mercury -65693-12-17 12:42 J -22272594.14 -22272593.97 -22272593.80 0.1575 0.0041
 Mercury -65686-08-05 04:18 J -22270172.44 -22270172.32 -22270172.21 0.1973 0.0435
 Mercury -65683-05-09 14:52 J -22269164.02 -22269163.88 -22269163.74 0.1578 0.0858
 Mercury -65677-12-25 11:45 J -22266742.12 -22266742.01 -22266741.90 0.1970 0.0654
 Mercury -65667-05-17 19:11 J -22263311.75 -22263311.70 -22263311.65 0.1966 0.1733
 Mercury -65662-01-26 11:01 J -22261597.16 -22261597.04 -22261596.91 0.1573 0.1065
 Mercury -65656-09-12 20:37 J -22259175.70 -22259175.64 -22259175.58 0.1976 0.1619
 Mercury -65653-06-17 13:11 J -22258167.11 -22258166.95 -22258166.78 0.1576 0.0179
 Venus -65647-11-21 03:35 J -22255819.44 -22255819.35 -22255819.25 0.1868 0.1556
 Mercury -65646-02-03 04:04 J -22255745.43 -22255745.33 -22255745.22 0.1974 0.0544
 Mercury -65644-11-07 15:35 J -22254737.00 -22254736.85 -22254736.70 0.1578 0.0715
 Venus -65640-04-30 19:25 J -22253466.86 -22253466.69 -22253466.52 0.1690 0.0388
 Mercury -65637-06-25 11:45 J -22252315.12 -22252315.01 -22252314.90 0.1970 0.0533
 Moon -65635-06-25 17:30 J -22251584.98 -22251584.77 -22251584.56 0.1979 0.0431
 Earth -65635-06-26 00:57 J -22251584.66 -22251584.46 -22251584.26 0.1979 0.0209 *
 Mercury -65628-11-15 19:11 J -22248884.76 -22248884.70 -22248884.64 0.1966 0.1621
 Earth -65627-12-25 18:42 J -22248479.86 -22248479.72 -22248479.57 0.1570 0.1001

Moon -65627-12-25 20:23 J -22248479.82 -22248479.65 -22248479.48 0.1570 0.0880 *
 Mercury -65623-07-27 11:45 J -22247170.11 -22247170.01 -22247169.90 0.1573 0.1202
 Mercury -65616-03-13 20:37 J -22244748.69 -22244748.64 -22244748.59 0.1976 0.1732
 Mercury -65614-12-17 13:54 J -22243740.08 -22243739.92 -22243739.75 0.1575 0.0311
 Mercury -65607-08-04 04:18 J -22241318.43 -22241318.32 -22241318.22 0.1973 0.0661
 Mercury -65604-05-08 16:18 J -22240309.98 -22240309.82 -22240309.66 0.1578 0.0582
 Mercury -65598-12-25 11:45 J -22237888.13 -22237888.01 -22237887.90 0.1970 0.0444
 Mercury -65595-09-28 18:28 J -22236879.79 -22236879.73 -22236879.67 0.1581 0.1476
 Mercury -65588-05-16 19:11 J -22234457.77 -22234457.70 -22234457.63 0.1966 0.1502
 Mercury -65583-01-25 12:28 J -22232743.06 -22232742.98 -22232742.89 0.1573 0.1342
 Venus -65581-09-17 09:06 J -22231777.27 -22231777.12 -22231776.97 0.1862 0.0873
 Earth -65580-12-20 00:42 J -22231318.58 -22231318.47 -22231318.36 0.1567 0.1266
 Moon -65580-12-20 06:13 J -22231318.36 -22231318.24 -22231318.13 0.1567 0.1260 *
 Mercury -65577-09-11 20:37 J -22230321.67 -22230321.64 -22230321.60 0.1976 0.1860
 Venus -65574-02-26 05:59 J -22229424.40 -22229424.25 -22229424.09 0.1694 0.0735
 Mercury -65574-06-17 14:52 J -22229313.04 -22229312.88 -22229312.72 0.1575 0.0452
 Mercury -65567-02-02 04:04 J -22226891.43 -22226891.33 -22226891.22 0.1973 0.0768
 Mercury -65565-11-06 17:01 J -22225882.96 -22225882.79 -22225882.63 0.1578 0.0446
 Mercury -65558-06-25 11:45 J -22223461.12 -22223461.01 -22223460.90 0.1970 0.0313
 Mercury -65555-03-29 19:11 J -22222452.79 -22222452.70 -22222452.61 0.1580 0.1340
 Mercury -65549-11-14 19:11 J -22220030.78 -22220030.70 -22220030.62 0.1966 0.1396
 Mercury -65544-07-26 13:11 J -22218316.00 -22218315.95 -22218315.89 0.1573 0.1476
 Mercury -65537-03-12 20:37 J -22215894.66 -22215894.64 -22215894.63 0.1976 0.1952
 Mercury -65535-12-16 15:21 J -22214886.01 -22214885.86 -22214885.70 0.1575 0.0588
 Mercury -65528-08-03 04:18 J -22212464.43 -22212464.32 -22212464.22 0.1974 0.0884
 Mercury -65525-05-07 17:45 J -22211455.93 -22211455.76 -22211455.59 0.1578 0.0303
 Mercury -65519-12-24 11:45 J -22209034.12 -22209034.01 -22209033.90 0.1970 0.0198
 Mercury -65516-09-27 19:54 J -22208025.78 -22208025.67 -22208025.56 0.1580 0.1203
 Venus -65515-07-15 13:54 J -22207735.10 -22207734.92 -22207734.75 0.1857 0.0182
 Mercury -65509-05-15 19:11 J -22205603.79 -22205603.70 -22205603.62 0.1966 0.1285

Venus -65509-12-23 15:49 J -22205381.97 -22205381.84 -22205381.71 0.1698 0.1113
 Earth -65501-12-22 01:40 J -22202461.62 -22202461.43 -22202461.24 0.1568 0.0388
 Moon -65501-12-22 06:28 J -22202461.41 -22202461.23 -22202461.05 0.1568 0.0384 *
 Mercury -65495-06-16 16:04 J -22200458.98 -22200458.83 -22200458.68 0.1575 0.0721
 Mercury -65488-02-01 04:04 J -22198037.42 -22198037.33 -22198037.23 0.1973 0.0994
 Mercury -65486-11-06 18:28 J -22197028.90 -22197028.73 -22197028.57 0.1578 0.0177
 Mercury -65479-06-24 11:30 J -22194607.13 -22194607.02 -22194606.90 0.1970 0.0124
 Venus -65477-12-22 15:21 J -22193694.96 -22193694.86 -22193694.77 0.1685 0.1384
 Mercury -65476-03-28 20:37 J -22193598.76 -22193598.64 -22193598.52 0.1580 0.1065
 Mercury -65470-11-14 19:11 J -22191176.79 -22191176.70 -22191176.60 0.1966 0.1162
 Mercury -65456-12-15 17:01 J -22186031.94 -22186031.79 -22186031.65 0.1575 0.0864
 Venus -65449-05-11 19:40 J -22183692.85 -22183692.68 -22183692.51 0.1852 0.0464
 Mercury -65449-08-02 04:04 J -22183610.42 -22183610.33 -22183610.23 0.1973 0.1104
 Mercury -65446-05-07 18:57 J -22182601.87 -22182601.71 -22182601.54 0.1578 0.0053
 Venus -65443-10-21 01:54 J -22181339.51 -22181339.42 -22181339.34 0.1702 0.1488
 Mercury -65440-12-23 11:45 J -22180180.13 -22180180.01 -22180179.90 0.1970 0.0032
 Mercury -65437-09-26 21:21 J -22179171.75 -22179171.61 -22179171.48 0.1580 0.0930
 Mercury -65430-05-15 19:11 J -22176749.80 -22176749.70 -22176749.61 0.1966 0.1061
 Moon -65422-12-25 00:42 J -22173604.64 -22173604.47 -22173604.30 0.1568 0.0594
 Earth -65422-12-25 02:09 J -22173604.59 -22173604.41 -22173604.22 0.1568 0.0482 *
 Mercury -65416-06-15 17:30 J -22171604.90 -22171604.77 -22171604.64 0.1575 0.0996
 Venus -65411-10-20 01:40 J -22169652.57 -22169652.43 -22169652.29 0.1689 0.1034
 Mercury -65409-02-01 04:04 J -22169183.41 -22169183.33 -22169183.24 0.1974 0.1220
 Mercury -65407-11-05 19:54 J -22168174.84 -22168174.67 -22168174.50 0.1578 0.0109
 Mercury -65400-06-23 11:45 J -22165753.12 -22165753.01 -22165752.90 0.1970 0.0143
 Mercury -65397-03-27 22:04 J -22164744.73 -22164744.58 -22164744.44 0.1580 0.0793
 Mercury -65391-11-13 19:11 J -22162322.80 -22162322.70 -22162322.60 0.1966 0.0947
 Venus -65383-03-09 00:57 J -22159650.60 -22159650.46 -22159650.33 0.1847 0.1128
 Mercury -65377-12-14 18:13 J -22157177.85 -22157177.74 -22157177.62 0.1575 0.1134
 Mercury -65370-08-02 04:18 J -22154756.41 -22154756.32 -22154756.24 0.1973 0.1333

Mercury -65367-05-06 20:23 J -22153747.81 -22153747.65 -22153747.48 0.1578 0.0243
 Mercury -65361-12-22 11:30 J -22151326.13 -22151326.02 -22151325.90 0.1970 0.0243
 Mercury -65358-09-26 22:47 J -22150317.71 -22150317.55 -22150317.40 0.1580 0.0656
 Mercury -65351-05-14 19:11 J -22147895.80 -22147895.70 -22147895.59 0.1966 0.0827
 Moon -65351-06-24 16:18 J -22147854.98 -22147854.82 -22147854.67 0.1981 0.1020
 Earth -65351-06-24 17:45 J -22147854.91 -22147854.76 -22147854.60 0.1981 0.1267 *
 Mercury -65348-02-16 00:57 J -22146887.49 -22146887.46 -22146887.43 0.1583 0.1551
 Venus -65345-08-16 11:45 J -22145610.17 -22145610.01 -22145609.85 0.1693 0.0679
 Moon -65343-12-26 21:35 J -22144747.73 -22144747.60 -22144747.48 0.1569 0.1158
 Earth -65343-12-27 03:49 J -22144747.43 -22144747.34 -22144747.25 0.1569 0.1378
 Mercury -65342-10-05 02:37 J -22144465.41 -22144465.39 -22144465.36 0.1962 0.1902
 Mercury -65337-06-14 18:57 J -22142750.80 -22142750.71 -22142750.61 0.1575 0.1274
 Mercury -65330-01-31 04:04 J -22140329.40 -22140329.33 -22140329.25 0.1973 0.1435
 Mercury -65328-11-04 21:06 J -22139320.78 -22139320.62 -22139320.45 0.1578 0.0376
 Mercury -65321-06-22 11:45 J -22136899.12 -22136899.01 -22136898.90 0.1970 0.0363
 Mercury -65318-03-27 23:16 J -22135890.69 -22135890.53 -22135890.37 0.1580 0.0522
 Venus -65317-01-04 06:42 J -22135608.27 -22135608.22 -22135608.17 0.1842 0.1756
 Mercury -65312-11-12 19:11 J -22133468.81 -22133468.70 -22133468.60 0.1966 0.0725
 Mercury -65309-08-17 01:40 J -22132460.51 -22132460.43 -22132460.36 0.1583 0.1420
 Mercury -65302-04-05 02:37 J -22130038.43 -22130038.39 -22130038.34 0.1962 0.1797
 Mercury -65298-12-14 19:40 J -22128323.75 -22128323.68 -22128323.61 0.1575 0.1408
 Moon -65296-12-21 04:33 J -22127586.47 -22127586.31 -22127586.14 0.1567 0.0899
 Earth -65296-12-21 09:49 J -22127586.24 -22127586.09 -22127585.93 0.1567 0.0896 *
 Mercury -65291-08-01 04:18 J -22125902.39 -22125902.32 -22125902.26 0.1974 0.1557
 Mercury -65288-05-05 22:04 J -22124893.74 -22124893.58 -22124893.42 0.1577 0.0520
 Mercury -65282-12-22 11:45 J -22122472.12 -22122472.01 -22122471.90 0.1970 0.0476
 Venus -65279-06-13 22:04 J -22121567.75 -22121567.58 -22121567.41 0.1696 0.0324
 Mercury -65279-09-25 23:59 J -22121463.66 -22121463.50 -22121463.33 0.1580 0.0385
 Mercury -65272-05-13 19:11 J -22119041.81 -22119041.70 -22119041.59 0.1966 0.0612
 Moon -65272-06-28 03:06 J -22118996.53 -22118996.37 -22118996.22 0.1980 0.1256

Earth -65272-06-28 13:11 J -22118996.02 -22118995.95 -22118995.87 0.1980 0.1815
 Mercury -65269-02-16 02:09 J -22118033.50 -22118033.41 -22118033.31 0.1583 0.1284
 Mercury -65263-10-04 02:37 J -22115611.44 -22115611.39 -22115611.33 0.1962 0.1676
 Mercury -65258-06-14 20:23 J -22113896.68 -22113896.65 -22113896.62 0.1575 0.1542
 Mercury -65251-01-30 04:04 J -22111475.39 -22111475.33 -22111475.27 0.1973 0.1661
 Mercury -65249-11-03 22:33 J -22110466.71 -22110466.56 -22110466.41 0.1578 0.0650
 Mercury -65242-06-22 11:30 J -22108045.13 -22108045.02 -22108044.91 0.1971 0.0579
 Mercury -65239-03-27 00:42 J -22107036.63 -22107036.47 -22107036.30 0.1580 0.0247
 Mercury -65233-11-11 19:11 J -22104614.81 -22104614.70 -22104614.59 0.1967 0.0489
 Mercury -65230-08-17 03:06 J -22103606.49 -22103606.37 -22103606.26 0.1583 0.1142
 Mercury -65223-04-04 02:37 J -22101184.45 -22101184.39 -22101184.32 0.1962 0.1571
 Venus -65220-10-31 02:52 J -22099878.51 -22099878.38 -22099878.25 0.1854 0.1262
 Earth -65217-12-23 10:33 J -22098729.25 -22098729.06 -22098728.87 0.1567 0.0020
 Moon -65217-12-23 13:11 J -22098729.15 -22098728.95 -22098728.74 0.1567 0.0053 *
 Venus -65213-04-10 07:54 J -22097525.34 -22097525.17 -22097524.99 0.1701 0.0053
 Mercury -65212-07-31 04:04 J -22097048.38 -22097048.33 -22097048.28 0.1974 0.1772
 Mercury -65209-05-04 23:16 J -22096039.68 -22096039.53 -22096039.38 0.1577 0.0787
 Mercury -65203-12-21 11:45 J -22093618.12 -22093618.01 -22093617.91 0.1970 0.0699
 Mercury -65200-09-25 01:25 J -22092609.61 -22092609.44 -22092609.27 0.1580 0.0111
 Mercury -65193-05-12 19:11 J -22090187.82 -22090187.70 -22090187.59 0.1966 0.0399
 Mercury -65190-02-15 03:35 J -22089179.48 -22089179.35 -22089179.22 0.1583 0.1012
 Mercury -65184-10-03 02:37 J -22086757.46 -22086757.39 -22086757.31 0.1962 0.1457
 Mercury -65172-01-29 04:04 J -22082621.36 -22082621.33 -22082621.30 0.1974 0.1890
 Mercury -65170-11-03 23:59 J -22081612.63 -22081612.50 -22081612.36 0.1577 0.0931
 Mercury -65163-06-21 11:45 J -22079191.12 -22079191.01 -22079190.91 0.1970 0.0812
 Mercury -65160-03-26 02:09 J -22078182.58 -22078182.41 -22078182.24 0.1580 0.0027
 Venus -65154-08-28 08:23 J -22075836.31 -22075836.15 -22075835.98 0.1848 0.0606
 Mercury -65154-11-11 19:11 J -22075760.82 -22075760.70 -22075760.59 0.1967 0.0278
 Mercury -65151-08-16 04:18 J -22074752.46 -22074752.32 -22074752.18 0.1583 0.0875
 Venus -65147-02-05 18:13 J -22073482.91 -22073482.74 -22073482.57 0.1705 0.0412

Mercury -65144-04-03 02:37 J -22072330.47 -22072330.39 -22072330.31 0.1962 0.1343
 Earth -65138-12-26 10:47 J -22069872.21 -22069872.05 -22069871.88 0.1567 0.0855
 Moon -65138-12-26 17:16 J -22069871.93 -22069871.78 -22069871.64 0.1567 0.1000 *
 Mercury -65130-05-05 00:42 J -22067185.60 -22067185.47 -22067185.35 0.1577 0.1061
 Mercury -65124-12-20 11:30 J -22064764.12 -22064764.02 -22064763.92 0.1971 0.0908
 Mercury -65121-09-24 02:52 J -22063755.55 -22063755.38 -22063755.21 0.1580 0.0166
 Mercury -65114-05-12 19:11 J -22061333.81 -22061333.70 -22061333.59 0.1967 0.0154
 Mercury -65111-02-14 05:01 J -22060325.44 -22060325.29 -22060325.14 0.1583 0.0734
 Mercury -65105-10-02 02:37 J -22057903.47 -22057903.39 -22057903.30 0.1962 0.1232
 Mercury -65091-11-03 01:25 J -22052758.55 -22052758.44 -22052758.34 0.1577 0.1196
 Earth -65091-12-20 17:45 J -22052710.85 -22052710.76 -22052710.68 0.1566 0.1409
 Moon -65091-12-20 21:06 J -22052710.71 -22052710.62 -22052710.52 0.1566 0.1347 *
 Venus -65088-06-24 13:40 J -22051794.11 -22051793.93 -22051793.76 0.1843 0.0068
 Mercury -65084-06-20 11:45 J -22050337.11 -22050337.01 -22050336.92 0.1971 0.1035
 Venus -65082-12-04 03:21 J -22049440.51 -22049440.36 -22049440.20 0.1709 0.0813
 Mercury -65081-03-25 03:35 J -22049328.52 -22049328.35 -22049328.19 0.1580 0.0301
 Mercury -65075-11-10 19:11 J -22046906.82 -22046906.70 -22046906.59 0.1966 0.0088
 Mercury -65072-08-15 05:45 J -22045898.42 -22045898.26 -22045898.11 0.1583 0.0602
 Mercury -65065-04-02 02:37 J -22043476.48 -22043476.39 -22043476.30 0.1962 0.1125
 Mercury -65062-01-05 07:54 J -22042468.22 -22042468.17 -22042468.11 0.1586 0.1498
 Mercury -65051-05-04 02:09 J -22038331.50 -22038331.41 -22038331.32 0.1577 0.1340
 Mercury -65045-12-19 11:45 J -22035910.11 -22035910.01 -22035909.92 0.1970 0.1146
 Mercury -65042-09-24 04:18 J -22034901.48 -22034901.32 -22034901.16 0.1580 0.0437
 Mercury -65035-05-11 19:11 J -22032479.82 -22032479.70 -22032479.59 0.1967 0.0096
 Mercury -65032-02-13 06:28 J -22031471.40 -22031471.23 -22031471.07 0.1583 0.0468
 Mercury -65026-10-02 02:37 J -22029049.48 -22029049.39 -22029049.29 0.1962 0.1007
 Mercury -65023-07-06 08:37 J -22028041.23 -22028041.14 -22028041.06 0.1586 0.1368
 Venus -65022-04-21 19:54 J -22027751.83 -22027751.67 -22027751.51 0.1838 0.0672
 Venus -65016-09-30 13:11 J -22025398.07 -22025397.95 -22025397.82 0.1714 0.1199
 Mercury -65012-11-02 02:37 J -22023904.44 -22023904.39 -22023904.33 0.1577 0.1472

Moon -65012-12-22 14:52 J -22023854.05 -22023853.88 -22023853.71 0.1566 0.0567
 Earth -65012-12-22 18:42 J -22023853.90 -22023853.72 -22023853.54 0.1566 0.0529 *
 Mercury -65005-06-19 11:30 J -22021483.11 -22021483.02 -22021482.93 0.1971 0.1245
 Mercury -65002-03-25 05:01 J -22020474.45 -22020474.29 -22020474.14 0.1580 0.0577

65TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 65th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -64996-11-09 19:11 J | -22018052.81 | -22018052.70 | -22018052.59 | 0.1967 | 0.0182 | | |
| Mercury | -64993-08-14 07:11 J | -22017044.37 | -22017044.20 | -22017044.04 | 0.1583 | 0.0325 | | |
| Earth | -64988-06-27 05:01 J | -22015266.49 | -22015266.29 | -22015266.09 | 0.1981 | 0.0305 | | |
| Moon | -64988-06-27 10:47 J | -22015266.23 | -22015266.05 | -22015265.87 | 0.1981 | 0.0319 | * | |
| Mercury | -64986-04-02 02:37 J | -22014622.49 | -22014622.39 | -22014622.29 | 0.1962 | 0.0902 | | |
| Venus | -64984-09-29 13:54 J | -22013711.02 | -22013710.92 | -22013710.82 | 0.1700 | 0.1380 | | |
| Mercury | -64983-01-04 09:06 J | -22013614.22 | -22013614.12 | -22013614.01 | 0.1586 | 0.1233 | | |
| Mercury | -64966-12-19 11:30 J | -22007056.10 | -22007056.02 | -22007055.94 | 0.1971 | 0.1365 | | |
| Mercury | -64963-09-23 05:30 J | -22006047.42 | -22006047.27 | -22006047.12 | 0.1580 | 0.0710 | | |
| Venus | -64956-02-16 01:11 J | -22003709.57 | -22003709.45 | -22003709.33 | 0.1832 | 0.1311 | | |
| Mercury | -64956-05-10 18:57 J | -22003625.82 | -22003625.71 | -22003625.59 | 0.1967 | 0.0277 | | |
| Mercury | -64953-02-13 07:40 J | -22002617.34 | -22002617.18 | -22002617.01 | 0.1583 | 0.0195 | | |
| Venus | -64950-07-28 22:47 J | -22001355.61 | -22001355.55 | -22001355.50 | 0.1718 | 0.1607 | | |
| Mercury | -64947-10-01 02:37 J | -22000195.49 | -22000195.39 | -22000195.28 | 0.1963 | 0.0786 | | |
| Mercury | -64944-07-05 10:04 J | -21999187.20 | -21999187.08 | -21999186.96 | 0.1586 | 0.1088 | | |

Mercury -64937-02-21 10:18 J -21996765.11 -21996765.07 -21996765.04 0.1957 0.1846

Moon -64933-12-24 12:42 J -21994997.16 -21994996.97 -21994996.78 0.1567 0.0204

Earth -64933-12-24 19:25 J -21994996.87 -21994996.69 -21994996.50 0.1567 0.0354 *

Mercury -64926-06-19 11:30 J -21992629.09 -21992629.02 -21992628.94 0.1970 0.1475

Mercury -64923-03-24 06:13 J -21991620.38 -21991620.24 -21991620.10 0.1580 0.0845

Venus -64918-07-27 23:45 J -21989668.65 -21989668.51 -21989668.37 0.1704 0.1007

Mercury -64917-11-08 19:11 J -21989198.82 -21989198.70 -21989198.59 0.1967 0.0402

Mercury -64914-08-14 08:23 J -21988190.32 -21988190.15 -21988189.98 0.1583 0.0059

Mercury -64907-04-01 02:37 J -21985768.50 -21985768.39 -21985768.28 0.1962 0.0676

Mercury -64904-01-03 10:33 J -21984760.19 -21984760.06 -21984759.92 0.1586 0.0959

Mercury -64898-08-22 10:04 J -21982338.13 -21982338.08 -21982338.03 0.1957 0.1747

Mercury -64887-12-18 11:30 J -21978202.09 -21978202.02 -21978201.96 0.1971 0.1576

Mercury -64884-09-22 06:57 J -21977193.34 -21977193.21 -21977193.07 0.1580 0.0988

Mercury -64877-05-09 19:11 J -21974771.81 -21974771.70 -21974771.59 0.1967 0.0514

Mercury -64874-02-12 09:06 J -21973763.28 -21973763.12 -21973762.95 0.1582 0.0091

Mercury -64868-09-30 02:37 J -21971341.50 -21971341.39 -21971341.28 0.1962 0.0565

Mercury -64865-07-04 11:16 J -21970333.17 -21970333.03 -21970332.89 0.1586 0.0825

Venus -64859-12-13 21:21 J -21967979.68 -21967979.61 -21967979.54 0.1845 0.1674

Mercury -64858-02-20 10:04 J -21967911.14 -21967911.08 -21967911.01 0.1958 0.1630

Moon -64854-12-27 18:13 J -21966139.84 -21966139.74 -21966139.64 0.1567 0.1348

Earth -64854-12-27 19:40 J -21966139.80 -21966139.68 -21966139.56 0.1567 0.1226 *

Venus -64852-05-24 09:35 J -21965626.26 -21965626.10 -21965625.94 0.1708 0.0635

Mercury -64847-06-18 11:30 J -21963775.07 -21963775.02 -21963774.96 0.1971 0.1699

Mercury -64844-03-23 07:40 J -21962766.30 -21962766.18 -21962766.06 0.1580 0.1120

Mercury -64838-11-08 18:57 J -21960344.82 -21960344.71 -21960344.60 0.1967 0.0611

Mercury -64835-08-13 09:49 J -21959336.26 -21959336.09 -21959335.92 0.1583 0.0217

Mercury -64828-03-31 02:37 J -21956914.50 -21956914.39 -21956914.28 0.1963 0.0456

Mercury -64825-01-03 11:59 J -21955906.15 -21955906.00 -21955905.84 0.1586 0.0682

Mercury -64819-08-21 10:18 J -21953484.14 -21953484.07 -21953484.00 0.1957 0.1510

Mercury -64808-12-17 11:30 J -21949348.06 -21949348.02 -21949347.98 0.1970 0.1805

Earth -64807-12-22 02:37 J -21948978.54 -21948978.39 -21948978.25 0.1566 0.1046
 Moon -64807-12-22 06:57 J -21948978.37 -21948978.21 -21948978.05 0.1566 0.0972 *
 Mercury -64805-09-21 08:23 J -21948339.25 -21948339.15 -21948339.05 0.1580 0.1255
 Mercury -64798-05-09 18:57 J -21945917.81 -21945917.71 -21945917.60 0.1967 0.0725
 Mercury -64795-02-11 10:33 J -21944909.23 -21944909.06 -21944908.90 0.1582 0.0354
 Venus -64793-10-10 02:52 J -21943937.52 -21943937.38 -21943937.23 0.1839 0.1024
 Mercury -64789-09-29 02:37 J -21942487.50 -21942487.39 -21942487.28 0.1962 0.0340
 Venus -64786-03-21 19:11 J -21941583.87 -21941583.70 -21941583.52 0.1712 0.0247
 Mercury -64786-07-04 12:42 J -21941479.13 -21941478.97 -21941478.81 0.1586 0.0551
 Mercury -64779-02-19 10:04 J -21939057.16 -21939057.08 -21939057.00 0.1958 0.1415
 Mercury -64777-11-23 14:52 J -21938048.95 -21938048.88 -21938048.82 0.1589 0.1454
 Mercury -64768-06-17 11:30 J -21934921.05 -21934921.02 -21934921.00 0.1971 0.1910
 Mercury -64765-03-22 09:06 J -21933912.20 -21933912.12 -21933912.04 0.1580 0.1396
 Mercury -64759-11-07 19:11 J -21931490.81 -21931490.70 -21931490.60 0.1967 0.0849
 Mercury -64756-08-12 11:16 J -21930482.19 -21930482.03 -21930481.87 0.1582 0.0493
 Mercury -64749-03-30 02:37 J -21928060.51 -21928060.39 -21928060.28 0.1962 0.0242
 Mercury -64746-01-02 13:25 J -21927052.11 -21927051.94 -21927051.78 0.1585 0.0417
 Mercury -64740-08-20 10:18 J -21924630.16 -21924630.07 -21924629.99 0.1958 0.1293
 Mercury -64737-05-24 15:21 J -21923621.94 -21923621.86 -21923621.76 0.1589 0.1321
 Earth -64728-12-24 03:06 J -21920121.56 -21920121.37 -21920121.18 0.1566 0.0168
 Moon -64728-12-24 08:52 J -21920121.31 -21920121.13 -21920120.94 0.1566 0.0090 *
 Venus -64727-08-07 08:52 J -21919895.30 -21919895.13 -21919894.96 0.1834 0.0399
 Mercury -64726-09-21 09:49 J -21919485.13 -21919485.09 -21919485.05 0.1580 0.1529
 Venus -64720-01-16 05:01 J -21917541.46 -21917541.29 -21917541.11 0.1716 0.0140
 Mercury -64719-05-08 18:57 J -21917063.81 -21917063.71 -21917063.61 0.1967 0.0941
 Mercury -64716-02-10 11:45 J -21916055.16 -21916055.01 -21916054.85 0.1582 0.0629
 Mercury -64710-09-29 02:37 J -21913633.50 -21913633.39 -21913633.28 0.1963 0.0116
 Mercury -64707-07-03 14:09 J -21912625.08 -21912624.91 -21912624.74 0.1585 0.0272
 Earth -64704-06-25 20:37 J -21911536.79 -21911536.64 -21911536.48 0.1981 0.1241
 Moon -64704-06-25 23:01 J -21911536.73 -21911536.54 -21911536.36 0.1981 0.1090 *

Mercury -64700-02-18 10:04 J -21910203.17 -21910203.08 -21910202.99 0.1958 0.1182

Mercury -64698-11-23 16:04 J -21909194.94 -21909194.83 -21909194.71 0.1589 0.1185

Mercury -64680-11-06 18:57 J -21902636.80 -21902636.71 -21902636.61 0.1967 0.1063

Mercury -64677-08-11 12:28 J -21901628.12 -21901627.98 -21901627.83 0.1582 0.0764

Mercury -64670-03-30 02:37 J -21899206.51 -21899206.39 -21899206.28 0.1962 0.0076

Mercury -64667-01-01 14:37 J -21898198.06 -21898197.89 -21898197.72 0.1585 0.0144

Venus -64661-06-03 14:23 J -21895853.07 -21895852.90 -21895852.72 0.1829 0.0233

Mercury -64661-08-19 10:04 J -21895776.17 -21895776.08 -21895775.98 0.1958 0.1079

Mercury -64658-05-24 16:47 J -21894767.92 -21894767.80 -21894767.67 0.1589 0.1047

Venus -64655-11-13 14:09 J -21893499.08 -21893498.91 -21893498.75 0.1721 0.0551

Moon -64649-12-26 03:35 J -21891264.51 -21891264.35 -21891264.19 0.1566 0.0651

Earth -64649-12-26 04:18 J -21891264.49 -21891264.32 -21891264.15 0.1566 0.0723 *

Mercury -64640-05-07 18:57 J -21888209.80 -21888209.71 -21888209.62 0.1967 0.1179

Mercury -64637-02-10 13:11 J -21887201.08 -21887200.95 -21887200.81 0.1582 0.0903

Mercury -64631-09-28 02:37 J -21884779.51 -21884779.39 -21884779.28 0.1963 0.0114

Mercury -64628-07-02 15:21 J -21883771.03 -21883770.86 -21883770.69 0.1585 0.0008

Earth -64625-06-29 16:04 J -21882677.89 -21882677.83 -21882677.77 0.1981 0.1886

Mercury -64621-02-18 10:04 J -21881349.18 -21881349.08 -21881348.98 0.1958 0.0961

Mercury -64619-11-22 17:30 J -21880340.90 -21880340.77 -21880340.63 0.1589 0.0910

Earth -64602-12-21 11:16 J -21874103.05 -21874103.03 -21874103.01 0.1567 0.1557

Mercury -64601-11-05 18:57 J -21873782.80 -21873782.71 -21873782.63 0.1967 0.1275

Mercury -64598-08-11 13:54 J -21872774.05 -21872773.92 -21872773.79 0.1582 0.1036

Venus -64595-03-31 20:52 J -21871810.78 -21871810.63 -21871810.47 0.1824 0.0815

Mercury -64591-03-29 02:37 J -21870352.51 -21870352.39 -21870352.28 0.1963 0.0222

Venus -64589-09-09 23:45 J -21869456.66 -21869456.51 -21869456.37 0.1725 0.0950

Mercury -64589-12-31 16:18 J -21869343.99 -21869343.82 -21869343.66 0.1585 0.0145

Mercury -64582-08-19 10:18 J -21866922.18 -21866922.07 -21866921.97 0.1958 0.0846

Mercury -64579-05-23 18:13 J -21865913.89 -21865913.74 -21865913.59 0.1588 0.0775

Mercury -64572-01-08 17:45 J -21863491.78 -21863491.76 -21863491.74 0.1953 0.1909

Mercury -64561-05-06 18:57 J -21859355.79 -21859355.71 -21859355.63 0.1967 0.1390

Mercury -64558-02-09 14:37 J -21858347.00 -21858346.89 -21858346.78 0.1582 0.1173

Venus -64557-09-09 01:11 J -21857769.47 -21857769.45 -21857769.43 0.1711 0.1692

Mercury -64552-09-27 02:37 J -21855925.51 -21855925.39 -21855925.28 0.1963 0.0331

Mercury -64549-07-01 16:47 J -21854916.97 -21854916.80 -21854916.63 0.1585 0.0269

Mercury -64542-02-17 10:04 J -21852495.19 -21852495.08 -21852494.98 0.1958 0.0747

Mercury -64540-11-21 18:57 J -21851486.86 -21851486.71 -21851486.56 0.1589 0.0636

Mercury -64533-07-09 17:45 J -21849064.80 -21849064.76 -21849064.71 0.1953 0.1786

Mercury -64530-04-13 21:06 J -21848056.66 -21848056.62 -21848056.58 0.1592 0.1542

Venus -64529-01-27 02:52 J -21847768.48 -21847768.38 -21847768.27 0.1818 0.1418

Venus -64523-07-08 08:37 J -21845414.24 -21845414.14 -21845414.03 0.1730 0.1377

Moon -64523-12-23 06:13 J -21845246.41 -21845246.24 -21845246.06 0.1567 0.0691

Earth -64523-12-23 11:45 J -21845246.18 -21845246.01 -21845245.84 0.1567 0.0680 *

Mercury -64522-11-05 18:57 J -21844928.78 -21844928.71 -21844928.63 0.1967 0.1514

Mercury -64519-08-10 15:21 J -21843919.95 -21843919.86 -21843919.77 0.1582 0.1313

Mercury -64512-03-28 02:23 J -21841498.51 -21841498.40 -21841498.28 0.1963 0.0436

Mercury -64510-12-31 17:30 J -21840489.94 -21840489.77 -21840489.61 0.1585 0.0406

Mercury -64503-08-18 10:04 J -21838068.18 -21838068.08 -21838067.97 0.1958 0.0626

Mercury -64500-05-22 19:40 J -21837059.84 -21837059.68 -21837059.52 0.1588 0.0504

Mercury -64493-01-08 17:30 J -21834637.82 -21834637.77 -21834637.71 0.1953 0.1692

Venus -64491-07-07 10:47 J -21833727.16 -21833727.05 -21833726.94 0.1715 0.1303

Mercury -64491-10-12 21:35 J -21833629.67 -21833629.60 -21833629.52 0.1592 0.1413

Mercury -64482-05-06 18:57 J -21830501.78 -21830501.71 -21830501.65 0.1967 0.1606

Mercury -64479-02-08 16:04 J -21829492.90 -21829492.83 -21829492.77 0.1582 0.1448

Mercury -64473-09-26 02:37 J -21827071.50 -21827071.39 -21827071.28 0.1963 0.0554

Mercury -64470-07-01 18:13 J -21826062.90 -21826062.74 -21826062.58 0.1585 0.0548

Mercury -64463-02-16 10:04 J -21823641.19 -21823641.08 -21823640.97 0.1958 0.0516

Mercury -64461-11-20 20:09 J -21822632.82 -21822632.66 -21822632.49 0.1588 0.0368

Mercury -64454-07-09 17:45 J -21820210.83 -21820210.76 -21820210.69 0.1953 0.1571

Mercury -64451-04-12 22:18 J -21819202.66 -21819202.57 -21819202.47 0.1592 0.1275

Earth -64444-12-25 11:59 J -21816389.19 -21816389.00 -21816388.80 0.1566 0.0211

Moon -64444-12-25 13:25 J -21816389.14 -21816388.94 -21816388.74 0.1566 0.0255 *
 Mercury -64443-11-04 18:57 J -21816074.76 -21816074.71 -21816074.66 0.1967 0.1727
 Mercury -64433-03-27 02:23 J -21812644.50 -21812644.40 -21812644.29 0.1963 0.0655
 Venus -64432-11-22 22:04 J -21812038.68 -21812038.58 -21812038.48 0.1830 0.1482
 Mercury -64431-12-30 18:42 J -21811635.87 -21811635.72 -21811635.56 0.1585 0.0680
 Venus -64425-05-03 20:23 J -21809684.80 -21809684.65 -21809684.50 0.1719 0.0916
 Mercury -64424-08-17 10:04 J -21809214.19 -21809214.08 -21809213.97 0.1958 0.0408
 Mercury -64421-05-21 21:06 J -21808205.79 -21808205.62 -21808205.46 0.1588 0.0228
 Mercury -64414-01-07 17:45 J -21805783.83 -21805783.76 -21805783.68 0.1953 0.1453
 Mercury -64412-10-11 23:01 J -21804775.65 -21804775.54 -21804775.42 0.1592 0.1136
 Mercury -64403-05-05 18:57 J -21801647.75 -21801647.71 -21801647.67 0.1967 0.1840
 Mercury -64394-09-26 02:23 J -21798217.50 -21798217.40 -21798217.29 0.1963 0.0771
 Mercury -64391-06-30 19:25 J -21797208.83 -21797208.69 -21797208.54 0.1585 0.0816
 Mercury -64384-02-15 10:04 J -21794787.19 -21794787.08 -21794786.96 0.1958 0.0295
 Mercury -64382-11-20 21:35 J -21793778.77 -21793778.60 -21793778.43 0.1588 0.0094
 Mercury -64375-07-08 17:45 J -21791356.85 -21791356.76 -21791356.68 0.1953 0.1356
 Mercury -64372-04-11 23:45 J -21790348.64 -21790348.51 -21790348.38 0.1592 0.1003
 Venus -64366-09-20 04:18 J -21787996.47 -21787996.32 -21787996.17 0.1825 0.0865
 Earth -64365-12-27 12:42 J -21787532.11 -21787531.97 -21787531.83 0.1566 0.1093
 Moon -64365-12-27 18:57 J -21787531.85 -21787531.71 -21787531.56 0.1566 0.1025 *
 Mercury -64364-11-03 18:57 J -21787220.73 -21787220.71 -21787220.70 0.1967 0.1940
 Venus -64359-03-01 05:45 J -21785642.42 -21785642.26 -21785642.09 0.1724 0.0516
 Mercury -64354-03-27 02:37 J -21783790.50 -21783790.39 -21783790.29 0.1963 0.0886
 Mercury -64352-12-29 20:23 J -21782781.79 -21782781.65 -21782781.52 0.1585 0.0960
 Mercury -64345-08-16 10:04 J -21780360.19 -21780360.08 -21780359.96 0.1958 0.0186
 Mercury -64342-05-21 22:18 J -21779351.74 -21779351.57 -21779351.40 0.1588 0.0044
 Moon -64341-06-28 03:35 J -21778948.56 -21778948.35 -21778948.13 0.1981 0.0044
 Earth -64341-06-28 08:52 J -21778948.33 -21778948.13 -21778947.93 0.1981 0.0376 *
 Mercury -64335-01-06 17:45 J -21776929.85 -21776929.76 -21776929.67 0.1953 0.1240
 Mercury -64333-10-11 00:28 J -21775921.62 -21775921.48 -21775921.34 0.1592 0.0867

Earth -64318-12-22 20:09 J -21770370.78 -21770370.66 -21770370.54 0.1567 0.1195
 Moon -64318-12-23 01:25 J -21770370.55 -21770370.44 -21770370.33 0.1567 0.1233 *
 Mercury -64315-09-25 02:23 J -21769363.49 -21769363.40 -21769363.30 0.1963 0.0992
 Mercury -64312-06-29 20:52 J -21768354.75 -21768354.63 -21768354.51 0.1585 0.1090
 Mercury -64305-02-15 10:04 J -21765933.20 -21765933.08 -21765932.97 0.1959 0.0078
 Mercury -64303-11-19 23:01 J -21764924.71 -21764924.54 -21764924.37 0.1588 0.0187
 Venus -64300-07-17 10:33 J -21763954.23 -21763954.06 -21763953.89 0.1820 0.0269
 Mercury -64296-07-07 17:45 J -21762502.85 -21762502.76 -21762502.66 0.1953 0.1117
 Venus -64294-12-27 15:21 J -21761600.04 -21761599.86 -21761599.69 0.1728 0.0119
 Mercury -64293-04-11 01:11 J -21761494.60 -21761494.45 -21761494.30 0.1591 0.0724
 Mercury -64275-03-26 02:23 J -21754936.49 -21754936.40 -21754936.30 0.1963 0.1097
 Mercury -64273-12-28 21:35 J -21753927.71 -21753927.60 -21753927.50 0.1585 0.1227
 Mercury -64266-08-16 10:04 J -21751506.19 -21751506.08 -21751505.96 0.1958 0.0074
 Mercury -64263-05-20 23:45 J -21750497.68 -21750497.51 -21750497.35 0.1588 0.0320
 Mercury -64256-01-05 17:30 J -21748075.86 -21748075.77 -21748075.67 0.1953 0.1025
 Mercury -64254-10-11 01:54 J -21747067.58 -21747067.42 -21747067.27 0.1592 0.0593
 Mercury -64244-03-02 04:04 J -21743637.38 -21743637.33 -21743637.28 0.1595 0.1500
 Moon -64239-12-24 19:11 J -21741513.88 -21741513.70 -21741513.52 0.1567 0.0331
 Earth -64239-12-24 20:37 J -21741513.82 -21741513.64 -21741513.45 0.1567 0.0312 *
 Mercury -64236-09-24 02:37 J -21740509.48 -21740509.39 -21740509.30 0.1963 0.1222
 Venus -64234-05-14 16:47 J -21739911.97 -21739911.80 -21739911.63 0.1815 0.0322
 Mercury -64233-06-28 22:18 J -21739500.65 -21739500.57 -21739500.48 0.1585 0.1371
 Venus -64228-10-23 23:59 J -21737557.67 -21737557.50 -21737557.33 0.1733 0.0319
 Mercury -64226-02-14 10:04 J -21737079.19 -21737079.08 -21737078.96 0.1958 0.0157
 Mercury -64224-11-19 00:28 J -21736070.64 -21736070.48 -21736070.32 0.1588 0.0458
 Mercury -64217-07-06 17:45 J -21733648.86 -21733648.76 -21733648.66 0.1953 0.0901
 Mercury -64214-04-11 02:37 J -21732640.56 -21732640.39 -21732640.23 0.1591 0.0456
 Mercury -64205-08-31 04:33 J -21729210.39 -21729210.31 -21729210.22 0.1595 0.1371
 Mercury -64196-03-25 02:23 J -21726082.48 -21726082.40 -21726082.32 0.1963 0.1319
 Mercury -64194-12-28 23:01 J -21725073.59 -21725073.54 -21725073.49 0.1585 0.1503

Mercury -64187-08-15 10:04 J -21722652.19 -21722652.08 -21722651.96 0.1959 0.0264
 Mercury -64184-05-20 01:11 J -21721643.61 -21721643.45 -21721643.29 0.1588 0.0599
 Mercury -64177-01-05 17:45 J -21719221.86 -21719221.76 -21719221.65 0.1953 0.0785
 Mercury -64175-10-10 03:21 J -21718213.53 -21718213.36 -21718213.20 0.1591 0.0316
 Venus -64168-03-10 23:45 J -21715869.66 -21715869.51 -21715869.36 0.1810 0.0873
 Mercury -64168-05-28 01:11 J -21715791.48 -21715791.45 -21715791.41 0.1947 0.1844
 Mercury -64165-03-01 05:16 J -21714783.38 -21714783.28 -21714783.18 0.1595 0.1234
 Venus -64162-08-21 09:21 J -21713515.26 -21713515.11 -21713514.95 0.1738 0.0728
 Moon -64160-12-26 15:21 J -21712657.04 -21712656.86 -21712656.68 0.1567 0.0593
 Earth -64160-12-26 21:35 J -21712656.78 -21712656.60 -21712656.42 0.1567 0.0587 *
 Mercury -64157-09-23 02:23 J -21711655.47 -21711655.40 -21711655.32 0.1963 0.1437
 Mercury -64147-02-13 10:04 J -21708225.19 -21708225.08 -21708224.97 0.1958 0.0379
 Mercury -64145-11-18 01:54 J -21707216.57 -21707216.42 -21707216.28 0.1588 0.0733
 Mercury -64138-07-06 17:45 J -21704794.87 -21704794.76 -21704794.66 0.1953 0.0690
 Mercury -64135-04-10 03:49 J -21703786.50 -21703786.34 -21703786.17 0.1591 0.0182
 Mercury -64129-11-26 01:25 J -21701364.49 -21701364.44 -21701364.39 0.1948 0.1726
 Mercury -64126-08-31 06:13 J -21700356.37 -21700356.24 -21700356.12 0.1595 0.1089
 Mercury -64117-03-24 02:37 J -21697228.46 -21697228.39 -21697228.33 0.1963 0.1553
 Mercury -64108-08-14 10:04 J -21693798.19 -21693798.08 -21693797.97 0.1958 0.0491
 Mercury -64105-05-19 02:23 J -21692789.54 -21692789.40 -21692789.26 0.1588 0.0868
 Venus -64102-01-06 06:13 J -21691827.35 -21691827.24 -21691827.14 0.1804 0.1442
 Mercury -64098-01-04 17:45 J -21690367.87 -21690367.76 -21690367.65 0.1953 0.0570
 Venus -64096-06-17 17:59 J -21689472.87 -21689472.75 -21689472.62 0.1742 0.1173
 Mercury -64096-10-09 04:33 J -21689359.48 -21689359.31 -21689359.14 0.1591 0.0045
 Mercury -64089-05-27 01:25 J -21686937.51 -21686937.44 -21686937.38 0.1948 0.1616
 Mercury -64086-03-01 06:42 J -21685929.35 -21685929.22 -21685929.09 0.1595 0.0959
 Moon -64081-12-28 19:54 J -21683799.77 -21683799.67 -21683799.57 0.1567 0.1343
 Earth -64081-12-28 22:04 J -21683799.64 -21683799.58 -21683799.52 0.1567 0.1477 *
 Mercury -64078-09-23 02:23 J -21682801.46 -21682801.40 -21682801.34 0.1963 0.1654
 Mercury -64068-02-12 10:04 J -21679371.19 -21679371.08 -21679370.97 0.1959 0.0594

Mercury -64066-11-18 03:21 J -21678362.49 -21678362.36 -21678362.23 0.1588 0.1013

Venus -64064-06-16 21:06 J -21677785.69 -21677785.62 -21677785.55 0.1727 0.1575

Mercury -64059-07-05 17:45 J -21675940.87 -21675940.76 -21675940.65 0.1953 0.0449

Moon -64057-06-27 00:42 J -21675218.58 -21675218.47 -21675218.35 0.1980 0.1521

Earth -64057-06-27 01:54 J -21675218.58 -21675218.42 -21675218.25 0.1980 0.1137 *

Mercury -64056-04-09 05:16 J -21674932.44 -21674932.28 -21674932.11 0.1591 0.0107

Mercury -64050-11-26 01:25 J -21672510.52 -21672510.44 -21672510.37 0.1948 0.1510

Mercury -64047-08-30 07:25 J -21671502.34 -21671502.19 -21671502.05 0.1595 0.0824

Mercury -64038-03-24 02:23 J -21668374.45 -21668374.40 -21668374.35 0.1963 0.1763

Earth -64034-12-24 05:16 J -21666638.44 -21666638.28 -21666638.12 0.1568 0.0828

Moon -64034-12-24 08:52 J -21666638.30 -21666638.13 -21666637.96 0.1568 0.0880 *

Venus -64030-04-15 02:52 J -21665430.44 -21665430.38 -21665430.32 0.1747 0.1617

Mercury -64029-08-13 10:04 J -21664944.18 -21664944.08 -21664943.97 0.1959 0.0718

Mercury -64026-05-19 03:49 J -21663935.45 -21663935.34 -21663935.22 0.1588 0.1146

Mercury -64019-01-03 17:45 J -21661513.88 -21661513.76 -21661513.65 0.1953 0.0363

Mercury -64017-10-08 05:59 J -21660505.42 -21660505.25 -21660505.08 0.1591 0.0232

Mercury -64010-05-27 01:25 J -21658083.52 -21658083.44 -21658083.36 0.1948 0.1391

Mercury -64007-02-28 08:09 J -21657075.31 -21657075.16 -21657075.01 0.1595 0.0678

Venus -64005-11-02 00:42 J -21656097.58 -21656097.47 -21656097.36 0.1816 0.1375

64TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 64th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|--------|-------------------------|---|-------|-----|-----|--------|-------|---|
|--------|-------------------------|---|-------|-----|-----|--------|-------|---|

Mercury -63999-09-22 02:37 J -21653947.42 -21653947.39 -21653947.36 0.1964 0.1889

Venus -63998-04-14 06:42 J -21653743.35 -21653743.22 -21653743.10 0.1732 0.1177

Mercury -63989-02-12 10:04 J -21650517.18 -21650517.08 -21650516.97 0.1959 0.0821

Mercury -63987-11-17 04:33 J -21649508.41 -21649508.31 -21649508.21 0.1588 0.1281

Mercury -63980-07-04 17:45 J -21647086.87 -21647086.76 -21647086.65 0.1954 0.0232

Mercury -63977-04-08 06:42 J -21646078.38 -21646078.22 -21646078.06 0.1591 0.0371

Mercury -63971-11-25 01:25 J -21643656.53 -21643656.44 -21643656.36 0.1948 0.1284

Mercury -63968-08-29 08:37 J -21642648.29 -21642648.14 -21642647.98 0.1595 0.0549

Mercury -63958-01-19 10:47 J -21639218.11 -21639218.05 -21639217.98 0.1599 0.1464

Earth -63955-12-26 06:13 J -21637781.44 -21637781.24 -21637781.05 0.1568 0.0076

Moon -63955-12-26 12:42 J -21637781.16 -21637780.97 -21637780.78 0.1568 0.0132 *

Mercury -63950-08-13 10:04 J -21636090.18 -21636090.08 -21636089.98 0.1959 0.0932

Mercury -63947-05-18 05:16 J -21635081.35 -21635081.28 -21635081.20 0.1588 0.1426

Mercury -63940-01-02 17:45 J -21632659.87 -21632659.76 -21632659.64 0.1954 0.0120

Venus -63939-08-30 07:11 J -21632055.35 -21632055.20 -21632055.04 0.1811 0.0791

Mercury -63938-10-08 07:25 J -21631651.35 -21631651.19 -21631651.03 0.1591 0.0509

Venus -63932-02-08 15:35 J -21629701.00 -21629700.85 -21629700.69 0.1736 0.0761

Mercury -63931-05-26 01:25 J -21629229.53 -21629229.44 -21629229.35 0.1948 0.1175

Mercury -63928-02-27 09:21 J -21628221.27 -21628221.11 -21628220.95 0.1595 0.0411

Mercury -63919-07-20 11:30 J -21624791.11 -21624791.02 -21624790.93 0.1599 0.1329

Mercury -63910-02-11 10:04 J -21621663.17 -21621663.08 -21621662.98 0.1959 0.1046

Mercury -63908-11-16 05:59 J -21620654.28 -21620654.25 -21620654.22 0.1588 0.1557

Mercury -63901-07-03 17:45 J -21618232.88 -21618232.76 -21618232.65 0.1954 0.0066

Mercury -63898-04-08 08:09 J -21617224.32 -21617224.16 -21617224.01 0.1591 0.0647

Mercury -63892-11-24 01:25 J -21614802.54 -21614802.44 -21614802.34 0.1948 0.1053

Mercury -63889-08-28 10:18 J -21613794.24 -21613794.07 -21613793.91 0.1595 0.0267

Mercury -63879-01-18 12:13 J -21610364.10 -21610363.99 -21610363.88 0.1599 0.1193

Earth -63876-12-28 06:42 J -21608924.37 -21608924.22 -21608924.07 0.1567 0.0968

Moon -63876-12-28 08:37 J -21608924.27 -21608924.14 -21608924.01 0.1567 0.1071 *

Venus -63873-06-26 13:54 J -21608013.10 -21608012.92 -21608012.75 0.1806 0.0228

Mercury -63871-08-12 10:04 J -21607236.17 -21607236.08 -21607235.99 0.1959 0.1156
 Venus -63867-12-07 00:42 J -21605658.64 -21605658.47 -21605658.30 0.1741 0.0342
 Mercury -63861-01-02 17:45 J -21603805.87 -21603805.76 -21603805.65 0.1954 0.0102
 Mercury -63859-10-07 08:52 J -21602797.28 -21602797.13 -21602796.99 0.1591 0.0784
 Mercury -63852-05-25 01:25 J -21600375.54 -21600375.44 -21600375.34 0.1948 0.0950
 Mercury -63849-02-27 10:47 J -21599367.22 -21599367.05 -21599366.88 0.1595 0.0136
 Mercury -63840-07-19 12:57 J -21595937.09 -21595936.96 -21595936.84 0.1599 0.1053
 Mercury -63831-02-10 10:04 J -21592809.16 -21592809.08 -21592808.99 0.1959 0.1265
 Moon -63829-12-22 10:33 J -21591763.16 -21591763.06 -21591762.95 0.1570 0.1276
 Earth -63829-12-22 14:23 J -21591762.99 -21591762.90 -21591762.80 0.1570 0.1344 *
 Mercury -63822-07-03 17:45 J -21589378.87 -21589378.76 -21589378.64 0.1954 0.0227
 Mercury -63819-04-07 09:35 J -21588370.24 -21588370.10 -21588369.97 0.1591 0.0923
 Mercury -63813-11-23 01:25 J -21585948.55 -21585948.44 -21585948.34 0.1948 0.0841
 Mercury -63810-08-28 11:30 J -21584940.19 -21584940.02 -21584939.85 0.1595 0.0021
 Venus -63807-04-23 20:37 J -21583970.81 -21583970.64 -21583970.47 0.1801 0.0333
 Mercury -63803-04-15 09:06 J -21582518.15 -21582518.12 -21582518.10 0.1942 0.1877
 Venus -63801-10-03 09:21 J -21581616.28 -21581616.11 -21581615.93 0.1745 0.0107
 Mercury -63800-01-17 13:25 J -21581510.07 -21581509.94 -21581509.80 0.1599 0.0919
 Mercury -63792-08-11 10:04 J -21578382.16 -21578382.08 -21578382.00 0.1959 0.1383
 Mercury -63782-01-01 17:45 J -21574951.88 -21574951.76 -21574951.65 0.1954 0.0322
 Mercury -63780-10-06 10:04 J -21573943.20 -21573943.08 -21573942.95 0.1591 0.1058
 Mercury -63773-05-24 01:25 J -21571521.55 -21571521.44 -21571521.33 0.1949 0.0720
 Mercury -63770-02-26 12:13 J -21570513.15 -21570512.99 -21570512.82 0.1595 0.0150
 Mercury -63764-10-14 09:06 J -21568091.17 -21568091.12 -21568091.08 0.1942 0.1761
 Mercury -63761-07-18 14:09 J -21567083.05 -21567082.91 -21567082.76 0.1598 0.0782
 Mercury -63752-02-09 10:04 J -21563955.15 -21563955.08 -21563955.01 0.1959 0.1484
 Moon -63750-12-25 08:09 J -21562906.34 -21562906.16 -21562905.98 0.1569 0.0510
 Earth -63750-12-25 14:37 J -21562906.07 -21562905.89 -21562905.71 0.1569 0.0454 *
 Mercury -63743-07-02 17:45 J -21560524.87 -21560524.76 -21560524.65 0.1954 0.0437
 Venus -63741-02-19 03:49 J -21559928.49 -21559928.34 -21559928.19 0.1796 0.0863

Mercury -63740-04-06 10:47 J -21559516.16 -21559516.05 -21559515.94 0.1591 0.1196
 Venus -63735-07-31 18:28 J -21557573.90 -21557573.73 -21557573.57 0.1750 0.0535
 Mercury -63734-11-23 01:25 J -21557094.55 -21557094.44 -21557094.33 0.1948 0.0616
 Mercury -63731-08-27 12:57 J -21556086.13 -21556085.96 -21556085.80 0.1595 0.0279
 Mercury -63724-04-14 08:52 J -21553664.18 -21553664.13 -21553664.07 0.1942 0.1663
 Mercury -63721-01-17 14:52 J -21552656.03 -21552655.88 -21552655.72 0.1599 0.0641
 Mercury -63713-08-10 10:04 J -21549528.14 -21549528.08 -21549528.01 0.1959 0.1600
 Mercury -63712-06-08 17:01 J -21549225.82 -21549225.79 -21549225.76 0.1603 0.1564
 Mercury -63704-12-31 17:45 J -21546097.87 -21546097.76 -21546097.65 0.1954 0.0553
 Mercury -63701-10-05 11:30 J -21545089.11 -21545089.02 -21545088.93 0.1591 0.1335
 Mercury -63694-05-24 01:25 J -21542667.55 -21542667.44 -21542667.33 0.1948 0.0507
 Earth -63694-06-30 14:37 J -21542630.08 -21542629.89 -21542629.69 0.1979 0.0505
 Moon -63694-06-30 20:09 J -21542629.83 -21542629.66 -21542629.50 0.1979 0.0913 *
 Mercury -63691-02-25 13:25 J -21541659.10 -21541658.94 -21541658.77 0.1594 0.0416
 Mercury -63685-10-13 09:06 J -21539237.19 -21539237.12 -21539237.05 0.1942 0.1538
 Mercury -63682-07-18 15:35 J -21538229.01 -21538228.85 -21538228.69 0.1598 0.0507
 Venus -63676-12-16 10:47 J -21535886.16 -21535886.05 -21535885.95 0.1790 0.1398
 Mercury -63673-02-09 10:04 J -21535101.13 -21535101.08 -21535101.03 0.1959 0.1709
 Mercury -63673-12-07 17:30 J -21534798.84 -21534798.77 -21534798.69 0.1603 0.1433
 Moon -63671-12-27 15:06 J -21534049.07 -21534048.87 -21534048.67 0.1569 0.0424
 Earth -63671-12-27 15:35 J -21534049.04 -21534048.85 -21534048.67 0.1569 0.0448 *
 Venus -63669-05-28 02:37 J -21533531.53 -21533531.39 -21533531.25 0.1755 0.1004
 Mercury -63664-07-01 17:45 J -21531670.87 -21531670.76 -21531670.65 0.1954 0.0651
 Mercury -63661-04-05 12:13 J -21530662.05 -21530661.99 -21530661.93 0.1591 0.1473
 Mercury -63655-11-22 01:25 J -21528240.55 -21528240.44 -21528240.33 0.1949 0.0385
 Mercury -63652-08-26 14:23 J -21527232.06 -21527231.90 -21527231.74 0.1594 0.0559
 Mercury -63645-04-13 09:06 J -21524810.20 -21524810.12 -21524810.05 0.1942 0.1434
 Mercury -63642-01-16 16:18 J -21523801.99 -21523801.82 -21523801.66 0.1598 0.0371
 Mercury -63634-08-10 10:04 J -21520674.12 -21520674.08 -21520674.04 0.1959 0.1819
 Mercury -63633-06-07 18:13 J -21520371.83 -21520371.74 -21520371.64 0.1603 0.1294

Mercury -63625-12-30 17:45 J -21517243.86 -21517243.76 -21517243.65 0.1954 0.0769

Mercury -63615-05-23 01:25 J -21513813.56 -21513813.44 -21513813.33 0.1948 0.0289

Mercury -63612-02-24 14:52 J -21512805.03 -21512804.88 -21512804.73 0.1594 0.0688

Mercury -63606-10-13 09:06 J -21510383.21 -21510383.12 -21510383.04 0.1943 0.1325

Venus -63603-03-25 11:01 J -21509489.13 -21509489.04 -21509488.94 0.1760 0.1467

Mercury -63603-07-17 17:01 J -21509374.96 -21509374.79 -21509374.62 0.1598 0.0227

Mercury -63594-02-08 10:04 J -21506247.09 -21506247.08 -21506247.06 0.1960 0.1930

Mercury -63594-12-07 18:57 J -21505944.82 -21505944.71 -21505944.59 0.1602 0.1154

Earth -63592-12-29 16:18 J -21505191.92 -21505191.82 -21505191.73 0.1568 0.1353

Moon -63592-12-29 22:33 J -21505191.62 -21505191.56 -21505191.48 0.1568 0.1452

Mercury -63585-06-30 17:45 J -21502816.86 -21502816.76 -21502816.66 0.1954 0.0886

Venus -63578-10-13 04:33 J -21500156.42 -21500156.31 -21500156.19 0.1802 0.1338

Mercury -63576-11-21 01:25 J -21499386.56 -21499386.44 -21499386.33 0.1949 0.0176

Mercury -63573-08-25 15:35 J -21498377.99 -21498377.85 -21498377.71 0.1594 0.0827

Venus -63571-03-24 15:49 J -21497801.94 -21497801.84 -21497801.73 0.1744 0.1402

Mercury -63566-04-13 09:06 J -21495956.21 -21495956.12 -21495956.03 0.1943 0.1208

Mercury -63563-01-15 17:45 J -21494947.93 -21494947.76 -21494947.60 0.1598 0.0100

Mercury -63554-06-07 19:40 J -21491517.81 -21491517.68 -21491517.55 0.1602 0.1022

Mercury -63546-12-30 17:45 J -21488389.86 -21488389.76 -21488389.67 0.1954 0.0981

Earth -63545-12-23 23:16 J -21488030.68 -21488030.53 -21488030.38 0.1571 0.0983

Moon -63545-12-24 04:33 J -21488030.46 -21488030.31 -21488030.15 0.1571 0.0841 *

Mercury -63536-05-22 01:25 J -21484959.55 -21484959.44 -21484959.32 0.1949 0.0059

Mercury -63533-02-24 16:18 J -21483950.95 -21483950.82 -21483950.68 0.1594 0.0973

Mercury -63527-10-12 09:06 J -21481529.22 -21481529.12 -21481529.03 0.1942 0.1096

Mercury -63524-07-16 18:13 J -21480520.90 -21480520.74 -21480520.57 0.1598 0.0051

Mercury -63515-12-06 20:23 J -21477090.79 -21477090.65 -21477090.51 0.1602 0.0884

Venus -63512-08-09 11:16 J -21476114.18 -21476114.03 -21476113.87 0.1797 0.0779

Mercury -63506-06-30 17:45 J -21473962.85 -21473962.76 -21473962.66 0.1954 0.1103

Venus -63505-01-20 00:28 J -21473759.62 -21473759.48 -21473759.33 0.1749 0.0964

Mercury -63497-11-20 01:25 J -21470532.56 -21470532.44 -21470532.33 0.1948 0.0062

Mercury -63494-08-25 17:01 J -21469523.91 -21469523.79 -21469523.67 0.1594 0.1101
 Mercury -63487-04-12 08:52 J -21467102.22 -21467102.13 -21467102.03 0.1943 0.0998
 Mercury -63484-01-14 19:11 J -21466093.87 -21466093.70 -21466093.54 0.1598 0.0189
 Mercury -63475-06-06 21:06 J -21462663.77 -21462663.62 -21462663.47 0.1602 0.0744
 Mercury -63467-12-29 17:45 J -21459535.85 -21459535.76 -21459535.67 0.1954 0.1215
 Moon -63466-12-26 22:47 J -21459173.73 -21459173.55 -21459173.37 0.1570 0.0132
 Earth -63466-12-26 23:45 J -21459173.70 -21459173.51 -21459173.32 0.1570 0.0083 *
 Mercury -63457-05-21 01:25 J -21456105.56 -21456105.44 -21456105.33 0.1949 0.0166
 Mercury -63454-02-23 17:45 J -21455096.87 -21455096.76 -21455096.66 0.1594 0.1238
 Mercury -63448-10-11 09:06 J -21452675.22 -21452675.12 -21452675.02 0.1943 0.0873
 Venus -63446-06-06 18:28 J -21452071.90 -21452071.73 -21452071.56 0.1792 0.0246
 Mercury -63445-07-15 19:40 J -21451666.84 -21451666.68 -21451666.51 0.1598 0.0317
 Venus -63440-11-16 09:21 J -21449717.28 -21449717.11 -21449716.95 0.1753 0.0525
 Mercury -63438-03-03 16:33 J -21449244.82 -21449244.81 -21449244.79 0.1936 0.1918
 Mercury -63436-12-05 21:35 J -21448236.75 -21448236.60 -21448236.44 0.1602 0.0610
 Mercury -63427-06-29 17:45 J -21445108.85 -21445108.76 -21445108.68 0.1954 0.1313
 Mercury -63426-04-27 23:45 J -21444806.55 -21444806.51 -21444806.46 0.1607 0.1532
 Mercury -63418-11-20 01:25 J -21441678.55 -21441678.44 -21441678.32 0.1949 0.0281
 Mercury -63415-08-24 18:28 J -21440669.81 -21440669.73 -21440669.65 0.1594 0.1381
 Earth -63410-06-29 07:11 J -21438900.37 -21438900.20 -21438900.03 0.1976 0.1036
 Moon -63410-06-29 10:33 J -21438900.26 -21438900.06 -21438899.86 0.1976 0.0841 *
 Mercury -63408-04-11 09:06 J -21438248.23 -21438248.12 -21438248.02 0.1943 0.0771
 Mercury -63405-01-14 20:23 J -21437239.81 -21437239.65 -21437239.49 0.1598 0.0453
 Mercury -63399-09-01 16:47 J -21434817.84 -21434817.80 -21434817.76 0.1937 0.1796
 Mercury -63396-06-05 22:18 J -21433809.73 -21433809.57 -21433809.41 0.1602 0.0473
 Mercury -63388-12-28 17:45 J -21430681.84 -21430681.76 -21430681.68 0.1954 0.1430
 Mercury -63387-10-27 00:13 J -21430379.56 -21430379.49 -21430379.41 0.1607 0.1404
 Moon -63387-12-28 18:13 J -21430316.91 -21430316.74 -21430316.57 0.1570 0.0715
 Earth -63387-12-29 00:28 J -21430316.65 -21430316.48 -21430316.32 0.1570 0.0825 *
 Venus -63380-04-03 01:25 J -21428029.61 -21428029.44 -21428029.27 0.1787 0.0293

Mercury -63378-05-21 01:11 J -21427251.56 -21427251.45 -21427251.33 0.1949 0.0385

Mercury -63375-02-22 18:57 J -21426242.76 -21426242.71 -21426242.66 0.1594 0.1512

Venus -63374-09-13 17:30 J -21425674.94 -21425674.77 -21425674.59 0.1758 0.0065

Mercury -63369-10-10 09:06 J -21423821.23 -21423821.12 -21423821.01 0.1943 0.0658

Mercury -63366-07-15 21:06 J -21422812.77 -21422812.62 -21422812.46 0.1598 0.0597

Mercury -63359-03-02 16:47 J -21420390.85 -21420390.80 -21420390.75 0.1936 0.1682

Mercury -63357-12-04 23:01 J -21419382.70 -21419382.54 -21419382.37 0.1602 0.0334

Mercury -63348-06-28 17:45 J -21416254.83 -21416254.76 -21416254.69 0.1954 0.1543

Mercury -63347-04-27 00:57 J -21415952.56 -21415952.46 -21415952.36 0.1606 0.1267

Earth -63340-12-23 06:57 J -21413155.24 -21413155.21 -21413155.17 0.1574 0.1535

Mercury -63339-11-19 01:25 J -21412824.55 -21412824.44 -21412824.33 0.1949 0.0492

Mercury -63329-04-10 09:06 J -21409394.23 -21409394.12 -21409394.01 0.1943 0.0547

Mercury -63326-01-13 21:49 J -21408385.74 -21408385.59 -21408385.45 0.1598 0.0729

Mercury -63320-08-31 16:47 J -21405963.87 -21405963.80 -21405963.74 0.1937 0.1586

Mercury -63317-06-04 23:45 J -21404955.68 -21404955.51 -21404955.35 0.1602 0.0202

Venus -63314-01-29 08:52 J -21403987.28 -21403987.13 -21403986.97 0.1782 0.0801

Mercury -63309-12-27 17:45 J -21401827.82 -21401827.76 -21401827.70 0.1955 0.1641

Venus -63308-07-11 02:09 J -21401632.58 -21401632.41 -21401632.24 0.1763 0.0393

Mercury -63308-10-26 01:54 J -21401525.54 -21401525.42 -21401525.31 0.1606 0.1123

Mercury -63299-05-20 01:25 J -21398397.55 -21398397.44 -21398397.33 0.1949 0.0608

Mercury -63290-10-10 09:06 J -21394967.23 -21394967.12 -21394967.01 0.1943 0.0437

Mercury -63287-07-14 22:18 J -21393958.71 -21393958.57 -21393958.43 0.1598 0.0863

Mercury -63280-03-01 16:47 J -21391536.88 -21391536.80 -21391536.73 0.1937 0.1468

Mercury -63278-12-05 00:28 J -21390528.65 -21390528.48 -21390528.32 0.1602 0.0075

Mercury -63269-06-27 17:45 J -21387400.81 -21387400.76 -21387400.71 0.1955 0.1760

Mercury -63268-04-26 02:23 J -21387098.53 -21387098.40 -21387098.27 0.1606 0.0993

Earth -63261-12-25 07:54 J -21384298.35 -21384298.17 -21384297.99 0.1573 0.0621

Moon -63261-12-25 08:37 J -21384298.33 -21384298.14 -21384297.94 0.1573 0.0552 *

Mercury -63260-11-18 01:11 J -21383970.55 -21383970.45 -21383970.34 0.1949 0.0710

Mercury -63250-04-10 09:06 J -21380540.24 -21380540.12 -21380540.01 0.1943 0.0337

Venus -63249-11-25 16:04 J -21379944.94 -21379944.83 -21379944.71 0.1777 0.1308

Mercury -63247-01-12 23:16 J -21379531.66 -21379531.53 -21379531.40 0.1598 0.1008

Venus -63242-05-08 09:49 J -21377590.23 -21377590.09 -21377589.94 0.1768 0.0886

Mercury -63241-08-30 16:47 J -21377109.88 -21377109.80 -21377109.72 0.1937 0.1349

Mercury -63238-06-05 01:11 J -21376101.62 -21376101.45 -21376101.29 0.1602 0.0086

Mercury -63230-12-27 17:45 J -21372973.79 -21372973.76 -21372973.73 0.1954 0.1868

Mercury -63229-10-25 02:52 J -21372671.52 -21372671.38 -21372671.24 0.1606 0.0859

Mercury -63220-05-19 01:25 J -21369543.55 -21369543.44 -21369543.34 0.1949 0.0819

Mercury -63211-10-09 09:06 J -21366113.24 -21366113.12 -21366113.01 0.1943 0.0214

Mercury -63208-07-13 23:45 J -21365104.63 -21365104.51 -21365104.39 0.1598 0.1139

Mercury -63201-02-29 16:33 J -21362682.89 -21362682.81 -21362682.72 0.1937 0.1259

Mercury -63199-12-04 01:40 J -21361674.60 -21361674.43 -21361674.26 0.1602 0.0212

Mercury -63189-04-25 03:49 J -21358244.49 -21358244.34 -21358244.19 0.1606 0.0714

Earth -63182-12-28 07:54 J -21355441.35 -21355441.17 -21355440.98 0.1572 0.0288

Moon -63182-12-28 14:09 J -21355441.09 -21355440.91 -21355440.72 0.1572 0.0316 *

Mercury -63181-11-17 01:25 J -21355116.54 -21355116.44 -21355116.34 0.1949 0.0938

Venus -63176-03-04 17:59 J -21353547.85 -21353547.75 -21353547.64 0.1773 0.1372

Mercury -63171-04-09 09:06 J -21351686.24 -21351686.12 -21351686.01 0.1943 0.0125

Mercury -63168-01-12 00:28 J -21350677.58 -21350677.48 -21350677.38 0.1598 0.1274

Mercury -63162-08-30 16:47 J -21348255.89 -21348255.80 -21348255.71 0.1937 0.1135

Mercury -63159-06-04 02:23 J -21347247.57 -21347247.40 -21347247.24 0.1602 0.0348

Venus -63151-09-22 09:06 J -21344215.23 -21344215.12 -21344215.01 0.1789 0.1341

Mercury -63150-10-25 04:18 J -21343817.48 -21343817.32 -21343817.17 0.1606 0.0586

Venus -63144-03-03 23:59 J -21341860.58 -21341860.50 -21341860.43 0.1757 0.1574

Mercury -63141-05-18 01:11 J -21340689.54 -21340689.45 -21340689.35 0.1949 0.1032

Mercury -63140-03-16 06:28 J -21340387.29 -21340387.23 -21340387.18 0.1611 0.1514

Mercury -63132-10-08 09:06 J -21337259.24 -21337259.12 -21337259.01 0.1944 0.0038

Mercury -63129-07-13 01:11 J -21336250.52 -21336250.45 -21336250.37 0.1598 0.1417

Mercury -63122-02-28 16:47 J -21333828.90 -21333828.80 -21333828.70 0.1937 0.1024

Mercury -63120-12-03 03:06 J -21332820.53 -21332820.37 -21332820.21 0.1602 0.0486

Mercury -63110-04-25 05:01 J -21329390.45 -21329390.29 -21329390.13 0.1606 0.0448

Earth -63103-12-30 08:52 J -21326584.25 -21326584.13 -21326584.01 0.1571 0.1197

Moon -63103-12-30 11:16 J -21326584.14 -21326584.03 -21326583.91 0.1571 0.1188 *

Mercury -63102-11-17 01:25 J -21326262.54 -21326262.44 -21326262.35 0.1949 0.1149

Mercury -63101-09-14 06:57 J -21325960.29 -21325960.21 -21325960.13 0.1611 0.1383

Mercury -63092-04-08 09:06 J -21322832.24 -21322832.12 -21322832.01 0.1943 0.0129

Mercury -63089-01-12 01:40 J -21321823.46 -21321823.43 -21321823.39 0.1598 0.1548

Venus -63085-07-19 16:04 J -21320172.98 -21320172.83 -21320172.67 0.1784 0.0807

Mercury -63083-08-29 16:47 J -21319401.91 -21319401.80 -21319401.70 0.1937 0.0928

Mercury -63080-06-03 03:35 J -21318393.50 -21318393.35 -21318393.19 0.1602 0.0624

Venus -63079-12-30 08:09 J -21317818.30 -21317818.16 -21317818.03 0.1762 0.1112

Mercury -63071-10-24 05:45 J -21314963.42 -21314963.26 -21314963.10 0.1606 0.0305

Mercury -63062-05-18 01:25 J -21311835.53 -21311835.44 -21311835.36 0.1949 0.1262

Mercury -63061-03-15 07:40 J -21311533.29 -21311533.18 -21311533.08 0.1611 0.1248

Moon -63056-12-24 12:42 J -21309423.06 -21309422.97 -21309422.87 0.1576 0.1320

Earth -63056-12-24 14:52 J -21309423.00 -21309422.88 -21309422.75 0.1576 0.1185 *

Mercury -63053-10-07 09:06 J -21308405.24 -21308405.12 -21308405.01 0.1943 0.0227

Moon -63047-07-01 13:11 J -21306312.16 -21306311.95 -21306311.75 0.1974 0.0638

Earth -63047-07-01 18:42 J -21306311.91 -21306311.72 -21306311.53 0.1974 0.0584 *

Mercury -63043-02-27 16:47 J -21304974.91 -21304974.80 -21304974.70 0.1937 0.0809

Mercury -63041-12-02 04:18 J -21303966.46 -21303966.32 -21303966.17 0.1602 0.0759

Mercury -63034-07-21 00:28 J -21301544.52 -21301544.48 -21301544.45 0.1930 0.1831

Mercury -63031-04-24 06:13 J -21300536.40 -21300536.24 -21300536.07 0.1606 0.0177

Mercury -63023-11-16 01:11 J -21297408.53 -21297408.45 -21297408.37 0.1949 0.1358

Mercury -63022-09-14 08:23 J -21297106.27 -21297106.15 -21297106.03 0.1611 0.1108

Venus -63019-05-16 23:45 J -21296130.69 -21296130.51 -21296130.34 0.1778 0.0301

Mercury -63013-04-07 09:06 J -21293978.24 -21293978.12 -21293978.01 0.1944 0.0336

Venus -63013-10-26 16:18 J -21293775.98 -21293775.82 -21293775.65 0.1767 0.0649

Mercury -63004-08-28 16:47 J -21290547.91 -21290547.80 -21290547.69 0.1937 0.0693

Mercury -63001-06-02 05:01 J -21289539.43 -21289539.29 -21289539.15 0.1601 0.0895

63RD MILLENNIUM BCE

This is a list of transits visible from Mars in the 63rd millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -62994-01-19 00:28 J | -21287117.53 | -21287117.48 | -21287117.43 | 0.1930 | 0.1724 | | |
| Mercury | -62992-10-23 06:57 J | -21286109.38 | -21286109.21 | -21286109.04 | 0.1606 | 0.0040 | | |
| Mercury | -62983-05-17 01:11 J | -21282981.52 | -21282981.45 | -21282981.37 | 0.1949 | 0.1470 | | |
| Mercury | -62982-03-15 08:52 J | -21282679.26 | -21282679.13 | -21282679.00 | 0.1611 | 0.0975 | | |
| Moon | -62977-12-26 09:35 J | -21280566.29 | -21280566.10 | -21280565.91 | 0.1575 | 0.0247 | | |
| Earth | -62977-12-26 16:18 J | -21280566.01 | -21280565.82 | -21280565.63 | 0.1574 | 0.0266 | * | |
| Mercury | -62974-10-07 09:06 J | -21279551.23 | -21279551.12 | -21279551.01 | 0.1943 | 0.0444 | | |
| Mercury | -62964-02-26 16:33 J | -21276120.92 | -21276120.81 | -21276120.70 | 0.1937 | 0.0602 | | |
| Mercury | -62962-12-02 05:45 J | -21275112.39 | -21275112.26 | -21275112.13 | 0.1602 | 0.1032 | | |
| Mercury | -62955-07-20 00:28 J | -21272690.54 | -21272690.48 | -21272690.41 | 0.1931 | 0.1604 | | |
| Venus | -62953-03-13 06:57 J | -21272088.38 | -21272088.21 | -21272088.04 | 0.1774 | 0.0212 | | |
| Mercury | -62952-04-23 07:40 J | -21271682.34 | -21271682.18 | -21271682.01 | 0.1606 | 0.0110 | | |
| Venus | -62947-08-24 00:13 J | -21269733.66 | -21269733.49 | -21269733.31 | 0.1771 | 0.0167 | | |
| Mercury | -62944-11-15 01:25 J | -21268554.51 | -21268554.44 | -21268554.38 | 0.1950 | 0.1591 | | |
| Mercury | -62943-09-13 09:35 J | -21268252.24 | -21268252.10 | -21268251.96 | 0.1610 | 0.0839 | | |
| Mercury | -62934-04-07 08:52 J | -21265124.24 | -21265124.13 | -21265124.02 | 0.1943 | 0.0545 | | |
| Mercury | -62925-08-27 16:47 J | -21261693.91 | -21261693.80 | -21261693.69 | 0.1937 | 0.0478 | | |
| Mercury | -62922-06-02 06:28 J | -21260685.35 | -21260685.23 | -21260685.12 | 0.1601 | 0.1168 | | |
| Mercury | -62915-01-18 00:28 J | -21258263.55 | -21258263.48 | -21258263.41 | 0.1930 | 0.1507 | | |

Mercury -62913-10-22 08:23 J -21257255.32 -21257255.15 -21257254.99 0.1606 0.0238
 Mercury -62904-05-16 01:11 J -21254127.51 -21254127.45 -21254127.40 0.1949 0.1681
 Mercury -62903-03-14 10:18 J -21253825.22 -21253825.07 -21253824.92 0.1610 0.0697
 Moon -62898-12-29 13:40 J -21251709.12 -21251708.93 -21251708.75 0.1573 0.0651
 Earth -62898-12-29 16:33 J -21251708.98 -21251708.81 -21251708.64 0.1573 0.0653 *
 Mercury -62895-10-06 09:06 J -21250697.23 -21250697.12 -21250697.02 0.1944 0.0661
 Venus -62887-01-08 14:52 J -21248046.04 -21248045.88 -21248045.72 0.1768 0.0695
 Mercury -62885-02-26 16:47 J -21247266.92 -21247266.80 -21247266.69 0.1937 0.0370
 Mercury -62883-12-01 06:57 J -21246258.30 -21246258.21 -21246258.11 0.1601 0.1306
 Venus -62881-06-20 08:23 J -21245691.32 -21245691.15 -21245690.98 0.1777 0.0315
 Mercury -62876-07-19 00:28 J -21243836.56 -21243836.48 -21243836.40 0.1931 0.1392
 Mercury -62873-04-22 08:52 J -21242828.29 -21242828.13 -21242827.96 0.1606 0.0374
 Mercury -62865-11-14 01:11 J -21239700.49 -21239700.45 -21239700.41 0.1950 0.1798
 Mercury -62864-09-12 10:47 J -21239398.20 -21239398.05 -21239397.89 0.1610 0.0568
 Mercury -62855-04-06 08:52 J -21236270.23 -21236270.13 -21236270.02 0.1943 0.0764
 Mercury -62854-02-02 12:42 J -21235968.03 -21235967.97 -21235967.91 0.1615 0.1509
 Moon -62851-12-24 01:25 J -21234547.46 -21234547.44 -21234547.41 0.1579 0.1565
 Mercury -62846-08-27 16:33 J -21232839.92 -21232839.81 -21232839.69 0.1938 0.0279
 Mercury -62843-06-01 07:40 J -21231831.25 -21231831.18 -21231831.11 0.1601 0.1444
 Mercury -62836-01-17 00:28 J -21229409.56 -21229409.48 -21229409.39 0.1931 0.1277
 Mercury -62834-10-22 09:35 J -21228401.25 -21228401.10 -21228400.94 0.1605 0.0515
 Mercury -62825-05-15 01:11 J -21225273.46 -21225273.45 -21225273.43 0.1950 0.1912
 Mercury -62824-03-13 11:30 J -21224971.18 -21224971.02 -21224970.86 0.1610 0.0431
 Venus -62822-11-05 22:33 J -21224003.69 -21224003.56 -21224003.43 0.1764 0.1178
 Earth -62819-12-31 17:01 J -21222851.80 -21222851.79 -21222851.79 0.1572 0.1570
 Moon -62819-12-31 21:35 J -21222851.65 -21222851.60 -21222851.56 0.1572 0.1527
 Mercury -62816-10-05 08:52 J -21221843.23 -21221843.13 -21221843.02 0.1944 0.0875
 Venus -62815-04-17 15:49 J -21221648.99 -21221648.84 -21221648.69 0.1781 0.0831
 Mercury -62815-08-03 13:25 J -21221541.03 -21221540.94 -21221540.85 0.1615 0.1371
 Mercury -62806-02-25 16:47 J -21218412.92 -21218412.80 -21218412.69 0.1938 0.0158

Mercury -62804-11-30 08:23 J -21217404.17 -21217404.15 -21217404.13 0.1601 0.1577
 Mercury -62797-07-18 00:28 J -21214982.57 -21214982.48 -21214982.39 0.1931 0.1178
 Mercury -62794-04-22 10:18 J -21213974.22 -21213974.07 -21213973.92 0.1606 0.0644
 Mercury -62785-09-11 12:13 J -21210544.15 -21210543.99 -21210543.82 0.1610 0.0288
 Mercury -62776-04-05 08:52 J -21207416.22 -21207416.13 -21207416.03 0.1944 0.0987
 Mercury -62775-02-01 14:09 J -21207114.02 -21207113.91 -21207113.81 0.1615 0.1234
 Earth -62772-12-25 22:47 J -21205690.71 -21205690.55 -21205690.39 0.1578 0.0834
 Moon -62772-12-26 05:30 J -21205690.43 -21205690.27 -21205690.11 0.1578 0.0879 *
 Mercury -62767-08-26 16:47 J -21203985.92 -21203985.80 -21203985.69 0.1937 0.0050
 Moon -62763-06-30 08:52 J -21202582.30 -21202582.13 -21202581.96 0.1970 0.0694
 Earth -62763-06-30 11:30 J -21202582.19 -21202582.02 -21202581.84 0.1970 0.0957 *
 Mercury -62757-01-17 00:28 J -21200555.58 -21200555.48 -21200555.39 0.1931 0.1068
 Venus -62756-09-02 06:57 J -21199961.27 -21199961.21 -21199961.15 0.1759 0.1627
 Mercury -62755-10-21 11:01 J -21199547.19 -21199547.04 -21199546.90 0.1605 0.0781
 Venus -62749-02-12 23:30 J -21197606.63 -21197606.52 -21197606.40 0.1787 0.1338
 Mercury -62745-03-12 12:42 J -21196117.13 -21196116.97 -21196116.80 0.1610 0.0163
 Mercury -62737-10-04 08:52 J -21192989.22 -21192989.13 -21192989.03 0.1944 0.1092
 Mercury -62736-08-02 14:37 J -21192687.01 -21192686.89 -21192686.77 0.1615 0.1100
 Mercury -62727-02-24 16:33 J -21189558.92 -21189558.81 -21189558.69 0.1938 0.0070
 Venus -62724-09-01 14:37 J -21188274.00 -21188273.89 -21188273.79 0.1775 0.1395
 Mercury -62718-07-18 00:28 J -21186128.58 -21186128.48 -21186128.38 0.1931 0.0947
 Venus -62717-02-12 06:42 J -21185919.27 -21185919.22 -21185919.18 0.1770 0.1692
 Mercury -62715-04-21 11:45 J -21185120.15 -21185120.01 -21185119.87 0.1605 0.0925
 Mercury -62706-09-11 13:25 J -21181690.11 -21181689.94 -21181689.77 0.1610 0.0024
 Mercury -62697-04-04 08:52 J -21178562.22 -21178562.13 -21178562.04 0.1944 0.1193
 Mercury -62696-01-31 15:21 J -21178259.99 -21178259.86 -21178259.73 0.1615 0.0964
 Earth -62693-12-27 23:45 J -21176833.70 -21176833.51 -21176833.32 0.1576 0.0088
 Moon -62693-12-28 01:40 J -21176833.61 -21176833.43 -21176833.25 0.1576 0.0128 *
 Mercury -62688-08-25 16:47 J -21175131.92 -21175131.80 -21175131.69 0.1938 0.0182
 Moon -62684-07-03 22:47 J -21173723.64 -21173723.55 -21173723.46 0.1972 0.1734

Mercury -62678-01-16 00:28 J -21171701.59 -21171701.48 -21171701.38 0.1931 0.0853

Mercury -62676-10-20 12:13 J -21170693.11 -21170692.99 -21170692.86 0.1605 0.1054

Mercury -62669-06-07 08:09 J -21168271.18 -21168271.16 -21168271.13 0.1924 0.1857

Mercury -62666-03-12 14:09 J -21167263.07 -21167262.91 -21167262.74 0.1610 0.0128

Venus -62658-06-29 21:49 J -21164231.74 -21164231.59 -21164231.43 0.1770 0.0888

Mercury -62658-10-04 09:06 J -21164135.21 -21164135.12 -21164135.04 0.1944 0.1315

Mercury -62657-08-01 16:04 J -21163832.97 -21163832.83 -21163832.69 0.1615 0.0826

Venus -62652-12-09 14:09 J -21161877.03 -21161876.91 -21161876.78 0.1775 0.1205

Mercury -62648-02-23 16:47 J -21160704.92 -21160704.80 -21160704.69 0.1938 0.0289

Mercury -62639-07-17 00:28 J -21157274.59 -21157274.48 -21157274.37 0.1931 0.0737

Mercury -62636-04-20 12:57 J -21156266.07 -21156265.96 -21156265.85 0.1605 0.1193

Mercury -62630-12-07 08:09 J -21153844.20 -21153844.16 -21153844.11 0.1924 0.1745

Mercury -62627-09-10 14:52 J -21152836.05 -21152835.88 -21152835.72 0.1610 0.0255

Mercury -62618-04-04 08:52 J -21149708.21 -21149708.13 -21149708.05 0.1944 0.1413

Mercury -62617-01-31 16:47 J -21149405.95 -21149405.80 -21149405.65 0.1615 0.0691

Moon -62614-12-30 19:25 J -21147976.83 -21147976.69 -21147976.54 0.1575 0.0990

Earth -62614-12-31 00:57 J -21147976.60 -21147976.46 -21147976.31 0.1575 0.1022 *

Mercury -62609-08-24 16:33 J -21146277.92 -21146277.81 -21146277.69 0.1938 0.0393

Mercury -62599-01-15 00:28 J -21142847.59 -21142847.48 -21142847.37 0.1931 0.0622

Mercury -62597-10-19 13:40 J -21141839.02 -21141838.93 -21141838.84 0.1605 0.1332

Venus -62592-04-26 05:59 J -21140189.42 -21140189.25 -21140189.08 0.1765 0.0406

Mercury -62590-06-07 08:09 J -21139417.22 -21139417.16 -21139417.10 0.1924 0.1638

Mercury -62587-03-11 15:21 J -21138409.02 -21138408.86 -21138408.69 0.1610 0.0392

Venus -62586-10-06 22:33 J -21137834.72 -21137834.56 -21137834.41 0.1780 0.0726

Mercury -62579-10-03 08:52 J -21135281.20 -21135281.13 -21135281.06 0.1944 0.1524

Mercury -62578-08-01 17:16 J -21134978.93 -21134978.78 -21134978.62 0.1615 0.0554

Mercury -62569-02-23 16:47 J -21131850.92 -21131850.80 -21131850.69 0.1938 0.0507

Mercury -62569-12-21 19:11 J -21131548.76 -21131548.70 -21131548.64 0.1620 0.1503

Moon -62567-12-24 23:30 J -21130815.62 -21130815.52 -21130815.42 0.1582 0.1354

Earth -62567-12-25 05:45 J -21130815.34 -21130815.26 -21130815.18 0.1582 0.1425

Mercury -62560-07-16 00:28 J -21128420.59 -21128420.48 -21128420.37 0.1931 0.0525

Mercury -62557-04-19 14:23 J -21127411.97 -21127411.90 -21127411.84 0.1605 0.1467

Mercury -62551-12-06 08:09 J -21124990.23 -21124990.16 -21124990.09 0.1925 0.1529

Mercury -62548-09-09 16:18 J -21123981.98 -21123981.82 -21123981.66 0.1610 0.0535

Mercury -62539-04-03 08:52 J -21120854.19 -21120854.13 -21120854.07 0.1944 0.1636

Mercury -62538-01-30 17:59 J -21120551.91 -21120551.75 -21120551.59 0.1614 0.0417

Mercury -62530-08-24 16:47 J -21117423.91 -21117423.80 -21117423.69 0.1938 0.0614

Mercury -62529-06-21 19:54 J -21117121.76 -21117121.67 -21117121.59 0.1620 0.1365

Venus -62526-02-21 13:40 J -21116147.11 -21116146.93 -21116146.76 0.1760 0.0084

Mercury -62520-01-14 00:28 J -21113993.59 -21113993.48 -21113993.37 0.1931 0.0411

Venus -62520-08-03 05:59 J -21113792.42 -21113792.25 -21113792.08 0.1785 0.0219

Mercury -62518-10-19 14:52 J -21112984.88 -21112984.88 -21112984.87 0.1605 0.1604

Mercury -62511-06-06 08:09 J -21110563.23 -21110563.16 -21110563.08 0.1924 0.1417

Mercury -62508-03-10 16:47 J -21109554.95 -21109554.80 -21109554.65 0.1610 0.0664

Mercury -62500-10-02 08:52 J -21106427.18 -21106427.13 -21106427.08 0.1944 0.1739

Mercury -62499-07-31 18:42 J -21106124.89 -21106124.72 -21106124.56 0.1615 0.0280

Mercury -62490-02-22 16:33 J -21102996.91 -21102996.81 -21102996.70 0.1938 0.0713

Mercury -62490-12-21 20:37 J -21102694.75 -21102694.64 -21102694.53 0.1619 0.1221

Moon -62488-12-27 06:42 J -21101958.41 -21101958.22 -21101958.03 0.1580 0.0571

Earth -62488-12-27 06:57 J -21101958.39 -21101958.21 -21101958.03 0.1580 0.0478 *

Mercury -62481-07-15 00:28 J -21099566.59 -21099566.48 -21099566.36 0.1932 0.0298

Moon -62479-06-29 15:06 J -21098851.93 -21098851.87 -21098851.81 0.1964 0.1874

Mercury -62472-12-05 08:09 J -21096136.24 -21096136.16 -21096136.07 0.1924 0.1312

Mercury -62469-09-08 17:30 J -21095127.92 -21095127.77 -21095127.63 0.1610 0.0800

Venus -62461-12-18 21:49 J -21092104.75 -21092104.59 -21092104.42 0.1755 0.0537

Mercury -62460-04-02 08:52 J -21092000.16 -21092000.13 -21092000.10 0.1944 0.1844

Mercury -62459-01-29 19:11 J -21091697.86 -21091697.70 -21091697.53 0.1614 0.0149

Venus -62454-05-31 13:40 J -21089750.10 -21089749.93 -21089749.76 0.1790 0.0284

Mercury -62451-08-23 16:47 J -21088569.91 -21088569.80 -21088569.70 0.1938 0.0833

Mercury -62450-06-21 21:06 J -21088267.74 -21088267.62 -21088267.50 0.1620 0.1093

Mercury -62441-01-14 00:28 J -21085139.60 -21085139.48 -21085139.37 0.1931 0.0208

Mercury -62432-06-05 08:09 J -21081709.24 -21081709.16 -21081709.07 0.1925 0.1201

Mercury -62429-03-09 18:13 J -21080700.87 -21080700.74 -21080700.60 0.1609 0.0946

Mercury -62420-07-30 19:54 J -21077270.83 -21077270.67 -21077270.50 0.1614 0.0038

Mercury -62411-02-21 16:47 J -21074142.90 -21074142.80 -21074142.70 0.1938 0.0939

Mercury -62411-12-20 21:49 J -21073840.72 -21073840.59 -21073840.46 0.1619 0.0954

Earth -62409-12-29 07:40 J -21073101.36 -21073101.18 -21073100.99 0.1579 0.0453

Moon -62409-12-29 13:54 J -21073101.10 -21073100.92 -21073100.73 0.1578 0.0534 *

Mercury -62402-07-15 00:28 J -21070712.59 -21070712.48 -21070712.36 0.1932 0.0081

Earth -62400-07-03 01:11 J -21069993.63 -21069993.45 -21069993.26 0.1968 0.0752

Moon -62400-07-03 05:01 J -21069993.47 -21069993.29 -21069993.11 0.1968 0.0488 *

Venus -62395-10-16 06:13 J -21068062.39 -21068062.24 -21068062.10 0.1751 0.0991

Mercury -62393-12-04 08:09 J -21067282.25 -21067282.16 -21067282.06 0.1924 0.1090

Mercury -62390-09-08 18:42 J -21066273.84 -21066273.72 -21066273.59 0.1609 0.1077

Venus -62388-03-27 20:52 J -21065707.78 -21065707.63 -21065707.47 0.1795 0.0819

Mercury -62380-01-28 20:37 J -21062843.80 -21062843.64 -21062843.47 0.1614 0.0134

Mercury -62372-08-22 16:33 J -21059715.90 -21059715.81 -21059715.71 0.1938 0.1043

Mercury -62371-06-20 22:33 J -21059413.70 -21059413.56 -21059413.42 0.1619 0.0811

Mercury -62362-01-13 00:28 J -21056285.59 -21056285.48 -21056285.36 0.1932 0.0064

Mercury -62353-06-04 08:09 J -21052855.25 -21052855.16 -21052855.06 0.1925 0.0984

Mercury -62350-03-09 19:25 J -21051846.80 -21051846.69 -21051846.58 0.1609 0.1214

Mercury -62341-07-29 21:21 J -21048416.78 -21048416.61 -21048416.45 0.1614 0.0270

Mercury -62332-02-20 16:47 J -21045288.89 -21045288.80 -21045288.71 0.1938 0.1157

Mercury -62332-12-19 23:01 J -21044986.69 -21044986.54 -21044986.39 0.1619 0.0683

Earth -62329-01-01 08:52 J -21044244.22 -21044244.13 -21044244.04 0.1577 0.1390

Moon -62329-01-01 13:54 J -21044243.97 -21044243.92 -21044243.86 0.1577 0.1499

Venus -62329-08-12 14:52 J -21044019.98 -21044019.88 -21044019.78 0.1746 0.1419

Mercury -62323-07-14 00:28 J -21041858.60 -21041858.48 -21041858.37 0.1932 0.0136

Venus -62322-01-23 04:18 J -21041665.43 -21041665.32 -21041665.20 0.1800 0.1344

Mercury -62322-05-12 01:11 J -21041556.45 -21041556.45 -21041556.45 0.1625 0.1624

Mercury -62314-12-04 08:23 J -21038428.26 -21038428.15 -21038428.05 0.1925 0.0871
 Mercury -62311-09-07 20:23 J -21037419.74 -21037419.65 -21037419.57 0.1609 0.1359
 Mercury -62304-04-25 16:04 J -21034997.85 -21034997.83 -21034997.81 0.1917 0.1870
 Mercury -62301-01-28 22:04 J -21033989.75 -21033989.58 -21033989.42 0.1614 0.0408
 Venus -62297-08-11 21:21 J -21032332.70 -21032332.61 -21032332.52 0.1762 0.1509
 Mercury -62293-08-21 16:47 J -21030861.89 -21030861.80 -21030861.72 0.1938 0.1266
 Mercury -62292-06-19 23:45 J -21030559.66 -21030559.51 -21030559.35 0.1619 0.0543
 Venus -62290-01-22 12:28 J -21029978.00 -21029977.98 -21029977.96 0.1783 0.1771
 Mercury -62283-01-12 00:28 J -21027431.59 -21027431.48 -21027431.36 0.1932 0.0247
 Mercury -62283-11-10 01:40 J -21027129.49 -21027129.43 -21027129.37 0.1624 0.1495
 Earth -62283-12-26 13:40 J -21027083.07 -21027082.93 -21027082.79 0.1585 0.1079
 Moon -62283-12-26 13:54 J -21027083.06 -21027082.92 -21027082.78 0.1585 0.0965 *
 Mercury -62274-06-04 08:09 J -21024001.26 -21024001.16 -21024001.05 0.1925 0.0765
 Mercury -62271-03-08 20:52 J -21022992.69 -21022992.63 -21022992.57 0.1609 0.1488
 Mercury -62265-10-24 16:04 J -21020570.88 -21020570.83 -21020570.79 0.1918 0.1771
 Mercury -62262-07-29 22:47 J -21019562.71 -21019562.55 -21019562.40 0.1614 0.0548
 Mercury -62253-02-20 16:33 J -21016434.89 -21016434.81 -21016434.73 0.1939 0.1369
 Mercury -62253-12-19 00:28 J -21016132.64 -21016132.48 -21016132.31 0.1619 0.0401
 Mercury -62244-07-13 00:28 J -21013004.59 -21013004.48 -21013004.36 0.1932 0.0372
 Mercury -62243-05-11 02:09 J -21012702.49 -21012702.41 -21012702.32 0.1624 0.1360
 Mercury -62235-12-03 08:09 J -21009574.26 -21009574.16 -21009574.05 0.1925 0.0660
 Venus -62231-06-09 05:16 J -21008290.42 -21008290.28 -21008290.14 0.1757 0.1034
 Mercury -62225-04-24 16:04 J -21006143.89 -21006143.83 -21006143.77 0.1918 0.1653
 Venus -62225-11-18 19:54 J -21005935.80 -21005935.67 -21005935.55 0.1789 0.1260
 Mercury -62222-01-27 23:16 J -21005135.68 -21005135.53 -21005135.38 0.1614 0.0683
 Mercury -62214-08-21 16:47 J -21002007.87 -21002007.80 -21002007.73 0.1938 0.1485
 Mercury -62213-06-19 01:11 J -21001705.62 -21001705.45 -21001705.29 0.1619 0.0274
 Mercury -62204-01-11 00:28 J -20998577.59 -20998577.48 -20998577.37 0.1932 0.0457
 Mercury -62204-11-09 03:06 J -20998275.48 -20998275.37 -20998275.26 0.1624 0.1215
 Moon -62204-12-28 09:35 J -20998226.29 -20998226.10 -20998225.92 0.1583 0.0207

Earth -62204-12-28 15:06 J -20998226.06 -20998225.87 -20998225.68 0.1583 0.0118 *
 Mercury -62195-06-03 08:23 J -20995147.26 -20995147.15 -20995147.04 0.1925 0.0542
 Mercury -62186-10-24 16:04 J -20991716.89 -20991716.83 -20991716.76 0.1918 0.1539
 Mercury -62183-07-28 23:59 J -20990708.64 -20990708.50 -20990708.36 0.1614 0.0820
 Mercury -62174-02-19 16:47 J -20987580.87 -20987580.80 -20987580.74 0.1938 0.1588
 Mercury -62174-12-19 01:40 J -20987278.59 -20987278.43 -20987278.26 0.1619 0.0137
 Venus -62165-04-05 13:40 J -20984248.10 -20984247.93 -20984247.77 0.1752 0.0577
 Mercury -62165-07-12 00:28 J -20984150.59 -20984150.48 -20984150.37 0.1932 0.0576
 Mercury -62164-05-10 03:35 J -20983848.47 -20983848.35 -20983848.23 0.1624 0.1084
 Venus -62159-09-16 03:49 J -20981893.50 -20981893.34 -20981893.19 0.1793 0.0768
 Mercury -62156-12-02 08:23 J -20980720.27 -20980720.15 -20980720.04 0.1925 0.0436
 Mercury -62146-04-24 16:04 J -20977289.91 -20977289.83 -20977289.76 0.1918 0.1445
 Mercury -62143-01-27 00:42 J -20976281.60 -20976281.47 -20976281.34 0.1614 0.0960
 Mercury -62135-08-20 16:47 J -20973153.86 -20973153.80 -20973153.75 0.1939 0.1696
 Mercury -62134-06-19 02:37 J -20972851.56 -20972851.39 -20972851.23 0.1619 0.0034
 Mercury -62125-01-11 00:28 J -20969723.58 -20969723.48 -20969723.37 0.1932 0.0695
 Mercury -62125-11-08 04:18 J -20969421.46 -20969421.32 -20969421.19 0.1624 0.0948
 Moon -62125-12-30 11:59 J -20969369.18 -20969369.00 -20969368.83 0.1581 0.0782
 Earth -62125-12-30 16:04 J -20969368.99 -20969368.83 -20969368.67 0.1581 0.0822 *
 Mercury -62116-06-02 08:23 J -20966293.27 -20966293.15 -20966293.04 0.1925 0.0333
 Earth -62116-07-01 20:23 J -20966263.83 -20966263.65 -20966263.46 0.1962 0.0706
 Moon -62116-07-01 22:47 J -20966263.75 -20966263.55 -20966263.35 0.1962 0.0849 *
 Mercury -62107-10-23 16:04 J -20962862.91 -20962862.83 -20962862.74 0.1918 0.1323
 Mercury -62104-07-28 01:25 J -20961854.56 -20961854.44 -20961854.32 0.1614 0.1096
 Venus -62099-01-31 21:35 J -20960205.77 -20960205.60 -20960205.42 0.1747 0.0118
 Mercury -62095-02-18 16:47 J -20958726.84 -20958726.80 -20958726.76 0.1939 0.1807
 Mercury -62095-12-18 03:06 J -20958424.54 -20958424.37 -20958424.20 0.1619 0.0143
 Venus -62093-07-13 11:01 J -20957851.21 -20957851.04 -20957850.87 0.1798 0.0239
 Mercury -62086-07-12 00:28 J -20955296.59 -20955296.48 -20955296.38 0.1932 0.0785
 Mercury -62085-05-09 05:01 J -20954994.43 -20954994.29 -20954994.14 0.1624 0.0801

Mercury -62077-12-01 08:23 J -20951866.27 -20951866.15 -20951866.04 0.1925 0.0213

Mercury -62067-04-23 16:04 J -20948435.92 -20948435.83 -20948435.74 0.1918 0.1215

Mercury -62064-01-26 01:54 J -20947427.52 -20947427.42 -20947427.31 0.1614 0.1233

Mercury -62056-08-19 16:47 J -20944299.82 -20944299.80 -20944299.79 0.1939 0.1915

Mercury -62055-06-18 03:49 J -20943997.50 -20943997.34 -20943997.18 0.1619 0.0284

Mercury -62046-01-10 00:28 J -20940869.58 -20940869.48 -20940869.38 0.1932 0.0900

Mercury -62046-11-08 05:30 J -20940567.42 -20940567.27 -20940567.12 0.1624 0.0673

Mercury -62037-06-01 08:23 J -20937439.27 -20937439.15 -20937439.04 0.1925 0.0116

Mercury -62036-03-30 07:25 J -20937137.19 -20937137.19 -20937137.19 0.1630 0.1629

Venus -62034-11-29 06:28 J -20936163.40 -20936163.23 -20936163.06 0.1743 0.0317

Mercury -62028-10-22 16:04 J -20934008.92 -20934008.83 -20934008.73 0.1918 0.1111

Venus -62027-05-10 18:28 J -20933808.90 -20933808.73 -20933808.56 0.1804 0.0286

Mercury -62025-07-27 02:52 J -20933000.47 -20933000.38 -20933000.30 0.1614 0.1376

Mercury -62016-12-17 04:33 J -20929570.47 -20929570.31 -20929570.15 0.1618 0.0425

Mercury -62007-07-11 00:42 J -20926442.57 -20926442.47 -20926442.38 0.1932 0.1019

Mercury -62006-05-09 06:13 J -20926140.40 -20926140.24 -20926140.08 0.1624 0.0536

62ND MILLENNIUM BCE

This is a list of transits visible from Mars in the 62nd millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Earth | -61999-12-27 20:52 J | -20923350.79 | -20923350.63 | -20923350.46 | 0.1587 | 0.0733 | | |
| Moon | -61999-12-28 03:21 J | -20923350.54 | -20923350.36 | -20923350.17 | 0.1587 | 0.0543 | * | |
| Mercury | -61998-12-01 08:23 J | -20923012.27 | -20923012.15 | -20923012.04 | 0.1925 | 0.0049 | | |

Mercury -61997-09-28 08:09 J -20922710.23 -20922710.16 -20922710.10 0.1629 0.1492

Mercury -61988-04-22 16:04 J -20919581.92 -20919581.83 -20919581.73 0.1918 0.0998

Mercury -61985-01-26 03:21 J -20918573.41 -20918573.36 -20918573.30 0.1613 0.1509

Mercury -61976-06-17 05:01 J -20915143.44 -20915143.29 -20915143.13 0.1619 0.0557

Venus -61968-09-25 15:06 J -20912121.03 -20912120.87 -20912120.71 0.1738 0.0748

Mercury -61967-01-09 00:28 J -20912015.57 -20912015.48 -20912015.39 0.1932 0.1109

Mercury -61967-11-07 06:57 J -20911713.37 -20911713.21 -20911713.04 0.1624 0.0391

Venus -61961-03-07 01:11 J -20909766.60 -20909766.45 -20909766.29 0.1809 0.0843

Mercury -61958-06-01 08:23 J -20908585.26 -20908585.15 -20908585.03 0.1926 0.0118

Mercury -61957-03-29 08:52 J -20908283.22 -20908283.13 -20908283.04 0.1629 0.1353

Mercury -61949-10-21 16:18 J -20905154.93 -20905154.82 -20905154.72 0.1918 0.0885

Mercury -61939-03-13 23:59 J -20901724.52 -20901724.50 -20901724.48 0.1911 0.1880

Mercury -61937-12-16 05:45 J -20900716.41 -20900716.26 -20900716.11 0.1618 0.0696

Mercury -61928-07-10 00:28 J -20897588.56 -20897588.48 -20897588.39 0.1933 0.1231

Mercury -61927-05-08 07:40 J -20897286.35 -20897286.18 -20897286.02 0.1624 0.0260

Earth -61920-12-29 23:01 J -20894493.73 -20894493.54 -20894493.35 0.1585 0.0246

Moon -61920-12-30 02:37 J -20894493.57 -20894493.39 -20894493.21 0.1585 0.0219 *

Mercury -61919-11-30 08:23 J -20894158.27 -20894158.15 -20894158.04 0.1925 0.0222

Mercury -61918-09-28 09:21 J -20893856.22 -20893856.11 -20893856.00 0.1629 0.1219

Mercury -61909-04-21 16:04 J -20890727.93 -20890727.83 -20890727.72 0.1918 0.0787

Venus -61902-07-23 23:59 J -20888078.63 -20888078.50 -20888078.37 0.1734 0.1157

Mercury -61900-09-11 23:59 J -20887297.54 -20887297.50 -20887297.45 0.1911 0.1760

Mercury -61897-06-16 06:28 J -20886289.37 -20886289.23 -20886289.08 0.1618 0.0840

Venus -61895-01-02 08:09 J -20885724.27 -20885724.16 -20885724.05 0.1814 0.1395

Mercury -61888-01-08 00:42 J -20883161.55 -20883161.47 -20883161.39 0.1932 0.1342

Mercury -61888-11-06 08:09 J -20882859.32 -20882859.16 -20882858.99 0.1624 0.0127

Mercury -61879-05-31 08:23 J -20879731.27 -20879731.15 -20879731.04 0.1926 0.0328

Mercury -61878-03-29 10:04 J -20879429.20 -20879429.08 -20879428.96 0.1629 0.1079

Venus -61870-07-23 05:30 J -20876391.31 -20876391.27 -20876391.23 0.1749 0.1683

Mercury -61870-10-21 16:18 J -20876300.93 -20876300.82 -20876300.71 0.1918 0.0666

Mercury -61860-03-12 23:59 J -20872870.56 -20872870.50 -20872870.45 0.1911 0.1665
 Mercury -61858-12-16 07:11 J -20871862.33 -20871862.20 -20871862.07 0.1618 0.0971
 Mercury -61849-07-09 00:28 J -20868734.56 -20868734.48 -20868734.40 0.1933 0.1435
 Mercury -61848-05-07 09:06 J -20868432.29 -20868432.12 -20868431.96 0.1623 0.0033
 Moon -61841-12-31 20:52 J -20865636.76 -20865636.63 -20865636.51 0.1584 0.1135
 Earth -61841-12-31 23:59 J -20865636.62 -20865636.50 -20865636.38 0.1584 0.1193 *
 Mercury -61840-11-29 08:23 J -20865304.26 -20865304.15 -20865304.04 0.1926 0.0444
 Mercury -61839-09-27 10:33 J -20865002.19 -20865002.06 -20865001.92 0.1629 0.0946
 Venus -61836-05-20 08:52 J -20864036.20 -20864036.13 -20864036.06 0.1729 0.1568
 Mercury -61830-04-21 16:18 J -20861873.93 -20861873.82 -20861873.71 0.1918 0.0562
 Mercury -61821-09-10 23:59 J -20858443.56 -20858443.50 -20858443.43 0.1911 0.1549
 Mercury -61818-06-16 07:54 J -20857435.29 -20857435.17 -20857435.05 0.1618 0.1110
 Mercury -61809-01-08 00:28 J -20854307.54 -20854307.48 -20854307.41 0.1933 0.1552
 Mercury -61809-11-05 09:35 J -20854005.27 -20854005.10 -20854004.94 0.1623 0.0153
 Venus -61804-05-19 13:54 J -20852349.04 -20852348.92 -20852348.79 0.1745 0.1233
 Mercury -61800-05-30 08:23 J -20850877.26 -20850877.15 -20850877.04 0.1926 0.0544
 Mercury -61799-03-28 11:16 J -20850575.17 -20850575.03 -20850574.88 0.1629 0.0805
 Venus -61798-10-30 00:28 J -20849994.60 -20849994.48 -20849994.36 0.1802 0.1277
 Moon -61794-12-26 19:54 J -20848475.70 -20848475.67 -20848475.63 0.1593 0.1556
 Earth -61794-12-27 02:52 J -20848475.48 -20848475.38 -20848475.28 0.1593 0.1357
 Mercury -61791-10-20 16:18 J -20847446.94 -20847446.82 -20847446.71 0.1919 0.0457
 Mercury -61781-03-12 00:13 J -20844016.57 -20844016.49 -20844016.42 0.1911 0.1436
 Mercury -61779-12-15 08:37 J -20843008.25 -20843008.14 -20843008.04 0.1618 0.1250
 Mercury -61770-07-09 00:42 J -20839880.53 -20839880.47 -20839880.42 0.1933 0.1666
 Mercury -61769-05-06 10:18 J -20839578.24 -20839578.07 -20839577.91 0.1623 0.0292
 Mercury -61761-11-28 08:23 J -20836450.26 -20836450.15 -20836450.04 0.1926 0.0653
 Mercury -61760-09-26 11:59 J -20836148.15 -20836148.00 -20836147.85 0.1629 0.0669
 Moon -61753-07-04 05:30 J -20833675.46 -20833675.27 -20833675.07 0.1959 0.0873
 Earth -61753-07-04 11:16 J -20833675.20 -20833675.03 -20833674.86 0.1960 0.1028 *
 Mercury -61751-04-20 16:18 J -20833019.94 -20833019.82 -20833019.71 0.1919 0.0344

Mercury -61742-09-10 23:59 J -20829589.58 -20829589.50 -20829589.42 0.1911 0.1337

Mercury -61739-06-15 09:06 J -20828581.20 -20828581.12 -20828581.03 0.1618 0.1383

Venus -61738-03-16 22:33 J -20828306.71 -20828306.56 -20828306.40 0.1740 0.0797

Venus -61732-08-26 08:09 J -20825952.32 -20825952.16 -20825952.01 0.1807 0.0760

Mercury -61730-01-07 00:28 J -20825453.52 -20825453.48 -20825453.43 0.1933 0.1758

Mercury -61730-11-05 11:01 J -20825151.20 -20825151.04 -20825150.88 0.1623 0.0437

Mercury -61721-05-29 08:23 J -20822023.25 -20822023.15 -20822023.04 0.1926 0.0769

Mercury -61720-03-27 12:42 J -20821721.13 -20821720.97 -20821720.82 0.1629 0.0532

Moon -61715-12-29 00:28 J -20819618.68 -20819618.48 -20819618.28 0.1591 0.0363

Earth -61715-12-29 04:18 J -20819618.50 -20819618.32 -20819618.13 0.1590 0.0382 *

Mercury -61712-10-19 16:18 J -20818592.94 -20818592.82 -20818592.71 0.1919 0.0232

Mercury -61711-08-17 14:23 J -20818290.96 -20818290.90 -20818290.84 0.1635 0.1500

Mercury -61702-03-11 23:59 J -20815162.58 -20815162.50 -20815162.41 0.1911 0.1225

Mercury -61700-12-14 09:49 J -20814154.14 -20814154.09 -20814154.04 0.1618 0.1523

Mercury -61691-07-08 00:42 J -20811026.50 -20811026.47 -20811026.45 0.1933 0.1878

Mercury -61690-05-06 11:30 J -20810724.17 -20810724.02 -20810723.86 0.1623 0.0566

Mercury -61682-11-28 08:23 J -20807596.25 -20807596.15 -20807596.05 0.1926 0.0867

Mercury -61681-09-25 13:11 J -20807294.11 -20807293.95 -20807293.78 0.1629 0.0397

Venus -61672-01-11 06:57 J -20804264.38 -20804264.21 -20804264.04 0.1735 0.0352

Mercury -61672-04-19 16:18 J -20804165.94 -20804165.82 -20804165.71 0.1919 0.0144

Mercury -61671-02-15 15:06 J -20803863.96 -20803863.87 -20803863.78 0.1634 0.1357

Venus -61666-06-23 14:52 J -20801910.05 -20801909.88 -20801909.71 0.1812 0.0205

Mercury -61663-09-10 00:13 J -20800735.58 -20800735.49 -20800735.40 0.1911 0.1105

Mercury -61651-11-04 12:13 J -20796297.14 -20796296.99 -20796296.84 0.1623 0.0702

Mercury -61642-05-29 08:23 J -20793169.25 -20793169.15 -20793169.05 0.1926 0.0975

Mercury -61641-03-26 13:54 J -20792867.08 -20792866.92 -20792866.75 0.1629 0.0257

Earth -61636-12-31 06:28 J -20790761.41 -20790761.23 -20790761.06 0.1588 0.0599

Moon -61636-12-31 11:01 J -20790761.23 -20790761.04 -20790760.86 0.1588 0.0592 *

Mercury -61633-10-18 16:18 J -20789738.93 -20789738.82 -20789738.70 0.1919 0.0019

Mercury -61632-08-16 15:35 J -20789436.96 -20789436.85 -20789436.74 0.1634 0.1228

Mercury -61623-03-10 23:59 J -20786308.60 -20786308.50 -20786308.40 0.1911 0.1014

Mercury -61611-05-05 12:57 J -20781870.10 -20781869.96 -20781869.82 0.1623 0.0849

Venus -61607-11-08 16:04 J -20780222.01 -20780221.83 -20780221.66 0.1731 0.0060

Mercury -61603-11-27 08:23 J -20778742.24 -20778742.15 -20778742.05 0.1926 0.1095

Mercury -61602-09-25 14:37 J -20778440.06 -20778439.89 -20778439.73 0.1628 0.0123

Venus -61600-04-19 21:49 J -20777867.76 -20777867.59 -20777867.42 0.1817 0.0344

Mercury -61593-04-18 16:18 J -20775311.94 -20775311.82 -20775311.71 0.1919 0.0091

Mercury -61592-02-14 16:18 J -20775009.94 -20775009.82 -20775009.70 0.1634 0.1089

Mercury -61584-09-09 00:13 J -20771881.60 -20771881.49 -20771881.39 0.1912 0.0897

Mercury -61574-01-30 07:54 J -20768451.18 -20768451.17 -20768451.15 0.1903 0.1875

Mercury -61572-11-03 13:25 J -20767443.07 -20767442.94 -20767442.80 0.1623 0.0977

Mercury -61563-05-28 08:23 J -20764315.24 -20764315.15 -20764315.06 0.1926 0.1188

Mercury -61562-03-26 15:21 J -20764013.03 -20764012.86 -20764012.70 0.1628 0.0026

Earth -61556-01-02 07:40 J -20761904.21 -20761904.18 -20761904.15 0.1586 0.1562

Mercury -61554-10-18 16:18 J -20760884.94 -20760884.82 -20760884.71 0.1919 0.0198

Mercury -61553-08-15 17:01 J -20760582.92 -20760582.79 -20760582.66 0.1634 0.0948

Mercury -61544-03-10 00:13 J -20757454.60 -20757454.49 -20757454.39 0.1912 0.0784

Venus -61541-09-05 00:57 J -20756179.63 -20756179.46 -20756179.29 0.1726 0.0471

Mercury -61535-07-31 08:09 J -20754024.20 -20754024.16 -20754024.12 0.1904 0.1766

Venus -61534-02-15 04:18 J -20753825.46 -20753825.32 -20753825.17 0.1822 0.0926

Mercury -61532-05-04 14:09 J -20753016.03 -20753015.91 -20753015.79 0.1623 0.1116

Mercury -61524-11-26 08:23 J -20749888.23 -20749888.15 -20749888.07 0.1926 0.1298

Mercury -61523-09-24 15:49 J -20749586.00 -20749585.84 -20749585.67 0.1628 0.0154

Mercury -61514-04-18 16:18 J -20746457.93 -20746457.82 -20746457.71 0.1919 0.0306

Mercury -61513-02-14 17:30 J -20746155.91 -20746155.77 -20746155.63 0.1634 0.0819

Earth -61510-12-28 09:06 J -20744743.26 -20744743.12 -20744742.97 0.1596 0.1029

Moon -61510-12-28 11:30 J -20744743.15 -20744743.02 -20744742.90 0.1596 0.1129 *

Mercury -61505-09-07 23:59 J -20743027.60 -20743027.50 -20743027.39 0.1912 0.0690

Mercury -61495-01-29 08:09 J -20739597.22 -20739597.16 -20739597.11 0.1904 0.1654

Mercury -61493-11-02 14:52 J -20738588.98 -20738588.88 -20738588.77 0.1623 0.1261

Mercury -61484-05-27 08:23 J -20735461.22 -20735461.15 -20735461.07 0.1926 0.1413

Mercury -61483-03-25 16:33 J -20735158.97 -20735158.81 -20735158.65 0.1628 0.0290

Venus -61475-07-03 10:04 J -20732137.23 -20732137.08 -20732136.93 0.1722 0.0863

Mercury -61475-10-17 16:18 J -20732030.93 -20732030.82 -20732030.71 0.1919 0.0415

Mercury -61474-08-15 18:13 J -20731728.89 -20731728.74 -20731728.59 0.1634 0.0680

Moon -61469-07-03 05:01 J -20729945.46 -20729945.29 -20729945.12 0.1952 0.0608

Earth -61469-07-03 08:23 J -20729945.35 -20729945.15 -20729944.96 0.1953 0.0369 *

Venus -61469-12-12 10:47 J -20729783.14 -20729783.05 -20729782.95 0.1828 0.1507

Mercury -61465-03-09 00:13 J -20728600.60 -20728600.49 -20728600.38 0.1912 0.0574

Mercury -61456-07-30 08:09 J -20725170.23 -20725170.16 -20725170.10 0.1904 0.1549

Mercury -61453-05-03 15:35 J -20724161.94 -20724161.85 -20724161.77 0.1623 0.1388

Mercury -61445-11-25 08:23 J -20721034.22 -20721034.15 -20721034.08 0.1926 0.1508

Mercury -61444-09-23 17:16 J -20720731.94 -20720731.78 -20720731.62 0.1628 0.0430

Venus -61437-12-11 21:06 J -20718095.64 -20718095.62 -20718095.59 0.1811 0.1789

Mercury -61435-04-17 16:18 J -20717603.93 -20717603.82 -20717603.71 0.1920 0.0518

Mercury -61434-02-13 18:57 J -20717301.87 -20717301.71 -20717301.55 0.1634 0.0538

Moon -61431-12-30 06:13 J -20715886.42 -20715886.24 -20715886.06 0.1594 0.0010

Earth -61431-12-30 11:16 J -20715886.22 -20715886.03 -20715885.84 0.1594 0.0038 *

Mercury -61426-09-08 00:13 J -20714173.60 -20714173.49 -20714173.38 0.1912 0.0458

Mercury -61425-07-05 20:23 J -20713871.70 -20713871.65 -20713871.59 0.1640 0.1518

Mercury -61416-01-28 08:09 J -20710743.24 -20710743.16 -20710743.09 0.1904 0.1445

Mercury -61414-11-02 16:04 J -20709734.88 -20709734.83 -20709734.77 0.1623 0.1525

Venus -61409-04-29 19:11 J -20708094.82 -20708094.70 -20708094.58 0.1718 0.1260

Mercury -61405-05-26 08:23 J -20706607.21 -20706607.15 -20706607.09 0.1926 0.1617

Mercury -61404-03-24 17:45 J -20706304.91 -20706304.76 -20706304.60 0.1628 0.0567

Mercury -61396-10-16 16:18 J -20703176.93 -20703176.82 -20703176.71 0.1919 0.0632

Mercury -61395-08-14 19:25 J -20702874.85 -20702874.69 -20702874.53 0.1634 0.0409

Mercury -61386-03-08 23:59 J -20699746.61 -20699746.50 -20699746.38 0.1912 0.0372

Mercury -61385-01-04 21:21 J -20699444.70 -20699444.61 -20699444.53 0.1640 0.1373

Venus -61377-04-28 23:16 J -20696407.62 -20696407.53 -20696407.44 0.1732 0.1460

Mercury -61377-07-29 08:09 J -20696316.24 -20696316.16 -20696316.08 0.1904 0.1328
 Venus -61371-10-09 03:49 J -20694053.47 -20694053.34 -20694053.21 0.1816 0.1223
 Mercury -61366-11-25 08:23 J -20692180.19 -20692180.15 -20692180.10 0.1927 0.1735
 Mercury -61365-09-22 18:28 J -20691877.88 -20691877.73 -20691877.58 0.1628 0.0699
 Mercury -61356-04-16 16:18 J -20688749.93 -20688749.82 -20688749.72 0.1919 0.0732
 Mercury -61355-02-12 20:09 J -20688447.83 -20688447.66 -20688447.50 0.1634 0.0271
 Moon -61351-01-01 06:42 J -20687029.38 -20687029.22 -20687029.06 0.1591 0.0926
 Earth -61351-01-01 13:11 J -20687029.10 -20687028.95 -20687028.80 0.1591 0.0948 *
 Mercury -61347-09-07 00:13 J -20685319.61 -20685319.49 -20685319.38 0.1912 0.0249
 Mercury -61346-07-05 21:49 J -20685017.70 -20685017.59 -20685017.49 0.1640 0.1246
 Venus -61343-02-25 04:33 J -20684052.35 -20684052.31 -20684052.26 0.1714 0.1643
 Mercury -61337-01-28 08:09 J -20681889.25 -20681889.16 -20681889.07 0.1904 0.1229
 Mercury -61326-05-26 08:23 J -20677753.19 -20677753.15 -20677753.12 0.1926 0.1825
 Mercury -61325-03-23 19:11 J -20677450.84 -20677450.70 -20677450.56 0.1628 0.0842
 Mercury -61317-10-15 16:18 J -20674322.92 -20674322.82 -20674322.72 0.1920 0.0841
 Mercury -61316-08-13 20:52 J -20674020.80 -20674020.63 -20674020.47 0.1633 0.0131
 Venus -61311-02-24 08:09 J -20672365.30 -20672365.16 -20672365.02 0.1728 0.1039
 Mercury -61307-03-08 00:13 J -20670892.61 -20670892.49 -20670892.37 0.1912 0.0139
 Mercury -61306-01-03 22:18 J -20670590.69 -20670590.57 -20670590.45 0.1640 0.1110
 Venus -61305-08-05 11:01 J -20670011.20 -20670011.04 -20670010.88 0.1821 0.0680
 Moon -61305-12-26 10:47 J -20669868.08 -20669868.05 -20669868.01 0.1602 0.1576
 Mercury -61298-07-29 08:09 J -20667462.25 -20667462.16 -20667462.07 0.1904 0.1120
 Mercury -61286-09-22 19:40 J -20663023.81 -20663023.68 -20663023.54 0.1628 0.0973
 Mercury -61277-04-15 16:18 J -20659895.92 -20659895.82 -20659895.72 0.1919 0.0947
 Mercury -61276-02-11 21:21 J -20659593.78 -20659593.61 -20659593.45 0.1634 0.0006
 Mercury -61268-09-06 00:13 J -20656465.61 -20656465.49 -20656465.38 0.1912 0.0073
 Mercury -61267-07-04 23:16 J -20656163.67 -20656163.53 -20656163.40 0.1639 0.0964
 Mercury -61258-01-27 08:09 J -20653035.26 -20653035.16 -20653035.06 0.1905 0.1008
 Mercury -61246-03-23 20:23 J -20648596.77 -20648596.65 -20648596.53 0.1628 0.1109
 Venus -61246-12-22 16:33 J -20648322.97 -20648322.81 -20648322.64 0.1723 0.0614

Venus -61239-06-02 17:01 J -20645968.96 -20645968.79 -20645968.61 0.1826 0.0101
 Mercury -61238-10-15 16:18 J -20645468.92 -20645468.82 -20645468.72 0.1919 0.1054
 Mercury -61237-08-12 22:04 J -20645166.75 -20645166.58 -20645166.42 0.1633 0.0141
 Mercury -61228-03-07 00:13 J -20642038.61 -20642038.49 -20642038.38 0.1912 0.0074
 Mercury -61227-01-02 23:30 J -20641736.66 -20641736.52 -20641736.38 0.1639 0.0839
 Earth -61226-12-29 15:06 J -20641011.04 -20641010.87 -20641010.70 0.1600 0.0707
 Moon -61226-12-29 20:09 J -20641010.84 -20641010.66 -20641010.49 0.1599 0.0753 *
 Mercury -61219-07-28 08:09 J -20638608.26 -20638608.16 -20638608.06 0.1904 0.0907
 Mercury -61210-12-18 16:04 J -20635177.85 -20635177.83 -20635177.82 0.1897 0.1875
 Mercury -61207-09-21 21:06 J -20634169.72 -20634169.62 -20634169.51 0.1628 0.1252
 Mercury -61198-04-15 16:18 J -20631041.91 -20631041.82 -20631041.73 0.1920 0.1158
 Mercury -61197-02-11 22:47 J -20630739.72 -20630739.55 -20630739.39 0.1633 0.0281
 Mercury -61189-09-05 00:13 J -20627611.60 -20627611.49 -20627611.37 0.1912 0.0183
 Mercury -61188-07-04 00:13 J -20627309.64 -20627309.49 -20627309.34 0.1639 0.0702
 Earth -61185-07-02 06:13 J -20626215.34 -20626215.24 -20626215.15 0.1945 0.1699
 Moon -61185-07-02 15:06 J -20626214.93 -20626214.87 -20626214.80 0.1945 0.1844
 Venus -61180-10-19 02:09 J -20624280.58 -20624280.41 -20624280.24 0.1719 0.0226
 Mercury -61179-01-26 08:09 J -20624181.27 -20624181.16 -20624181.06 0.1905 0.0802
 Venus -61173-03-29 23:45 J -20621926.67 -20621926.51 -20621926.34 0.1831 0.0484
 Mercury -61170-06-18 16:04 J -20620750.87 -20620750.83 -20620750.79 0.1897 0.1759
 Mercury -61167-03-22 21:35 J -20619742.68 -20619742.60 -20619742.51 0.1628 0.1385
 Mercury -61159-10-14 16:18 J -20616614.91 -20616614.82 -20616614.74 0.1920 0.1267
 Mercury -61158-08-12 23:16 J -20616312.69 -20616312.53 -20616312.37 0.1633 0.0410
 Mercury -61149-03-05 23:59 J -20613184.61 -20613184.50 -20613184.38 0.1912 0.0283
 Mercury -61148-01-02 00:57 J -20612882.61 -20612882.46 -20612882.30 0.1639 0.0557
 Earth -61147-12-31 17:01 J -20612153.98 -20612153.79 -20612153.60 0.1597 0.0296
 Moon -61147-12-31 22:33 J -20612153.74 -20612153.56 -20612153.38 0.1597 0.0368 *
 Mercury -61140-07-27 08:09 J -20609754.27 -20609754.16 -20609754.05 0.1905 0.0686
 Mercury -61139-05-25 02:37 J -20609452.45 -20609452.39 -20609452.34 0.1645 0.1543
 Mercury -61131-12-17 16:04 J -20606323.88 -20606323.83 -20606323.78 0.1897 0.1655

Mercury -61128-09-20 22:18 J -20605315.63 -20605315.57 -20605315.51 0.1627 0.1517

Mercury -61119-04-14 16:18 J -20602187.90 -20602187.82 -20602187.74 0.1920 0.1367

Mercury -61118-02-10 23:59 J -20601885.66 -20601885.50 -20601885.35 0.1633 0.0549

Venus -61114-08-16 11:16 J -20600238.21 -20600238.03 -20600237.86 0.1714 0.0182

Mercury -61110-09-05 00:13 J -20598757.60 -20598757.49 -20598757.38 0.1912 0.0393

Mercury -61109-07-03 01:25 J -20598455.60 -20598455.44 -20598455.28 0.1639 0.0430

Venus -61107-01-25 05:45 J -20597884.40 -20597884.26 -20597884.12 0.1836 0.1096

Earth -61106-07-07 00:13 J -20597356.63 -20597356.49 -20597356.36 0.1950 0.1391

Moon -61106-07-07 04:18 J -20597356.38 -20597356.32 -20597356.25 0.1950 0.1797 *

Mercury -61100-01-25 08:09 J -20595327.27 -20595327.16 -20595327.05 0.1904 0.0589

Mercury -61100-11-23 03:06 J -20595025.45 -20595025.37 -20595025.28 0.1645 0.1406

Mercury -61091-06-17 16:04 J -20591896.90 -20591896.83 -20591896.77 0.1897 0.1553

Mercury -61080-10-13 16:18 J -20587760.89 -20587760.82 -20587760.75 0.1920 0.1479

Mercury -61079-08-12 00:42 J -20587458.62 -20587458.47 -20587458.32 0.1633 0.0689

Mercury -61070-03-06 00:13 J -20584330.60 -20584330.49 -20584330.38 0.1912 0.0499

Mercury -61069-01-02 02:09 J -20584028.57 -20584028.41 -20584028.25 0.1639 0.0293

Moon -61067-01-02 17:45 J -20583296.86 -20583296.76 -20583296.66 0.1595 0.1299

Earth -61067-01-02 19:11 J -20583296.81 -20583296.70 -20583296.59 0.1595 0.1290 *

Mercury -61061-07-26 08:09 J -20580900.27 -20580900.16 -20580900.05 0.1905 0.0480

Mercury -61060-05-24 03:49 J -20580598.44 -20580598.34 -20580598.24 0.1645 0.1272

Mercury -61052-12-16 16:04 J -20577469.90 -20577469.83 -20577469.75 0.1897 0.1440

Venus -61048-06-12 20:37 J -20576195.80 -20576195.64 -20576195.47 0.1710 0.0552

Venus -61042-11-22 11:45 J -20573842.07 -20573842.01 -20573841.95 0.1842 0.1713

Mercury -61040-04-13 16:18 J -20573333.89 -20573333.82 -20573333.76 0.1920 0.1581

Mercury -61039-02-10 01:11 J -20573031.59 -20573031.45 -20573031.31 0.1633 0.0820

Mercury -61031-09-04 00:13 J -20569903.60 -20569903.49 -20569903.38 0.1913 0.0599

Mercury -61030-07-03 02:52 J -20569601.54 -20569601.38 -20569601.21 0.1639 0.0148

Mercury -61021-01-25 08:09 J -20566473.27 -20566473.16 -20566473.04 0.1905 0.0369

Mercury -61021-11-22 04:18 J -20566171.43 -20566171.32 -20566171.20 0.1645 0.1138

Moon -61021-12-27 12:57 J -20566136.06 -20566135.96 -20566135.86 0.1606 0.1351

Earth -61021-12-27 17:59 J -20566135.84 -20566135.75 -20566135.67 0.1606 0.1420

Mercury -61012-06-16 16:04 J -20563042.91 -20563042.83 -20563042.75 0.1897 0.1335

Venus -61010-11-21 23:16 J -20562154.59 -20562154.53 -20562154.46 0.1825 0.1680

Mercury -61001-10-12 16:18 J -20558906.88 -20558906.82 -20558906.77 0.1920 0.1686

61ST MILLENNIUM BCE

This is a list of transits visible from Mars in the 61st millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -61000-08-11 01:54 J | -20558604.56 | -20558604.42 | -20558604.29 | 0.1633 | 0.0959 | | |
| Mercury | -60991-03-05 00:13 J | -20555476.60 | -20555476.49 | -20555476.38 | 0.1913 | 0.0708 | | |
| Mercury | -60990-01-01 03:21 J | -20555174.53 | -20555174.36 | -20555174.20 | 0.1639 | 0.0022 | | |
| Venus | -60982-04-10 05:59 J | -20552153.39 | -20552153.25 | -20552153.10 | 0.1706 | 0.0931 | | |
| Mercury | -60982-07-26 08:09 J | -20552046.28 | -20552046.16 | -20552046.05 | 0.1905 | 0.0270 | | |
| Mercury | -60981-05-23 05:01 J | -20551744.42 | -20551744.29 | -20551744.16 | 0.1645 | 0.0998 | | |
| Mercury | -60973-12-15 16:04 J | -20548615.92 | -20548615.83 | -20548615.74 | 0.1897 | 0.1232 | | |
| Mercury | -60961-04-12 16:18 J | -20544479.86 | -20544479.82 | -20544479.78 | 0.1920 | 0.1792 | | |
| Mercury | -60960-02-09 02:23 J | -20544177.52 | -20544177.40 | -20544177.27 | 0.1633 | 0.1096 | | |
| Mercury | -60952-09-03 00:13 J | -20541049.59 | -20541049.49 | -20541049.38 | 0.1913 | 0.0818 | | |
| Mercury | -60951-07-02 04:04 J | -20540747.50 | -20540747.33 | -20540747.17 | 0.1639 | 0.0120 | | |
| Venus | -60950-04-09 09:06 J | -20540466.13 | -20540466.12 | -20540466.10 | 0.1720 | 0.1712 | | |
| Venus | -60944-09-18 05:30 J | -20538112.40 | -20538112.27 | -20538112.13 | 0.1830 | 0.1096 | | |
| Mercury | -60942-01-24 08:09 J | -20537619.28 | -20537619.16 | -20537619.04 | 0.1905 | 0.0162 | | |
| Mercury | -60942-11-22 05:30 J | -20537317.40 | -20537317.27 | -20537317.13 | 0.1645 | 0.0865 | | |

Moon -60942-12-30 15:21 J -20537279.05 -20537278.86 -20537278.68 0.1604 0.0513
 Earth -60942-12-30 20:37 J -20537278.83 -20537278.64 -20537278.46 0.1603 0.0391 *
 Mercury -60933-06-15 16:04 J -20534188.92 -20534188.83 -20534188.73 0.1897 0.1120
 Mercury -60922-10-12 16:18 J -20530052.84 -20530052.82 -20530052.81 0.1920 0.1898
 Mercury -60921-08-10 03:06 J -20529750.48 -20529750.37 -20529750.26 0.1633 0.1229
 Venus -60916-02-04 15:49 J -20528110.96 -20528110.84 -20528110.73 0.1702 0.1303
 Mercury -60912-03-03 23:59 J -20526622.60 -20526622.50 -20526622.39 0.1913 0.0915
 Mercury -60912-12-31 04:47 J -20526320.46 -20526320.30 -20526320.14 0.1639 0.0262
 Mercury -60903-07-25 08:09 J -20523192.27 -20523192.16 -20523192.04 0.1905 0.0082
 Mercury -60902-05-23 06:13 J -20522890.39 -20522890.24 -20522890.09 0.1645 0.0729
 Mercury -60894-12-15 16:04 J -20519761.93 -20519761.83 -20519761.73 0.1897 0.1017
 Venus -60884-02-03 18:13 J -20516423.85 -20516423.74 -20516423.63 0.1716 0.1303
 Mercury -60881-02-09 03:49 J -20515323.43 -20515323.34 -20515323.26 0.1633 0.1368
 Venus -60878-07-16 12:13 J -20514070.15 -20514069.99 -20514069.82 0.1835 0.0526
 Mercury -60873-09-02 00:13 J -20512195.59 -20512195.49 -20512195.39 0.1913 0.1029
 Mercury -60872-07-01 05:16 J -20511893.44 -20511893.28 -20511893.12 0.1639 0.0388
 Mercury -60863-01-23 08:09 J -20508765.28 -20508765.16 -20508765.05 0.1905 0.0068
 Mercury -60863-11-21 06:57 J -20508463.37 -20508463.21 -20508463.06 0.1645 0.0590
 Earth -60862-01-01 22:47 J -20508421.72 -20508421.55 -20508421.37 0.1601 0.0631
 Moon -60862-01-02 00:28 J -20508421.67 -20508421.48 -20508421.30 0.1601 0.0648 *
 Mercury -60854-06-15 16:04 J -20505334.93 -20505334.83 -20505334.73 0.1898 0.0912
 Mercury -60853-04-12 08:37 J -20505033.19 -20505033.14 -20505033.10 0.1651 0.1573
 Venus -60851-12-03 01:11 J -20504068.48 -20504068.45 -20504068.43 0.1698 0.1669
 Mercury -60845-11-05 00:13 J -20501904.51 -20501904.49 -20501904.48 0.1889 0.1858
 Mercury -60842-08-10 04:18 J -20500896.38 -20500896.32 -20500896.25 0.1632 0.1506
 Mercury -60833-03-03 00:13 J -20497768.58 -20497768.49 -20497768.40 0.1913 0.1132
 Mercury -60833-12-30 05:59 J -20497466.41 -20497466.25 -20497466.10 0.1639 0.0527
 Mercury -60824-07-24 08:09 J -20494338.28 -20494338.16 -20494338.04 0.1905 0.0159
 Mercury -60823-05-22 07:25 J -20494036.35 -20494036.19 -20494036.03 0.1645 0.0456
 Earth -60822-07-05 21:35 J -20493626.80 -20493626.60 -20493626.40 0.1942 0.0025

Moon -60822-07-06 01:11 J -20493626.66 -20493626.45 -20493626.24 0.1942 0.0428 *
 Venus -60819-12-02 03:06 J -20492381.51 -20492381.37 -20492381.22 0.1712 0.0903
 Mercury -60815-12-14 16:04 J -20490907.93 -20490907.83 -20490907.72 0.1897 0.0802
 Mercury -60814-10-12 09:06 J -20490606.20 -20490606.12 -20490606.05 0.1651 0.1447
 Venus -60812-05-12 17:59 J -20490027.92 -20490027.75 -20490027.58 0.1840 0.0093
 Mercury -60805-05-05 23:59 J -20487477.54 -20487477.50 -20487477.46 0.1889 0.1767
 Mercury -60794-09-02 00:13 J -20483341.58 -20483341.49 -20483341.41 0.1913 0.1232
 Mercury -60793-06-30 06:42 J -20483039.37 -20483039.22 -20483039.07 0.1638 0.0671
 Mercury -60784-01-22 08:09 J -20479911.27 -20479911.16 -20479911.04 0.1905 0.0276
 Mercury -60784-11-20 08:09 J -20479609.32 -20479609.16 -20479609.00 0.1644 0.0322
 Mercury -60775-06-14 16:04 J -20476480.94 -20476480.83 -20476480.72 0.1897 0.0698
 Mercury -60774-04-12 09:35 J -20476179.19 -20476179.10 -20476179.00 0.1651 0.1307
 Mercury -60766-11-04 23:59 J -20473050.55 -20473050.50 -20473050.44 0.1889 0.1652
 Mercury -60754-03-03 00:13 J -20468914.57 -20468914.49 -20468914.41 0.1913 0.1343
 Mercury -60754-12-30 07:11 J -20468612.35 -20468612.20 -20468612.06 0.1638 0.0797
 Venus -60753-09-28 13:11 J -20468339.12 -20468338.95 -20468338.79 0.1707 0.0534
 Venus -60746-03-10 00:28 J -20465985.64 -20465985.48 -20465985.32 0.1845 0.0689
 Mercury -60745-07-23 08:09 J -20465484.28 -20465484.16 -20465484.05 0.1905 0.0368
 Mercury -60744-05-21 08:52 J -20465182.30 -20465182.13 -20465181.97 0.1644 0.0178
 Earth -60737-12-28 22:33 J -20462403.70 -20462403.56 -20462403.43 0.1610 0.1124
 Moon -60737-12-29 04:04 J -20462403.48 -20462403.33 -20462403.19 0.1610 0.0974 *
 Mercury -60736-12-13 16:04 J -20462053.94 -20462053.83 -20462053.72 0.1898 0.0593
 Mercury -60735-10-11 10:18 J -20461752.18 -20461752.07 -20461751.95 0.1651 0.1168
 Mercury -60726-05-06 00:13 J -20458623.56 -20458623.49 -20458623.43 0.1889 0.1542
 Mercury -60715-09-01 00:13 J -20454487.56 -20454487.49 -20454487.42 0.1913 0.1451
 Mercury -60714-06-30 07:54 J -20454185.31 -20454185.17 -20454185.04 0.1638 0.0937
 Mercury -60705-01-22 08:09 J -20451057.27 -20451057.16 -20451057.05 0.1906 0.0475
 Mercury -60705-11-19 09:21 J -20450755.27 -20450755.11 -20450754.94 0.1644 0.0047
 Mercury -60696-06-13 16:04 J -20447626.94 -20447626.83 -20447626.71 0.1897 0.0486
 Mercury -60695-04-11 10:47 J -20447325.17 -20447325.05 -20447324.92 0.1651 0.1038

Venus -60687-07-26 22:18 J -20444296.75 -20444296.57 -20444296.40 0.1703 0.0148
 Mercury -60687-11-03 23:59 J -20444196.57 -20444196.50 -20444196.42 0.1889 0.1445
 Venus -60680-01-04 05:59 J -20441943.37 -20441943.25 -20441943.14 0.1850 0.1332
 Mercury -60675-03-02 00:13 J -20440060.56 -20440060.49 -20440060.43 0.1913 0.1547
 Mercury -60675-12-29 08:37 J -20439758.26 -20439758.14 -20439758.02 0.1638 0.1081
 Mercury -60666-07-23 08:09 J -20436630.27 -20436630.16 -20436630.05 0.1906 0.0596
 Mercury -60665-05-20 10:04 J -20436328.25 -20436328.08 -20436327.92 0.1644 0.0095
 Moon -60658-12-31 23:59 J -20433546.67 -20433546.50 -20433546.32 0.1608 0.0123
 Earth -60657-01-01 01:25 J -20433546.63 -20433546.44 -20433546.25 0.1608 0.0081 *
 Mercury -60657-12-12 16:04 J -20433199.94 -20433199.83 -20433199.71 0.1898 0.0383
 Mercury -60656-10-10 11:30 J -20432898.16 -20432898.02 -20432897.88 0.1651 0.0900
 Mercury -60647-05-05 00:13 J -20429769.58 -20429769.49 -20429769.41 0.1890 0.1333
 Mercury -60636-08-31 00:13 J -20425633.54 -20425633.49 -20425633.43 0.1913 0.1662
 Mercury -60635-06-29 09:06 J -20425331.23 -20425331.12 -20425331.01 0.1638 0.1208
 Mercury -60626-01-21 08:09 J -20422203.27 -20422203.16 -20422203.05 0.1905 0.0683
 Mercury -60626-11-19 10:47 J -20421901.22 -20421901.05 -20421900.89 0.1644 0.0234
 Venus -60621-05-23 08:23 J -20420254.33 -20420254.15 -20420253.98 0.1699 0.0211
 Mercury -60617-06-12 16:18 J -20418772.94 -20418772.82 -20418772.71 0.1898 0.0280
 Mercury -60616-04-10 12:13 J -20418471.13 -20418470.99 -20418470.84 0.1650 0.0757
 Mercury -60608-11-03 00:13 J -20415342.58 -20415342.49 -20415342.40 0.1890 0.1219
 Mercury -60596-03-01 00:13 J -20411206.53 -20411206.49 -20411206.45 0.1913 0.1763
 Mercury -60596-12-28 09:49 J -20410904.19 -20410904.09 -20410904.00 0.1638 0.1347
 Mercury -60587-07-22 08:09 J -20407776.26 -20407776.16 -20407776.05 0.1906 0.0796
 Mercury -60586-05-20 11:16 J -20407474.19 -20407474.03 -20407473.87 0.1644 0.0366
 Venus -60583-11-01 00:28 J -20406213.57 -20406213.48 -20406213.39 0.1838 0.1520
 Moon -60578-01-02 22:18 J -20404689.73 -20404689.57 -20404689.41 0.1605 0.0890
 Earth -60578-01-03 04:47 J -20404689.45 -20404689.30 -20404689.15 0.1605 0.0967 *
 Mercury -60578-12-12 16:18 J -20404345.94 -20404345.82 -20404345.71 0.1898 0.0174
 Mercury -60577-10-09 12:42 J -20404044.12 -20404043.97 -20404043.82 0.1651 0.0629
 Mercury -60568-05-03 23:59 J -20400915.59 -20400915.50 -20400915.40 0.1890 0.1129

Mercury -60567-03-01 14:23 J -20400613.93 -20400613.90 -20400613.86 0.1657 0.1613
 Mercury -60557-08-30 00:13 J -20396779.51 -20396779.49 -20396779.47 0.1914 0.1865
 Mercury -60556-06-28 10:33 J -20396477.13 -20396477.06 -20396476.99 0.1638 0.1492
 Venus -60555-03-20 17:59 J -20396211.91 -20396211.75 -20396211.58 0.1695 0.0567
 Mercury -60547-01-20 08:09 J -20393349.26 -20393349.16 -20393349.05 0.1906 0.0912
 Mercury -60547-11-18 11:59 J -20393047.16 -20393047.00 -20393046.85 0.1644 0.0502
 Mercury -60538-06-12 16:18 J -20389918.94 -20389918.82 -20389918.71 0.1898 0.0096
 Moon -60538-07-04 14:52 J -20389897.03 -20389896.88 -20389896.74 0.1932 0.1215
 Earth -60538-07-04 22:47 J -20389896.71 -20389896.55 -20389896.40 0.1933 0.1195
 Mercury -60537-04-09 13:25 J -20389617.10 -20389616.94 -20389616.78 0.1650 0.0487
 Mercury -60529-11-02 00:13 J -20386488.59 -20386488.49 -20386488.39 0.1890 0.1010
 Mercury -60528-08-30 14:52 J -20386186.95 -20386186.88 -20386186.81 0.1657 0.1487
 Venus -60517-08-28 06:28 J -20382171.38 -20382171.23 -20382171.09 0.1844 0.0912
 Mercury -60517-12-27 11:01 J -20382050.06 -20382050.04 -20382050.02 0.1638 0.1620
 Mercury -60508-07-21 08:09 J -20378922.26 -20378922.16 -20378922.06 0.1906 0.1002
 Mercury -60507-05-19 12:42 J -20378620.12 -20378619.97 -20378619.82 0.1644 0.0646
 Mercury -60499-12-11 16:18 J -20375491.94 -20375491.82 -20375491.71 0.1898 0.0070
 Mercury -60498-10-09 14:09 J -20375190.07 -20375189.91 -20375189.75 0.1650 0.0350
 Venus -60489-01-16 03:49 J -20372169.48 -20372169.34 -20372169.19 0.1692 0.0923
 Mercury -60489-05-03 00:13 J -20372061.59 -20372061.49 -20372061.39 0.1890 0.0902
 Mercury -60488-02-28 15:35 J -20371759.94 -20371759.85 -20371759.76 0.1657 0.1349
 Mercury -60480-09-23 08:09 J -20368631.18 -20368631.16 -20368631.14 0.1882 0.1847
 Mercury -60468-01-19 08:09 J -20364495.25 -20364495.16 -20364495.06 0.1906 0.1111
 Mercury -60468-11-17 13:11 J -20364193.10 -20364192.95 -20364192.81 0.1644 0.0776
 Mercury -60459-06-11 16:18 J -20361064.94 -20361064.82 -20361064.71 0.1898 0.0161
 Moon -60459-07-08 09:49 J -20361038.22 -20361038.09 -20361037.95 0.1939 0.1495
 Earth -60459-07-08 13:40 J -20361038.01 -20361037.93 -20361037.86 0.1939 0.1778 *
 Mercury -60458-04-09 14:37 J -20360763.05 -20360762.89 -20360762.73 0.1650 0.0216
 Venus -60457-01-15 05:30 J -20360482.32 -20360482.27 -20360482.21 0.1705 0.1615
 Earth -60453-12-30 02:52 J -20358671.54 -20358671.38 -20358671.21 0.1615 0.0823

Moon -60453-12-30 05:59 J -20358671.43 -20358671.25 -20358671.07 0.1615 0.0695 *
 Venus -60451-06-25 12:42 J -20358129.14 -20358128.97 -20358128.80 0.1848 0.0316
 Mercury -60450-11-02 00:13 J -20357634.60 -20357634.49 -20357634.39 0.1890 0.0804
 Mercury -60449-08-29 16:18 J -20357332.93 -20357332.82 -20357332.71 0.1657 0.1203
 Mercury -60440-03-24 08:23 J -20354204.20 -20354204.15 -20354204.11 0.1882 0.1738
 Mercury -60429-07-20 08:23 J -20350068.24 -20350068.15 -20350068.07 0.1906 0.1227
 Mercury -60428-05-18 13:54 J -20349766.06 -20349765.92 -20349765.79 0.1644 0.0913
 Venus -60424-11-12 13:40 J -20348127.04 -20348126.93 -20348126.81 0.1688 0.1268
 Mercury -60420-12-10 16:18 J -20346637.94 -20346637.82 -20346637.71 0.1898 0.0263
 Mercury -60419-10-08 15:21 J -20346336.03 -20346335.86 -20346335.70 0.1650 0.0078
 Mercury -60410-05-03 00:13 J -20343207.60 -20343207.49 -20343207.38 0.1890 0.0692
 Mercury -60409-02-28 16:47 J -20342905.92 -20342905.80 -20342905.68 0.1657 0.1076
 Mercury -60401-09-22 08:09 J -20339777.21 -20339777.16 -20339777.10 0.1882 0.1636
 Venus -60392-11-11 15:06 J -20336439.99 -20336439.87 -20336439.75 0.1701 0.1238
 Mercury -60389-01-19 08:09 J -20335641.24 -20335641.16 -20335641.08 0.1906 0.1316
 Mercury -60389-11-16 14:37 J -20335339.02 -20335338.89 -20335338.77 0.1644 0.1058
 Venus -60385-04-21 18:13 J -20334086.91 -20334086.74 -20334086.57 0.1854 0.0321
 Mercury -60380-06-10 16:18 J -20332210.93 -20332210.82 -20332210.71 0.1899 0.0369
 Mercury -60379-04-08 16:04 J -20331909.00 -20331908.83 -20331908.67 0.1650 0.0065
 Earth -60373-01-02 06:13 J -20329814.43 -20329814.24 -20329814.05 0.1612 0.0236
 Moon -60373-01-02 13:11 J -20329814.14 -20329813.95 -20329813.76 0.1612 0.0263 *
 Mercury -60371-11-01 00:13 J -20328780.60 -20328780.49 -20328780.38 0.1890 0.0583
 Mercury -60370-08-29 17:30 J -20328478.91 -20328478.77 -20328478.64 0.1656 0.0941
 Mercury -60361-03-23 08:09 J -20325350.22 -20325350.16 -20325350.09 0.1882 0.1531
 Venus -60358-09-09 23:59 J -20324084.55 -20324084.50 -20324084.45 0.1684 0.1609
 Mercury -60350-07-20 08:09 J -20321214.23 -20321214.16 -20321214.08 0.1906 0.1433
 Mercury -60349-05-17 15:06 J -20320911.98 -20320911.87 -20320911.76 0.1643 0.1190
 Mercury -60341-12-09 16:18 J -20317783.93 -20317783.82 -20317783.71 0.1898 0.0473
 Mercury -60340-10-07 16:33 J -20317481.97 -20317481.81 -20317481.65 0.1650 0.0195
 Mercury -60331-05-02 00:13 J -20314353.60 -20314353.49 -20314353.38 0.1890 0.0488

Mercury -60330-02-27 18:13 J -20314051.88 -20314051.74 -20314051.60 0.1656 0.0793
 Venus -60326-09-09 01:11 J -20312397.60 -20312397.45 -20312397.30 0.1697 0.0882
 Mercury -60322-09-22 08:23 J -20310923.23 -20310923.15 -20310923.07 0.1882 0.1412
 Venus -60319-02-17 00:28 J -20310044.63 -20310044.48 -20310044.34 0.1859 0.0940
 Mercury -60310-01-18 08:23 J -20306787.22 -20306787.15 -20306787.09 0.1906 0.1541
 Mercury -60310-11-16 15:49 J -20306484.94 -20306484.84 -20306484.75 0.1643 0.1325
 Mercury -60301-06-09 16:18 J -20303356.93 -20303356.82 -20303356.71 0.1898 0.0576
 Mercury -60300-04-07 17:16 J -20303054.94 -20303054.78 -20303054.62 0.1650 0.0337
 Earth -60294-01-04 09:49 J -20300957.20 -20300957.09 -20300956.98 0.1609 0.1298
 Moon -60294-01-04 12:13 J -20300957.09 -20300956.99 -20300956.87 0.1609 0.1262 *
 Mercury -60292-10-31 00:13 J -20299926.60 -20299926.49 -20299926.37 0.1890 0.0377
 Mercury -60291-08-28 18:42 J -20299624.87 -20299624.72 -20299624.57 0.1656 0.0666
 Mercury -60282-03-23 08:23 J -20296496.24 -20296496.15 -20296496.07 0.1882 0.1320
 Mercury -60281-01-18 20:09 J -20296194.66 -20296194.66 -20296194.66 0.1663 0.1662
 Mercury -60271-07-19 08:09 J -20292360.22 -20292360.16 -20292360.10 0.1906 0.1634
 Mercury -60270-05-17 16:33 J -20292057.88 -20292057.81 -20292057.74 0.1643 0.1472
 Mercury -60262-12-09 16:18 J -20288929.93 -20288929.82 -20288929.71 0.1899 0.0687
 Mercury -60261-10-06 17:59 J -20288627.91 -20288627.75 -20288627.60 0.1649 0.0475
 Venus -60260-07-06 10:33 J -20288355.22 -20288355.06 -20288354.89 0.1693 0.0516
 Venus -60254-12-15 05:16 J -20286002.36 -20286002.28 -20286002.19 0.1864 0.1610
 Mercury -60252-05-01 00:28 J -20285499.60 -20285499.48 -20285499.37 0.1890 0.0273
 Mercury -60251-02-26 19:25 J -20285197.85 -20285197.69 -20285197.54 0.1656 0.0528
 Earth -60248-12-29 04:18 J -20283796.35 -20283796.32 -20283796.28 0.1623 0.1595
 Mercury -60243-09-21 08:23 J -20282069.24 -20282069.15 -20282069.06 0.1882 0.1206
 Mercury -60242-07-19 20:37 J -20281767.69 -20281767.64 -20281767.57 0.1663 0.1530
 Mercury -60231-01-17 08:09 J -20277933.20 -20277933.16 -20277933.11 0.1907 0.1746
 Mercury -60231-11-15 17:01 J -20277630.82 -20277630.79 -20277630.75 0.1643 0.1601
 Mercury -60222-06-09 16:18 J -20274502.92 -20274502.82 -20274502.71 0.1898 0.0790
 Mercury -60221-04-06 18:28 J -20274200.88 -20274200.73 -20274200.57 0.1650 0.0613
 Mercury -60213-10-30 00:13 J -20271072.60 -20271072.49 -20271072.37 0.1891 0.0175

Mercury -60212-08-27 20:09 J -20270770.82 -20270770.66 -20270770.50 0.1656 0.0382

Mercury -60203-03-22 08:23 J -20267642.24 -20267642.15 -20267642.05 0.1882 0.1096

Mercury -60202-01-17 21:21 J -20267340.69 -20267340.61 -20267340.52 0.1663 0.1394

Venus -60194-05-03 21:06 J -20264312.80 -20264312.62 -20264312.45 0.1689 0.0180

Mercury -60192-07-18 08:23 J -20263506.17 -20263506.15 -20263506.13 0.1907 0.1858

Mercury -60183-12-08 16:18 J -20260075.92 -20260075.82 -20260075.72 0.1899 0.0894

Mercury -60182-10-06 19:11 J -20259773.85 -20259773.70 -20259773.55 0.1649 0.0748

Moon -60175-07-07 12:57 J -20257308.13 -20257307.96 -20257307.78 0.1930 0.0562

Earth -60175-07-07 15:49 J -20257308.03 -20257307.84 -20257307.65 0.1930 0.0570 *

Mercury -60173-04-30 00:28 J -20256645.60 -20256645.48 -20256645.37 0.1891 0.0085

Mercury -60172-02-25 20:37 J -20256343.81 -20256343.64 -20256343.48 0.1656 0.0257

Moon -60169-12-31 00:42 J -20254939.64 -20254939.47 -20254939.29 0.1620 0.0573

Earth -60169-12-31 07:40 J -20254939.37 -20254939.18 -20254939.00 0.1620 0.0519 *

Mercury -60164-09-20 08:23 J -20253215.25 -20253215.15 -20253215.05 0.1882 0.0997

Mercury -60163-07-18 22:04 J -20252913.68 -20252913.58 -20252913.47 0.1663 0.1251

Venus -60156-10-11 00:57 J -20250272.58 -20250272.46 -20250272.34 0.1852 0.1317

Mercury -60143-06-08 16:18 J -20245648.91 -20245648.82 -20245648.72 0.1899 0.1006

Mercury -60142-04-06 19:54 J -20245346.81 -20245346.67 -20245346.53 0.1649 0.0889

Mercury -60134-10-30 00:28 J -20242218.60 -20242218.48 -20242218.36 0.1891 0.0059

Mercury -60133-08-26 21:06 J -20241916.78 -20241916.62 -20241916.45 0.1656 0.0121

Venus -60128-02-28 07:11 J -20240270.38 -20240270.20 -20240270.03 0.1685 0.0169

Mercury -60124-03-21 08:23 J -20238788.25 -20238788.15 -20238788.05 0.1883 0.0889

Mercury -60123-01-16 22:33 J -20238486.68 -20238486.56 -20238486.44 0.1663 0.1119

Mercury -60115-08-11 16:33 J -20235357.84 -20235357.81 -20235357.78 0.1874 0.1810

Mercury -60104-12-07 16:18 J -20231221.91 -20231221.82 -20231221.72 0.1899 0.1105

Mercury -60103-10-05 20:23 J -20230919.78 -20230919.65 -20230919.52 0.1649 0.1023

Mercury -60094-04-30 00:13 J -20227791.60 -20227791.49 -20227791.37 0.1891 0.0170

Mercury -60093-02-25 22:04 J -20227489.75 -20227489.58 -20227489.42 0.1656 0.0045

Venus -60090-08-08 06:28 J -20226230.39 -20226230.23 -20226230.07 0.1857 0.0684

Moon -60089-01-03 09:21 J -20226082.30 -20226082.11 -20226081.92 0.1616 0.0558

Earth -60089-01-03 11:01 J -20226082.22 -20226082.04 -20226081.86 0.1616 0.0554 *

Mercury -60085-09-19 08:37 J -20224361.25 -20224361.14 -20224361.04 0.1883 0.0773

Mercury -60084-07-17 23:16 J -20224059.66 -20224059.53 -20224059.40 0.1662 0.0982

Mercury -60075-02-09 16:33 J -20220930.86 -20220930.81 -20220930.76 0.1874 0.1709

Mercury -60064-06-07 16:18 J -20216794.91 -20216794.82 -20216794.73 0.1899 0.1211

Mercury -60063-04-05 21:06 J -20216492.73 -20216492.62 -20216492.50 0.1649 0.1164

Venus -60063-12-26 17:16 J -20216227.95 -20216227.78 -20216227.61 0.1681 0.0506

Mercury -60055-10-29 00:28 J -20213364.59 -20213364.48 -20213364.36 0.1891 0.0269

Mercury -60054-08-26 22:33 J -20213062.73 -20213062.56 -20213062.40 0.1656 0.0163

Mercury -60045-03-20 08:23 J -20209934.26 -20209934.15 -20209934.04 0.1882 0.0681

Mercury -60044-01-15 23:59 J -20209632.64 -20209632.50 -20209632.36 0.1663 0.0840

Mercury -60036-08-10 16:33 J -20206503.87 -20206503.81 -20206503.75 0.1875 0.1600

Mercury -60025-12-06 16:33 J -20202367.90 -20202367.81 -20202367.73 0.1899 0.1323

Venus -60024-06-04 12:28 J -20202188.16 -20202187.98 -20202187.81 0.1862 0.0074

Mercury -60024-10-04 21:49 J -20202065.69 -20202065.59 -20202065.49 0.1649 0.1300

Mercury -60015-04-29 00:28 J -20198937.59 -20198937.48 -20198937.37 0.1891 0.0371

Mercury -60014-02-24 23:01 J -20198635.70 -20198635.54 -20198635.38 0.1656 0.0300

Mercury -60006-09-19 08:37 J -20195507.26 -20195507.14 -20195507.03 0.1883 0.0570

Mercury -60005-07-17 00:28 J -20195205.63 -20195205.48 -20195205.33 0.1662 0.0708

60TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 60th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|--------|-------------------------|---|-------|-----|-----|--------|-------|---|
|--------|-------------------------|---|-------|-----|-----|--------|-------|---|

Venus -59997-10-23 03:35 J -20192185.50 -20192185.35 -20192185.20 0.1678 0.0834
 Mercury -59996-02-08 16:33 J -20192076.88 -20192076.81 -20192076.74 0.1874 0.1494
 Mercury -59985-06-06 16:18 J -20187940.89 -20187940.82 -20187940.74 0.1899 0.1421
 Mercury -59984-04-04 22:33 J -20187638.64 -20187638.56 -20187638.49 0.1649 0.1440
 Mercury -59976-10-28 00:28 J -20184510.59 -20184510.48 -20184510.37 0.1891 0.0473
 Mercury -59975-08-25 23:59 J -20184208.66 -20184208.50 -20184208.35 0.1655 0.0445
 Mercury -59966-03-20 08:37 J -20181080.25 -20181080.14 -20181080.03 0.1883 0.0457
 Mercury -59965-01-16 01:11 J -20180778.61 -20180778.45 -20180778.30 0.1662 0.0573
 Venus -59965-10-22 04:04 J -20180498.38 -20180498.33 -20180498.28 0.1690 0.1608
 Earth -59964-12-30 07:40 J -20180064.29 -20180064.18 -20180064.07 0.1628 0.1325
 Moon -59964-12-30 13:54 J -20180064.02 -20180063.92 -20180063.82 0.1627 0.1362
 Venus -59958-04-01 17:30 J -20178145.93 -20178145.77 -20178145.60 0.1867 0.0605
 Mercury -59957-08-09 16:47 J -20177649.88 -20177649.80 -20177649.73 0.1874 0.1389
 Mercury -59956-06-07 02:37 J -20177348.44 -20177348.39 -20177348.34 0.1669 0.1579
 Mercury -59946-12-06 16:18 J -20173513.88 -20173513.82 -20173513.75 0.1899 0.1526
 Mercury -59945-10-03 23:01 J -20173211.58 -20173211.54 -20173211.49 0.1649 0.1574
 Mercury -59936-04-28 00:28 J -20170083.59 -20170083.48 -20170083.37 0.1891 0.0582
 Mercury -59935-02-24 00:13 J -20169781.64 -20169781.49 -20169781.33 0.1655 0.0573
 Venus -59931-08-20 13:54 J -20168143.05 -20168142.92 -20168142.79 0.1674 0.1161
 Mercury -59927-09-18 08:37 J -20166653.26 -20166653.14 -20166653.03 0.1883 0.0365
 Mercury -59926-07-17 01:54 J -20166351.58 -20166351.42 -20166351.26 0.1662 0.0426
 Mercury -59917-02-08 16:47 J -20163222.89 -20163222.80 -20163222.72 0.1875 0.1282
 Mercury -59917-12-06 03:21 J -20162921.44 -20162921.36 -20162921.28 0.1669 0.1442
 Mercury -59906-06-06 16:33 J -20159086.87 -20159086.81 -20159086.76 0.1900 0.1636
 Venus -59899-08-19 14:09 J -20156456.02 -20156455.91 -20156455.79 0.1686 0.1267
 Mercury -59897-10-27 00:28 J -20155656.59 -20155656.48 -20155656.37 0.1891 0.0691
 Mercury -59896-08-25 00:57 J -20155354.60 -20155354.46 -20155354.31 0.1655 0.0712
 Venus -59892-01-26 23:16 J -20154103.66 -20154103.53 -20154103.40 0.1872 0.1247
 Earth -59891-07-06 20:37 J -20153577.83 -20153577.64 -20153577.45 0.1920 0.0527
 Moon -59891-07-07 06:13 J -20153577.44 -20153577.24 -20153577.04 0.1921 0.0186

Mercury -59887-03-19 08:37 J -20152226.26 -20152226.14 -20152226.02 0.1883 0.0251

Mercury -59886-01-15 02:23 J -20151924.56 -20151924.40 -20151924.24 0.1662 0.0297

Earth -59884-01-01 11:45 J -20151207.20 -20151207.01 -20151206.83 0.1624 0.0224

Moon -59884-01-01 12:28 J -20151207.16 -20151206.98 -20151206.81 0.1624 0.0185 *

Mercury -59878-08-09 16:47 J -20148795.89 -20148795.80 -20148795.71 0.1875 0.1175

Mercury -59877-06-06 03:49 J -20148494.44 -20148494.34 -20148494.24 0.1669 0.1309

Mercury -59867-12-05 16:18 J -20144659.86 -20144659.82 -20144659.77 0.1899 0.1734

Venus -59865-06-17 00:13 J -20144100.57 -20144100.49 -20144100.41 0.1671 0.1482

Mercury -59857-04-27 00:28 J -20141229.58 -20141229.48 -20141229.37 0.1892 0.0788

Mercury -59856-02-23 01:40 J -20140927.56 -20140927.43 -20140927.28 0.1655 0.0857

Mercury -59848-09-17 08:37 J -20137799.25 -20137799.14 -20137799.02 0.1883 0.0146

Mercury -59847-07-16 03:06 J -20137497.54 -20137497.37 -20137497.21 0.1662 0.0166

Mercury -59838-02-07 16:47 J -20134368.90 -20134368.80 -20134368.71 0.1875 0.1073

Mercury -59838-12-06 04:18 J -20134067.43 -20134067.32 -20134067.20 0.1669 0.1171

Venus -59833-06-15 23:59 J -20132413.64 -20132413.50 -20132413.35 0.1682 0.0915

Mercury -59827-06-05 16:33 J -20130232.84 -20130232.81 -20130232.79 0.1900 0.1839

Mercury -59818-10-27 00:28 J -20126802.58 -20126802.48 -20126802.37 0.1891 0.0904

Mercury -59817-08-24 02:09 J -20126500.54 -20126500.41 -20126500.27 0.1655 0.0983

Mercury -59808-03-18 08:37 J -20123372.26 -20123372.14 -20123372.03 0.1883 0.0068

Mercury -59807-01-14 03:49 J -20123070.51 -20123070.34 -20123070.18 0.1662 0.0036

Moon -59805-01-04 09:35 J -20122350.25 -20122350.10 -20122349.95 0.1621 0.0889

Earth -59805-01-04 15:06 J -20122350.03 -20122349.87 -20122349.70 0.1621 0.0869 *

Mercury -59799-08-08 16:47 J -20119941.90 -20119941.80 -20119941.70 0.1875 0.0961

Mercury -59798-06-06 05:01 J -20119640.41 -20119640.29 -20119640.16 0.1669 0.1032

Venus -59795-11-23 18:28 J -20118373.80 -20118373.73 -20118373.66 0.1861 0.1688

Mercury -59778-04-27 00:28 J -20112375.58 -20112375.48 -20112375.38 0.1891 0.1000

Mercury -59777-02-23 02:52 J -20112073.50 -20112073.38 -20112073.26 0.1655 0.1123

Mercury -59769-09-16 08:37 J -20108945.25 -20108945.14 -20108945.02 0.1883 0.0079

Mercury -59768-07-15 04:18 J -20108643.49 -20108643.32 -20108643.16 0.1662 0.0117

Venus -59767-04-13 10:33 J -20108371.22 -20108371.06 -20108370.89 0.1679 0.0590

Mercury -59759-02-06 16:47 J -20105514.90 -20105514.80 -20105514.70 0.1875 0.0859
 Mercury -59759-12-05 05:30 J -20105213.40 -20105213.27 -20105213.13 0.1669 0.0900
 Mercury -59750-06-30 00:57 J -20102084.50 -20102084.46 -20102084.43 0.1867 0.1782
 Mercury -59739-10-26 00:28 J -20097948.57 -20097948.48 -20097948.38 0.1892 0.1106
 Mercury -59738-08-24 03:35 J -20097646.45 -20097646.35 -20097646.24 0.1655 0.1266
 Mercury -59729-03-17 08:37 J -20094518.25 -20094518.14 -20094518.02 0.1883 0.0190
 Venus -59729-09-20 00:13 J -20094331.63 -20094331.49 -20094331.35 0.1865 0.1051
 Mercury -59728-01-13 04:47 J -20094216.46 -20094216.30 -20094216.13 0.1662 0.0254
 Mercury -59720-08-07 16:47 J -20091087.91 -20091087.80 -20091087.69 0.1875 0.0755
 Mercury -59719-06-05 06:13 J -20090786.38 -20090786.24 -20090786.09 0.1668 0.0760
 Mercury -59711-12-29 00:57 J -20087657.51 -20087657.46 -20087657.41 0.1867 0.1668
 Venus -59701-02-08 20:52 J -20084328.81 -20084328.63 -20084328.46 0.1675 0.0252
 Mercury -59699-04-26 00:28 J -20083521.56 -20083521.48 -20083521.39 0.1892 0.1212
 Mercury -59698-02-22 04:04 J -20083219.41 -20083219.33 -20083219.24 0.1655 0.1395
 Mercury -59690-09-16 08:37 J -20080091.25 -20080091.14 -20080091.02 0.1883 0.0271
 Mercury -59689-07-14 05:45 J -20079789.42 -20079789.26 -20079789.10 0.1661 0.0399
 Mercury -59680-02-05 16:47 J -20076660.91 -20076660.80 -20076660.69 0.1875 0.0648
 Mercury -59680-12-04 06:57 J -20076359.36 -20076359.21 -20076359.06 0.1668 0.0625
 Moon -59680-12-31 08:37 J -20076332.29 -20076332.14 -20076331.99 0.1633 0.1101
 Earth -59680-12-31 10:04 J -20076332.22 -20076332.08 -20076331.93 0.1633 0.1066 *
 Mercury -59671-06-29 00:57 J -20073230.52 -20073230.46 -20073230.40 0.1867 0.1561
 Mercury -59670-04-26 08:09 J -20072929.18 -20072929.16 -20072929.13 0.1675 0.1642
 Venus -59663-07-18 05:16 J -20070289.44 -20070289.28 -20070289.11 0.1870 0.0387
 Mercury -59660-10-25 00:42 J -20069094.56 -20069094.47 -20069094.39 0.1892 0.1316
 Mercury -59659-08-23 04:47 J -20068792.36 -20068792.30 -20068792.24 0.1655 0.1535
 Mercury -59650-03-17 08:37 J -20065664.25 -20065664.14 -20065664.02 0.1884 0.0382
 Mercury -59649-01-13 05:59 J -20065362.40 -20065362.25 -20065362.09 0.1661 0.0526
 Mercury -59641-08-06 16:47 J -20062233.91 -20062233.80 -20062233.69 0.1875 0.0546
 Mercury -59640-06-04 07:25 J -20061932.34 -20061932.19 -20061932.03 0.1668 0.0489
 Venus -59636-12-06 07:11 J -20060286.38 -20060286.20 -20060286.02 0.1672 0.0073

Mercury -59632-12-28 00:57 J -20058803.53 -20058803.46 -20058803.39 0.1867 0.1465

Mercury -59631-10-25 08:52 J -20058502.19 -20058502.13 -20058502.06 0.1675 0.1498

Mercury -59620-04-25 00:28 J -20054667.55 -20054667.48 -20054667.40 0.1892 0.1415

Mercury -59611-09-15 08:52 J -20051237.25 -20051237.13 -20051237.02 0.1884 0.0492

Mercury -59610-07-14 06:42 J -20050935.37 -20050935.22 -20050935.07 0.1661 0.0661

Moon -59607-07-05 18:42 J -20049847.86 -20049847.72 -20049847.57 0.1910 0.1383

Earth -59607-07-06 03:06 J -20049847.48 -20049847.37 -20049847.25 0.1911 0.1542

Mercury -59601-02-05 16:47 J -20047806.91 -20047806.80 -20047806.68 0.1875 0.0443

Mercury -59601-12-03 08:09 J -20047505.32 -20047505.16 -20047505.00 0.1668 0.0352

Earth -59600-01-02 14:37 J -20047475.09 -20047474.89 -20047474.70 0.1629 0.0071

Moon -59600-01-02 20:23 J -20047474.85 -20047474.65 -20047474.45 0.1629 0.0111 *

Venus -59597-05-14 10:47 J -20046247.22 -20046247.05 -20046246.88 0.1875 0.0274

Mercury -59592-06-28 00:57 J -20044376.54 -20044376.46 -20044376.38 0.1867 0.1353

Mercury -59591-04-25 09:21 J -20044075.20 -20044075.11 -20044075.02 0.1675 0.1373

Mercury -59581-10-24 00:42 J -20040240.54 -20040240.47 -20040240.41 0.1892 0.1523

Mercury -59571-03-16 08:37 J -20036810.25 -20036810.14 -20036810.03 0.1884 0.0580

Mercury -59570-01-12 07:25 J -20036508.33 -20036508.19 -20036508.04 0.1661 0.0808

Venus -59570-10-03 17:45 J -20036243.93 -20036243.76 -20036243.59 0.1668 0.0391

Mercury -59562-08-06 17:01 J -20033379.91 -20033379.79 -20033379.68 0.1876 0.0333

Mercury -59561-06-03 08:37 J -20033078.30 -20033078.14 -20033077.97 0.1668 0.0218

Mercury -59553-12-27 00:57 J -20029949.54 -20029949.46 -20029949.37 0.1867 0.1250

Mercury -59552-10-24 10:04 J -20029648.19 -20029648.08 -20029647.97 0.1675 0.1236

Mercury -59541-04-24 00:28 J -20025813.53 -20025813.48 -20025813.42 0.1892 0.1622

Mercury -59532-09-14 08:52 J -20022383.24 -20022383.13 -20022383.03 0.1884 0.0696

Venus -59531-03-11 15:35 J -20022205.00 -20022204.85 -20022204.70 0.1880 0.0961

Mercury -59531-07-13 07:54 J -20022081.30 -20022081.17 -20022081.03 0.1661 0.0935

Earth -59528-07-09 16:04 J -20020988.98 -20020988.83 -20020988.69 0.1918 0.1294

Moon -59528-07-09 22:04 J -20020988.75 -20020988.58 -20020988.41 0.1918 0.1139 *

Mercury -59522-02-04 16:47 J -20018952.91 -20018952.80 -20018952.68 0.1875 0.0239

Mercury -59522-12-03 09:21 J -20018651.28 -20018651.11 -20018650.95 0.1668 0.0085

Earth -59521-01-05 18:42 J -20018617.85 -20018617.72 -20018617.59 0.1626 0.1172
 Moon -59521-01-05 22:47 J -20018617.66 -20018617.55 -20018617.44 0.1626 0.1276 *
 Mercury -59513-06-27 00:57 J -20015522.55 -20015522.46 -20015522.37 0.1867 0.1151
 Mercury -59512-04-24 10:47 J -20015221.17 -20015221.05 -20015220.93 0.1675 0.1091
 Venus -59504-07-31 04:04 J -20012201.49 -20012201.33 -20012201.17 0.1665 0.0712
 Mercury -59502-10-24 00:42 J -20011386.52 -20011386.47 -20011386.43 0.1892 0.1728
 Mercury -59492-03-15 08:52 J -20007956.24 -20007956.13 -20007956.03 0.1884 0.0800
 Mercury -59491-01-11 08:37 J -20007654.27 -20007654.14 -20007654.02 0.1661 0.1071
 Mercury -59483-08-05 16:47 J -20004525.91 -20004525.80 -20004525.68 0.1876 0.0145
 Mercury -59482-06-03 09:49 J -20004224.25 -20004224.09 -20004223.92 0.1668 0.0064
 Mercury -59474-12-27 01:11 J -20001095.55 -20001095.45 -20001095.36 0.1867 0.1041
 Mercury -59473-10-23 11:01 J -20000794.17 -20000794.04 -20000793.90 0.1675 0.0969
 Venus -59472-07-30 03:35 J -20000514.37 -20000514.35 -20000514.32 0.1676 0.1656
 Venus -59465-01-06 20:37 J -19998162.72 -19998162.64 -19998162.56 0.1885 0.1640
 Mercury -59462-04-24 00:42 J -19996959.50 -19996959.47 -19996959.45 0.1892 0.1829
 Mercury -59453-09-13 08:37 J -19993529.24 -19993529.14 -19993529.04 0.1884 0.0893
 Mercury -59452-07-12 09:21 J -19993227.22 -19993227.11 -19993227.00 0.1661 0.1217
 Mercury -59443-02-03 17:01 J -19990098.91 -19990098.79 -19990098.68 0.1876 0.0044
 Mercury -59443-12-02 10:33 J -19989797.22 -19989797.06 -19989796.90 0.1668 0.0194
 Venus -59438-05-28 14:37 J -19988159.03 -19988158.89 -19988158.75 0.1661 0.1022
 Mercury -59434-06-27 01:11 J -19986668.55 -19986668.45 -19986668.35 0.1867 0.0936
 Mercury -59433-04-23 11:45 J -19986367.15 -19986367.01 -19986366.87 0.1675 0.0827
 Mercury -59425-11-16 09:06 J -19983238.13 -19983238.12 -19983238.10 0.1859 0.1845
 Mercury -59413-03-14 08:52 J -19979102.23 -19979102.13 -19979102.04 0.1884 0.1003
 Mercury -59412-01-10 09:49 J -19978800.19 -19978800.09 -19978800.00 0.1661 0.1342
 Venus -59406-05-27 13:40 J -19976472.03 -19976471.93 -19976471.82 0.1673 0.1318
 Mercury -59404-08-04 16:47 J -19975671.91 -19975671.80 -19975671.68 0.1876 0.0110
 Mercury -59403-06-02 11:01 J -19975370.20 -19975370.04 -19975369.88 0.1668 0.0333
 Moon -59395-01-01 05:30 J -19972600.42 -19972600.27 -19972600.12 0.1639 0.0919
 Earth -59395-01-01 11:59 J -19972600.17 -19972600.00 -19972599.84 0.1639 0.0821 *

Mercury -59395-12-26 00:57 J -19972241.56 -19972241.46 -19972241.35 0.1868 0.0841

Mercury -59394-10-23 12:28 J -19971940.13 -19971939.98 -19971939.83 0.1675 0.0686

Mercury -59385-05-17 09:21 J -19968811.15 -19968811.11 -19968811.07 0.1859 0.1735

Mercury -59374-09-13 08:52 J -19964675.22 -19964675.13 -19964675.04 0.1884 0.1111

Mercury -59373-07-11 10:18 J -19964373.14 -19964373.07 -19964372.99 0.1661 0.1481

Venus -59372-03-25 01:11 J -19964116.55 -19964116.45 -19964116.34 0.1658 0.1330

Venus -59368-11-02 16:33 J -19962432.93 -19962432.81 -19962432.69 0.1874 0.1355

Mercury -59364-02-02 17:01 J -19961244.91 -19961244.79 -19961244.68 0.1876 0.0193

Mercury -59364-12-01 11:45 J -19960943.17 -19960943.01 -19960942.86 0.1668 0.0467

Mercury -59355-06-26 01:11 J -19957814.56 -19957814.45 -19957814.34 0.1867 0.0727

Mercury -59354-04-23 12:57 J -19957513.11 -19957512.96 -19957512.81 0.1675 0.0561

Mercury -59346-11-16 09:06 J -19954384.17 -19954384.12 -19954384.06 0.1859 0.1642

Mercury -59345-09-12 14:23 J -19954082.95 -19954082.90 -19954082.85 0.1682 0.1577

Venus -59340-03-24 00:42 J -19952429.61 -19952429.47 -19952429.33 0.1669 0.1006

Mercury -59334-03-14 08:37 J -19950248.23 -19950248.14 -19950248.05 0.1884 0.1200

Mercury -59333-01-10 11:16 J -19949946.06 -19949946.03 -19949946.00 0.1661 0.1626

Mercury -59325-08-03 17:01 J -19946817.91 -19946817.79 -19946817.67 0.1876 0.0292

Mercury -59324-06-01 12:13 J -19946516.14 -19946515.99 -19946515.83 0.1667 0.0602

Moon -59316-01-03 11:30 J -19943743.22 -19943743.02 -19943742.82 0.1635 0.0207

Earth -59316-01-03 16:33 J -19943743.00 -19943742.81 -19943742.62 0.1635 0.0327 *

Mercury -59316-12-25 01:11 J -19943387.56 -19943387.45 -19943387.34 0.1867 0.0627

Mercury -59315-10-22 13:40 J -19943086.09 -19943085.93 -19943085.78 0.1675 0.0425

Venus -59306-01-20 11:59 J -19940074.03 -19940074.00 -19940073.97 0.1655 0.1630

Mercury -59306-05-17 09:21 J -19939957.18 -19939957.11 -19939957.05 0.1859 0.1534

Mercury -59305-03-13 14:52 J -19939655.96 -19939655.88 -19939655.80 0.1682 0.1447

Venus -59302-08-30 21:49 J -19938390.75 -19938390.59 -19938390.43 0.1879 0.0689

Mercury -59295-09-12 08:52 J -19935821.21 -19935821.13 -19935821.05 0.1884 0.1313

Mercury -59285-02-02 16:47 J -19932390.91 -19932390.80 -19932390.68 0.1876 0.0391

Mercury -59285-11-30 12:57 J -19932089.11 -19932088.96 -19932088.82 0.1668 0.0739

Mercury -59276-06-25 01:11 J -19928960.57 -19928960.45 -19928960.34 0.1868 0.0527

Mercury -59275-04-22 14:23 J -19928659.06 -19928658.90 -19928658.74 0.1674 0.0280

Venus -59274-01-19 10:47 J -19928387.21 -19928387.05 -19928386.89 0.1666 0.0673

Mercury -59267-11-15 09:21 J -19925530.18 -19925530.11 -19925530.03 0.1859 0.1421

Mercury -59266-09-12 15:21 J -19925228.96 -19925228.86 -19925228.76 0.1682 0.1316

Mercury -59255-03-13 08:52 J -19921394.21 -19921394.13 -19921394.06 0.1884 0.1415

Mercury -59246-08-03 17:01 J -19917963.91 -19917963.79 -19917963.68 0.1876 0.0493

Mercury -59245-05-31 13:25 J -19917662.08 -19917661.94 -19917661.80 0.1667 0.0875

Moon -59244-07-08 12:42 J -19917259.16 -19917258.97 -19917258.78 0.1907 0.0261

Earth -59244-07-08 21:49 J -19917258.79 -19917258.59 -19917258.40 0.1907 0.0238 *

Earth -59237-01-06 21:06 J -19914885.71 -19914885.62 -19914885.54 0.1631 0.1460

Moon -59237-01-07 00:13 J -19914885.54 -19914885.49 -19914885.45 0.1631 0.1589 *

Mercury -59237-12-24 01:11 J -19914533.56 -19914533.45 -19914533.34 0.1868 0.0417

Venus -59236-06-27 02:23 J -19914348.57 -19914348.40 -19914348.23 0.1883 0.0009

Mercury -59236-10-21 14:37 J -19914232.05 -19914231.89 -19914231.73 0.1674 0.0156

Mercury -59227-05-16 09:06 J -19911103.20 -19911103.12 -19911103.03 0.1859 0.1334

Mercury -59226-03-13 16:04 J -19910801.94 -19910801.83 -19910801.71 0.1682 0.1170

Mercury -59216-09-11 08:37 J -19906967.20 -19906967.14 -19906967.07 0.1885 0.1509

Venus -59209-11-15 21:35 J -19904344.78 -19904344.60 -19904344.43 0.1663 0.0366

Mercury -59206-02-01 17:01 J -19903536.90 -19903536.79 -19903536.68 0.1876 0.0600

Mercury -59206-11-30 14:09 J -19903235.04 -19903234.91 -19903234.78 0.1667 0.1009

Mercury -59197-06-24 01:11 J -19900106.57 -19900106.45 -19900106.33 0.1868 0.0315

Mercury -59196-04-21 15:21 J -19899805.02 -19899804.86 -19899804.70 0.1674 0.0015

Moon -59191-12-31 14:23 J -19897724.92 -19897724.90 -19897724.88 0.1648 0.1636

Mercury -59188-11-14 09:21 J -19896676.20 -19896676.11 -19896676.02 0.1859 0.1221

Mercury -59187-09-11 16:33 J -19896374.93 -19896374.81 -19896374.68 0.1682 0.1045

Mercury -59176-03-12 08:52 J -19892540.19 -19892540.13 -19892540.08 0.1885 0.1617

Venus -59170-04-24 07:25 J -19890306.35 -19890306.19 -19890306.03 0.1888 0.0692

Mercury -59167-08-02 17:01 J -19889109.90 -19889109.79 -19889109.68 0.1876 0.0697

Mercury -59166-05-31 14:52 J -19888808.00 -19888807.88 -19888807.77 0.1667 0.1150

Mercury -59158-12-24 01:11 J -19885679.57 -19885679.45 -19885679.33 0.1868 0.0218

Mercury -59157-10-20 16:04 J -19885377.99 -19885377.83 -19885377.67 0.1674 0.0128
 Mercury -59148-05-15 09:21 J -19882249.20 -19882249.11 -19882249.01 0.1859 0.1114
 Mercury -59147-03-12 17:16 J -19881947.92 -19881947.78 -19881947.65 0.1681 0.0910
 Venus -59143-09-13 08:09 J -19880302.33 -19880302.16 -19880301.98 0.1659 0.0069
 Mercury -59137-09-10 08:52 J -19878113.18 -19878113.13 -19878113.09 0.1885 0.1723
 Mercury -59127-01-31 17:01 J -19874682.90 -19874682.79 -19874682.69 0.1876 0.0798
 Mercury -59127-11-29 15:21 J -19874380.96 -19874380.86 -19874380.76 0.1667 0.1281
 Mercury -59118-06-24 01:11 J -19871252.57 -19871252.45 -19871252.33 0.1868 0.0111
 Mercury -59117-04-20 16:33 J -19870950.97 -19870950.81 -19870950.65 0.1674 0.0255
 Earth -59111-01-02 12:13 J -19868868.16 -19868867.99 -19868867.81 0.1644 0.0595
 Moon -59111-01-02 16:47 J -19868867.98 -19868867.80 -19868867.63 0.1644 0.0516 *
 Mercury -59109-11-13 09:21 J -19867822.21 -19867822.11 -19867822.01 0.1859 0.1020
 Mercury -59108-09-10 17:59 J -19867520.90 -19867520.75 -19867520.61 0.1681 0.0766
 Venus -59104-02-18 11:45 J -19866264.12 -19866264.01 -19866263.89 0.1893 0.1414
 Mercury -59097-03-11 08:37 J -19863686.16 -19863686.14 -19863686.11 0.1885 0.1813
 Mercury -59088-08-01 17:01 J -19860255.89 -19860255.79 -19860255.69 0.1877 0.0909
 Mercury -59087-05-30 15:49 J -19859953.92 -19859953.84 -19859953.75 0.1667 0.1417
 Mercury -59079-12-23 01:11 J -19856825.57 -19856825.45 -19856825.33 0.1868 0.0013
 Mercury -59078-10-20 17:01 J -19856523.95 -19856523.79 -19856523.63 0.1674 0.0394
 Venus -59077-07-10 18:42 J -19856259.89 -19856259.72 -19856259.54 0.1656 0.0256
 Mercury -59069-05-14 09:21 J -19853395.21 -19853395.11 -19853395.01 0.1859 0.0912
 Mercury -59068-03-11 18:13 J -19853093.88 -19853093.74 -19853093.59 0.1681 0.0639
 Mercury -59060-10-04 17:30 J -19849964.79 -19849964.77 -19849964.74 0.1850 0.1802
 Mercury -59059-08-01 19:25 J -19849663.70 -19849663.69 -19849663.67 0.1689 0.1676
 Mercury -59048-01-30 17:01 J -19845828.89 -19845828.79 -19845828.70 0.1876 0.1001
 Mercury -59048-11-28 16:33 J -19845526.86 -19845526.81 -19845526.75 0.1667 0.1557
 Mercury -59039-06-23 01:11 J -19842398.57 -19842398.45 -19842398.33 0.1868 0.0097
 Mercury -59038-04-20 17:45 J -19842096.91 -19842096.76 -19842096.60 0.1674 0.0538
 Moon -59032-01-04 13:40 J -19840011.10 -19840010.93 -19840010.76 0.1641 0.0483
 Earth -59032-01-04 17:45 J -19840010.94 -19840010.76 -19840010.58 0.1640 0.0577 *

Mercury -59030-11-13 09:35 J -19838968.21 -19838968.10 -19838968.00 0.1860 0.0805

Mercury -59029-09-09 18:57 J -19838666.87 -19838666.71 -19838666.56 0.1681 0.0505

Mercury -59020-04-04 17:30 J -19835537.81 -19835537.77 -19835537.72 0.1851 0.1703

Mercury -59019-01-30 20:09 J -19835236.72 -19835236.66 -19835236.60 0.1689 0.1537

Venus -59011-05-08 05:30 J -19832217.43 -19832217.27 -19832217.10 0.1653 0.0555

Mercury -59009-07-31 17:01 J -19831401.88 -19831401.79 -19831401.70 0.1877 0.1106

Venus -59007-12-16 08:52 J -19830534.21 -19830534.13 -19830534.05 0.1882 0.1662

59TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 59th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|----------|-------|---|
| Mercury | -59000-12-22 01:11 J | -19827971.56 | -19827971.45 | -19827971.33 | 0.1868 | 0.0207 | | |
| Mercury | -58999-10-19 18:13 J | -19827669.89 | -19827669.74 | -19827669.59 | 0.1674 | 0.0661 | | |
| Mercury | -58990-05-14 09:21 J | -19824541.22 | -19824541.11 | -19824541.00 | 0.1860 | 0.0713 | | |
| Mercury | -58989-03-10 19:40 J | -19824239.84 | -19824239.68 | -19824239.52 | 0.1681 | 0.0357 | | |
| Mercury | -58981-10-03 17:45 J | -19821110.82 | -19821110.76 | -19821110.70 | 0.1851 | 0.1592 | | |
| Mercury | -58980-07-31 20:37 J | -19820809.72 | -19820809.64 | -19820809.55 | 0.1688 | 0.1403 | | |
| Mercury | -58969-01-30 17:01 J | -19816974.88 | -19816974.79 | -19816974.70 | 0.1877 | 0.1215 | | |
| Mercury | -58960-06-22 01:11 J | -19813544.56 | -19813544.45 | -19813544.33 | 0.1868 | 0.0303 | | |
| Earth | -58960-07-08 05:59 J | -19813528.43 | -19813528.25 | -19813528.07 | 0.1897 | 0.0718 | | |
| Moon | -58960-07-08 10:47 J | -19813528.21 | -19813528.05 | -19813527.89 | 0.1897 | 0.0885 * | | |
| Mercury | -58959-04-19 18:57 J | -19813242.85 | -19813242.71 | -19813242.57 | 0.1674 | 0.0802 | | |
| Mercury | -58951-11-12 09:21 J | -19810114.22 | -19810114.11 | -19810113.99 | 0.1860 | 0.0604 | | |

Mercury -58950-09-09 20:09 J -19809812.82 -19809812.66 -19809812.50 0.1681 0.0237

Venus -58945-03-04 16:18 J -19808174.97 -19808174.82 -19808174.66 0.1650 0.0854

Mercury -58941-04-03 17:30 J -19806683.83 -19806683.77 -19806683.70 0.1851 0.1496

Venus -58941-10-12 13:11 J -19806492.10 -19806491.95 -19806491.80 0.1887 0.0945

Mercury -58940-01-29 21:21 J -19806382.72 -19806382.61 -19806382.51 0.1689 0.1268

Mercury -58930-07-31 17:01 J -19802547.87 -19802547.79 -19802547.71 0.1877 0.1307

Mercury -58921-12-21 01:11 J -19799117.56 -19799117.45 -19799117.33 0.1869 0.0404

Mercury -58920-10-18 19:40 J -19798815.82 -19798815.68 -19798815.55 0.1673 0.0941

Venus -58913-03-03 15:06 J -19796487.96 -19796487.87 -19796487.79 0.1660 0.1428

Mercury -58911-05-13 09:35 J -19795687.22 -19795687.10 -19795686.99 0.1860 0.0498

Mercury -58910-03-10 20:37 J -19795385.80 -19795385.64 -19795385.48 0.1681 0.0098

Moon -58906-01-01 03:49 J -19793993.40 -19793993.34 -19793993.28 0.1655 0.1573

Earth -58906-01-01 07:25 J -19793993.25 -19793993.19 -19793993.13 0.1655 0.1558

Mercury -58902-10-03 17:45 J -19792256.84 -19792256.76 -19792256.69 0.1851 0.1389

Mercury -58901-07-30 21:49 J -19791955.71 -19791955.59 -19791955.47 0.1688 0.1132

Mercury -58890-01-29 17:01 J -19788120.87 -19788120.79 -19788120.72 0.1877 0.1410

Mercury -58881-06-21 01:11 J -19784690.56 -19784690.45 -19784690.33 0.1868 0.0513

Mercury -58880-04-18 20:09 J -19784388.79 -19784388.66 -19784388.54 0.1673 0.1072

Venus -58880-12-31 03:06 J -19784132.49 -19784132.37 -19784132.24 0.1646 0.1145

Venus -58875-08-09 18:13 J -19782449.91 -19782449.74 -19782449.57 0.1891 0.0255

Mercury -58872-11-11 09:21 J -19781260.22 -19781260.11 -19781259.99 0.1860 0.0403

Mercury -58871-09-08 21:21 J -19780958.77 -19780958.61 -19780958.44 0.1681 0.0058

Mercury -58862-04-03 17:45 J -19777829.84 -19777829.76 -19777829.68 0.1851 0.1284

Mercury -58861-01-29 22:33 J -19777528.69 -19777528.56 -19777528.43 0.1688 0.0999

Mercury -58851-07-30 17:01 J -19773693.85 -19773693.79 -19773693.72 0.1877 0.1523

Venus -58848-12-30 01:25 J -19772445.57 -19772445.44 -19772445.31 0.1657 0.1110

Mercury -58842-12-21 01:11 J -19770263.56 -19770263.45 -19770263.34 0.1868 0.0611

Mercury -58841-10-17 20:37 J -19769961.75 -19769961.64 -19769961.52 0.1673 0.1211

Mercury -58832-05-12 09:35 J -19766833.22 -19766833.10 -19766832.99 0.1860 0.0299

Mercury -58831-03-09 21:49 J -19766531.75 -19766531.59 -19766531.43 0.1681 0.0175

Earth -58827-01-03 12:28 J -19765136.17 -19765135.98 -19765135.79 0.1650 0.0371
 Moon -58827-01-03 17:01 J -19765135.99 -19765135.79 -19765135.59 0.1650 0.0280 *
 Mercury -58823-10-02 17:45 J -19763402.85 -19763402.76 -19763402.67 0.1851 0.1183
 Mercury -58822-07-30 23:01 J -19763101.68 -19763101.54 -19763101.40 0.1688 0.0861
 Venus -58814-10-28 14:09 J -19760090.00 -19760089.91 -19760089.83 0.1643 0.1430
 Mercury -58811-01-28 17:01 J -19759266.85 -19759266.79 -19759266.73 0.1877 0.1610
 Venus -58809-06-05 22:18 J -19758407.74 -19758407.57 -19758407.41 0.1896 0.0475
 Mercury -58802-06-21 01:25 J -19755836.55 -19755836.44 -19755836.34 0.1869 0.0715
 Mercury -58801-04-17 21:21 J -19755534.70 -19755534.61 -19755534.51 0.1673 0.1353
 Mercury -58793-11-10 09:35 J -19752406.22 -19752406.10 -19752405.98 0.1860 0.0185
 Mercury -58792-09-07 22:18 J -19752104.72 -19752104.57 -19752104.41 0.1681 0.0315
 Mercury -58783-04-02 17:45 J -19748975.86 -19748975.76 -19748975.67 0.1851 0.1082
 Mercury -58782-01-28 23:30 J -19748674.66 -19748674.52 -19748674.37 0.1688 0.0727
 Venus -58782-10-27 12:28 J -19748403.13 -19748402.98 -19748402.82 0.1654 0.0818
 Mercury -58772-07-29 17:01 J -19744839.83 -19744839.79 -19744839.74 0.1877 0.1719
 Mercury -58763-12-20 01:11 J -19741409.55 -19741409.45 -19741409.34 0.1869 0.0818
 Mercury -58762-10-17 21:49 J -19741107.66 -19741107.59 -19741107.51 0.1673 0.1479
 Mercury -58753-05-11 09:21 J -19737979.22 -19737979.11 -19737978.99 0.1860 0.0117
 Mercury -58752-03-08 23:16 J -19737677.69 -19737677.53 -19737677.38 0.1680 0.0460
 Earth -58748-01-05 17:59 J -19736278.91 -19736278.75 -19736278.58 0.1646 0.0819
 Moon -58748-01-06 00:42 J -19736278.64 -19736278.47 -19736278.31 0.1646 0.0758 *
 Mercury -58744-10-01 17:59 J -19734548.85 -19734548.75 -19734548.65 0.1852 0.0972
 Venus -58743-04-03 03:06 J -19734365.50 -19734365.37 -19734365.23 0.1900 0.1180
 Mercury -58743-07-30 00:13 J -19734247.64 -19734247.49 -19734247.34 0.1688 0.0590
 Mercury -58734-12-20 01:25 J -19730817.48 -19730817.44 -19730817.40 0.1696 0.1633
 Mercury -58732-01-27 17:01 J -19730412.81 -19730412.79 -19730412.76 0.1877 0.1825
 Mercury -58723-06-20 01:25 J -19726982.55 -19726982.44 -19726982.34 0.1869 0.0917
 Mercury -58722-04-17 22:33 J -19726680.59 -19726680.56 -19726680.52 0.1673 0.1622
 Venus -58716-08-23 23:30 J -19724360.69 -19724360.52 -19724360.36 0.1651 0.0520
 Mercury -58714-11-10 09:35 J -19723552.22 -19723552.10 -19723551.98 0.1860 0.0020

Mercury -58713-09-06 23:30 J -19723250.67 -19723250.52 -19723250.36 0.1680 0.0586

Mercury -58704-04-01 17:45 J -19720121.86 -19720121.76 -19720121.65 0.1851 0.0876

Mercury -58703-01-28 00:57 J -19719820.62 -19719820.46 -19719820.31 0.1688 0.0454

Mercury -58695-08-23 02:09 J -19716691.45 -19716691.41 -19716691.38 0.1843 0.1753

Mercury -58694-06-20 02:09 J -19716390.48 -19716390.41 -19716390.34 0.1695 0.1491

Mercury -58684-12-19 01:25 J -19712555.54 -19712555.44 -19712555.35 0.1869 0.1020

Earth -58676-07-07 17:45 J -19709797.87 -19709797.76 -19709797.65 0.1886 0.1544

Moon -58676-07-07 19:54 J -19709797.79 -19709797.67 -19709797.55 0.1886 0.1562 *

Mercury -58674-05-11 09:35 J -19709125.22 -19709125.10 -19709124.98 0.1860 0.0125

Mercury -58673-03-08 00:13 J -19708823.63 -19708823.49 -19708823.34 0.1680 0.0723

Mercury -58665-09-30 17:45 J -19705694.86 -19705694.76 -19705694.65 0.1852 0.0772

Mercury -58664-07-29 01:25 J -19705393.60 -19705393.44 -19705393.28 0.1688 0.0317

Mercury -58655-02-21 02:09 J -19702264.46 -19702264.41 -19702264.36 0.1843 0.1645

Mercury -58655-12-19 02:23 J -19701963.49 -19701963.40 -19701963.30 0.1696 0.1368

Venus -58650-06-21 10:18 J -19700318.25 -19700318.07 -19700317.90 0.1648 0.0223

Mercury -58644-06-19 01:25 J -19698128.53 -19698128.44 -19698128.35 0.1869 0.1122

Mercury -58635-11-09 09:35 J -19694698.22 -19694698.10 -19694697.98 0.1860 0.0218

Mercury -58634-09-07 00:57 J -19694396.60 -19694396.46 -19694396.32 0.1680 0.0869

Mercury -58625-03-31 17:59 J -19691267.86 -19691267.75 -19691267.64 0.1852 0.0664

Mercury -58624-01-27 01:54 J -19690966.58 -19690966.42 -19690966.26 0.1688 0.0185

Moon -58622-01-02 02:52 J -19690261.46 -19690261.38 -19690261.29 0.1661 0.1465

Earth -58622-01-02 06:42 J -19690261.33 -19690261.22 -19690261.12 0.1661 0.1371 *

Mercury -58616-08-22 02:09 J -19687837.47 -19687837.41 -19687837.35 0.1843 0.1541

Mercury -58615-06-19 03:06 J -19687536.48 -19687536.37 -19687536.26 0.1695 0.1225

Mercury -58605-12-18 01:25 J -19683701.53 -19683701.44 -19683701.35 0.1869 0.1221

Earth -58597-07-11 00:57 J -19680939.62 -19680939.46 -19680939.29 0.1894 0.1027

Moon -58597-07-11 09:21 J -19680939.25 -19680939.11 -19680938.98 0.1894 0.1313

Mercury -58595-05-10 09:35 J -19680271.21 -19680271.10 -19680270.98 0.1861 0.0326

Mercury -58594-03-08 01:25 J -19679969.57 -19679969.44 -19679969.31 0.1680 0.0993

Mercury -58586-09-30 17:59 J -19676840.87 -19676840.75 -19676840.64 0.1852 0.0568

Mercury -58585-07-28 02:37 J -19676539.55 -19676539.39 -19676539.23 0.1688 0.0042
 Venus -58584-04-17 21:21 J -19676275.79 -19676275.61 -19676275.43 0.1645 0.0064
 Venus -58580-11-25 05:16 J -19674593.41 -19674593.28 -19674593.15 0.1895 0.1226
 Mercury -58576-02-20 02:09 J -19673410.48 -19673410.41 -19673410.34 0.1843 0.1442
 Mercury -58576-12-18 03:49 J -19673109.46 -19673109.34 -19673109.22 0.1695 0.1084
 Mercury -58565-06-18 01:25 J -19669274.52 -19669274.44 -19669274.36 0.1869 0.1326
 Mercury -58556-11-08 09:49 J -19665844.21 -19665844.09 -19665843.98 0.1861 0.0438
 Mercury -58555-09-06 02:09 J -19665542.53 -19665542.41 -19665542.29 0.1680 0.1132
 Mercury -58546-03-31 17:59 J -19662413.87 -19662413.75 -19662413.64 0.1852 0.0463
 Mercury -58545-01-27 03:06 J -19662112.53 -19662112.37 -19662112.20 0.1687 0.0100
 Moon -58543-01-04 06:28 J -19661404.43 -19661404.23 -19661404.04 0.1657 0.0124
 Earth -58543-01-04 12:42 J -19661404.16 -19661403.97 -19661403.78 0.1657 0.0149 *
 Mercury -58537-08-21 02:23 J -19658983.49 -19658983.40 -19658983.32 0.1843 0.1334
 Mercury -58536-06-18 04:18 J -19658682.45 -19658682.32 -19658682.19 0.1695 0.0958
 Mercury -58526-12-18 01:25 J -19654847.51 -19654847.44 -19654847.37 0.1869 0.1425
 Venus -58518-02-13 08:23 J -19652233.32 -19652233.15 -19652232.97 0.1642 0.0353
 Mercury -58516-05-09 09:35 J -19651417.21 -19651417.10 -19651416.99 0.1861 0.0524
 Mercury -58515-03-07 02:52 J -19651115.48 -19651115.38 -19651115.28 0.1680 0.1281
 Venus -58514-09-22 09:06 J -19650551.28 -19650551.12 -19650550.95 0.1899 0.0490
 Mercury -58507-09-29 17:59 J -19647986.86 -19647986.75 -19647986.63 0.1852 0.0354
 Mercury -58506-07-28 03:49 J -19647685.50 -19647685.34 -19647685.18 0.1687 0.0228
 Mercury -58497-02-20 02:09 J -19644556.49 -19644556.41 -19644556.32 0.1843 0.1235
 Mercury -58497-12-17 05:01 J -19644255.44 -19644255.29 -19644255.15 0.1695 0.0819
 Mercury -58486-06-18 01:25 J -19640420.51 -19640420.44 -19640420.37 0.1869 0.1527
 Mercury -58477-11-07 09:49 J -19636990.20 -19636990.09 -19636989.98 0.1861 0.0637
 Mercury -58476-09-05 03:21 J -19636688.45 -19636688.36 -19636688.28 0.1680 0.1404
 Mercury -58467-03-30 17:59 J -19633559.87 -19633559.75 -19633559.64 0.1852 0.0262
 Mercury -58466-01-26 04:33 J -19633258.47 -19633258.31 -19633258.16 0.1687 0.0372
 Earth -58464-01-06 18:28 J -19632546.87 -19632546.73 -19632546.58 0.1652 0.1065
 Moon -58464-01-06 19:25 J -19632546.85 -19632546.69 -19632546.52 0.1652 0.0940 *

Mercury -58458-08-21 02:23 J -19630129.50 -19630129.40 -19630129.31 0.1844 0.1130

Mercury -58457-06-17 05:30 J -19629828.41 -19629828.27 -19629828.12 0.1695 0.0677

Venus -58453-12-10 19:25 J -19628190.85 -19628190.69 -19628190.52 0.1639 0.0630

Venus -58448-07-19 13:54 J -19626509.09 -19626508.92 -19626508.75 0.1903 0.0225

Mercury -58447-12-17 01:25 J -19625993.49 -19625993.44 -19625993.38 0.1870 0.1633

Mercury -58437-05-08 09:49 J -19622563.20 -19622563.09 -19622562.99 0.1861 0.0738

Mercury -58436-03-06 03:49 J -19622261.40 -19622261.34 -19622261.27 0.1680 0.1545

Mercury -58428-09-28 17:59 J -19619132.86 -19619132.75 -19619132.63 0.1852 0.0157

Mercury -58427-07-27 05:01 J -19618831.44 -19618831.29 -19618831.14 0.1687 0.0503

Venus -58421-12-09 17:01 J -19616503.84 -19616503.79 -19616503.74 0.1648 0.1577

Mercury -58418-02-19 02:23 J -19615702.50 -19615702.40 -19615702.30 0.1843 0.1024

Mercury -58418-12-17 05:59 J -19615401.40 -19615401.25 -19615401.10 0.1695 0.0550

Mercury -58408-05-08 07:25 J -19611971.24 -19611971.19 -19611971.13 0.1702 0.1584

Mercury -58407-06-17 01:25 J -19611566.48 -19611566.44 -19611566.40 0.1869 0.1730

Mercury -58398-11-07 09:49 J -19608136.20 -19608136.09 -19608135.99 0.1861 0.0836

Mercury -58388-03-29 18:13 J -19604705.86 -19604705.74 -19604705.63 0.1852 0.0078

Mercury -58387-01-25 05:30 J -19604404.42 -19604404.27 -19604404.12 0.1687 0.0640

Venus -58387-10-08 06:42 J -19604148.36 -19604148.22 -19604148.07 0.1636 0.0907

Venus -58382-05-16 17:45 J -19602466.90 -19602466.76 -19602466.61 0.1908 0.0976

Mercury -58379-08-20 02:23 J -19601275.50 -19601275.40 -19601275.30 0.1844 0.0921

Mercury -58378-06-17 06:42 J -19600974.38 -19600974.22 -19600974.06 0.1695 0.0406

Mercury -58369-01-10 10:47 J -19597845.08 -19597845.05 -19597845.03 0.1835 0.1790

Mercury -58369-11-06 07:40 J -19597544.25 -19597544.18 -19597544.09 0.1702 0.1464

Mercury -58368-12-16 01:25 J -19597139.46 -19597139.44 -19597139.42 0.1869 0.1830

Mercury -58358-05-08 09:49 J -19593709.19 -19593709.09 -19593708.99 0.1861 0.0941

Venus -58355-10-07 04:33 J -19592461.42 -19592461.31 -19592461.20 0.1646 0.1296

Mercury -58349-09-27 17:59 J -19590278.86 -19590278.75 -19590278.63 0.1852 0.0073

Mercury -58348-07-26 06:13 J -19589977.38 -19589977.24 -19589977.09 0.1687 0.0785

Mercury -58339-02-18 02:23 J -19586848.50 -19586848.40 -19586848.29 0.1844 0.0821

Mercury -58339-12-16 07:25 J -19586547.35 -19586547.19 -19586547.03 0.1694 0.0268

Earth -58338-01-03 05:16 J -19586529.41 -19586529.28 -19586529.14 0.1668 0.1193
 Moon -58338-01-03 11:45 J -19586529.14 -19586529.01 -19586528.88 0.1667 0.1178 *
 Mercury -58330-07-11 10:47 J -19583418.09 -19583418.05 -19583418.00 0.1835 0.1680
 Mercury -58329-05-07 08:23 J -19583117.25 -19583117.15 -19583117.05 0.1702 0.1324
 Venus -58321-08-04 18:13 J -19580105.86 -19580105.74 -19580105.62 0.1633 0.1168
 Mercury -58319-11-06 09:49 J -19579282.18 -19579282.09 -19579281.99 0.1861 0.1046
 Venus -58316-03-12 22:33 J -19578424.64 -19578424.56 -19578424.49 0.1912 0.1699
 Moon -58313-07-10 10:18 J -19577209.29 -19577209.07 -19577208.86 0.1883 0.0046
 Earth -58313-07-10 14:09 J -19577209.10 -19577208.91 -19577208.71 0.1883 0.0227 *
 Mercury -58309-03-28 18:13 J -19575851.86 -19575851.74 -19575851.63 0.1853 0.0168
 Mercury -58308-01-24 06:42 J -19575550.35 -19575550.22 -19575550.08 0.1687 0.0915
 Mercury -58300-08-19 02:23 J -19572421.50 -19572421.40 -19572421.29 0.1844 0.0716
 Mercury -58299-06-16 07:54 J -19572120.33 -19572120.17 -19572120.01 0.1694 0.0142
 Mercury -58290-01-09 10:47 J -19568991.11 -19568991.05 -19568991.00 0.1835 0.1589
 Mercury -58290-11-06 09:06 J -19568690.23 -19568690.12 -19568690.00 0.1702 0.1178
 Venus -58289-08-03 15:35 J -19568418.99 -19568418.85 -19568418.71 0.1643 0.1008
 Mercury -58279-05-07 09:49 J -19564855.18 -19564855.09 -19564855.00 0.1861 0.1138
 Mercury -58270-09-27 18:13 J -19561424.86 -19561424.74 -19561424.62 0.1853 0.0267
 Mercury -58269-07-25 07:25 J -19561123.32 -19561123.19 -19561123.06 0.1686 0.1049
 Mercury -58260-02-17 02:23 J -19557994.51 -19557994.40 -19557994.28 0.1844 0.0618
 Mercury -58260-12-15 08:23 J -19557693.31 -19557693.15 -19557692.98 0.1694 0.0049
 Moon -58259-01-05 11:59 J -19557672.18 -19557672.00 -19557671.82 0.1663 0.0199
 Earth -58259-01-05 12:13 J -19557672.18 -19557671.99 -19557671.80 0.1663 0.0067 *
 Venus -58255-06-02 05:30 J -19556063.35 -19556063.27 -19556063.19 0.1630 0.1435
 Mercury -58251-07-10 10:47 J -19554564.12 -19554564.05 -19554563.98 0.1835 0.1477
 Mercury -58250-05-07 09:35 J -19554263.22 -19554263.10 -19554262.97 0.1702 0.1052
 Mercury -58240-11-05 09:49 J -19550428.17 -19550428.09 -19550428.00 0.1861 0.1250
 Mercury -58230-03-28 18:13 J -19546997.86 -19546997.74 -19546997.63 0.1853 0.0362
 Mercury -58229-01-24 08:09 J -19546696.27 -19546696.16 -19546696.05 0.1687 0.1195
 Venus -58223-06-01 02:52 J -19544376.54 -19544376.38 -19544376.23 0.1640 0.0726

Mercury -58221-08-18 02:37 J -19543567.51 -19543567.39 -19543567.28 0.1844 0.0509

Mercury -58220-06-15 09:06 J -19543266.28 -19543266.12 -19543265.96 0.1694 0.0149

Venus -58218-01-07 21:06 J -19542694.72 -19542694.62 -19542694.52 0.1902 0.1497

Mercury -58211-01-08 11:01 J -19540137.12 -19540137.04 -19540136.97 0.1835 0.1372

Mercury -58211-11-05 10:04 J -19539836.21 -19539836.08 -19539835.94 0.1702 0.0918

Mercury -58200-05-06 09:49 J -19536001.17 -19536001.09 -19536001.01 0.1861 0.1348

Mercury -58191-09-26 18:13 J -19532570.85 -19532570.74 -19532570.63 0.1853 0.0466

Mercury -58190-07-25 08:37 J -19532269.24 -19532269.14 -19532269.04 0.1686 0.1327

Mercury -58181-02-17 02:37 J -19529140.51 -19529140.39 -19529140.28 0.1844 0.0406

Mercury -58181-12-14 09:35 J -19528839.26 -19528839.10 -19528838.94 0.1694 0.0273

Moon -58180-01-07 12:13 J -19528815.13 -19528814.99 -19528814.84 0.1659 0.1073

Earth -58180-01-07 18:42 J -19528814.83 -19528814.72 -19528814.60 0.1659 0.1309

Mercury -58172-07-09 10:47 J -19525710.13 -19525710.05 -19525709.96 0.1835 0.1279

Mercury -58171-05-06 11:01 J -19525409.19 -19525409.04 -19525408.90 0.1702 0.0768

Mercury -58161-11-04 09:49 J -19521574.16 -19521574.09 -19521574.01 0.1862 0.1448

Venus -58157-03-28 14:09 J -19520334.08 -19520333.91 -19520333.74 0.1637 0.0452

Venus -58153-11-04 00:57 J -19518652.62 -19518652.46 -19518652.30 0.1906 0.0743

Mercury -58151-03-27 18:13 J -19518143.85 -19518143.74 -19518143.62 0.1853 0.0576

Mercury -58150-01-23 09:21 J -19517842.19 -19517842.11 -19517842.03 0.1686 0.1461

Mercury -58142-08-18 02:37 J -19514713.51 -19514713.39 -19514713.27 0.1844 0.0305

Mercury -58141-06-14 10:18 J -19514412.23 -19514412.07 -19514411.91 0.1694 0.0415

Mercury -58132-01-07 11:01 J -19511283.13 -19511283.04 -19511282.95 0.1836 0.1168

Mercury -58132-11-04 11:16 J -19510982.18 -19510982.03 -19510981.88 0.1702 0.0646

Mercury -58122-03-27 12:28 J -19507551.99 -19507551.98 -19507551.96 0.1710 0.1697

Mercury -58121-05-05 10:04 J -19507147.15 -19507147.08 -19507147.02 0.1862 0.1552

Mercury -58112-09-25 18:13 J -19503716.85 -19503716.74 -19503716.63 0.1853 0.0665

Mercury -58111-07-24 10:04 J -19503415.13 -19503415.08 -19503415.04 0.1686 0.1608

Mercury -58102-02-16 02:37 J -19500286.51 -19500286.39 -19500286.27 0.1845 0.0204

Mercury -58102-12-14 11:01 J -19499985.20 -19499985.04 -19499984.89 0.1694 0.0553

Mercury -58093-07-08 11:01 J -19496856.13 -19496856.04 -19496855.94 0.1836 0.1062

Mercury -58092-05-05 11:59 J -19496555.15 -19496555.00 -19496554.85 0.1701 0.0506

Venus -58091-01-24 01:11 J -19496291.62 -19496291.45 -19496291.27 0.1634 0.0170

Venus -58087-09-01 04:47 J -19494610.47 -19494610.30 -19494610.13 0.1911 0.0026

Mercury -58083-09-25 13:11 J -19493125.02 -19493124.95 -19493124.89 0.1709 0.1565

Mercury -58082-11-04 10:04 J -19492720.13 -19492720.08 -19492720.03 0.1862 0.1653

Mercury -58072-03-26 18:13 J -19489289.84 -19489289.74 -19489289.63 0.1853 0.0770

Mercury -58063-08-17 02:37 J -19485859.50 -19485859.39 -19485859.27 0.1844 0.0116

Mercury -58062-06-14 11:30 J -19485558.17 -19485558.02 -19485557.87 0.1694 0.0685

Earth -58054-01-04 03:21 J -19482797.51 -19482797.36 -19482797.21 0.1674 0.1029

Moon -58054-01-04 04:18 J -19482797.47 -19482797.32 -19482797.16 0.1674 0.1094 *

Mercury -58053-01-07 11:01 J -19482429.14 -19482429.04 -19482428.94 0.1836 0.0970

Mercury -58053-11-03 12:42 J -19482128.13 -19482127.97 -19482127.81 0.1701 0.0359

Mercury -58044-05-29 19:25 J -19478998.70 -19478998.69 -19478998.68 0.1827 0.1815

Mercury -58043-03-26 13:40 J -19478698.02 -19478697.93 -19478697.84 0.1709 0.1428

Mercury -58042-05-05 09:49 J -19478293.12 -19478293.09 -19478293.05 0.1862 0.1748

Mercury -58033-09-24 18:28 J -19474862.83 -19474862.73 -19474862.63 0.1853 0.0879

Moon -58029-07-09 23:45 J -19473478.68 -19473478.51 -19473478.35 0.1872 0.0781

Earth -58029-07-10 05:30 J -19473478.46 -19473478.27 -19473478.08 0.1872 0.0492 *

Venus -58026-11-21 12:28 J -19472249.15 -19472248.98 -19472248.80 0.1632 0.0103

Mercury -58023-02-15 02:37 J -19471432.50 -19471432.39 -19471432.27 0.1844 0.0055

Mercury -58023-12-13 12:13 J -19471131.13 -19471130.99 -19471130.85 0.1693 0.0827

Venus -58021-06-28 09:06 J -19470568.28 -19470568.12 -19470567.97 0.1915 0.0752

Mercury -58014-07-08 11:16 J -19468002.14 -19468002.03 -19468001.93 0.1836 0.0861

Mercury -58013-05-04 13:11 J -19467701.11 -19467700.95 -19467700.79 0.1701 0.0238

Mercury -58005-11-27 19:25 J -19464571.73 -19464571.69 -19464571.66 0.1827 0.1721

Mercury -58004-09-24 14:09 J -19464271.01 -19464270.91 -19464270.80 0.1709 0.1293

Mercury -58003-11-03 10:04 J -19463866.08 -19463866.08 -19463866.07 0.1862 0.1855

58TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 58th millennium BCE.

| PLANET | MAX- | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|----------------------|--------------|--------------|--------------|--------|--------|-------|---|
| | TRANSIT | | | | | | | |
| | TIME | | | | | | | |
| Mercury | -57993-03-25 18:13 J | -19460435.84 | -19460435.74 | -19460435.64 | 0.1853 | 0.0967 | | |
| Mercury | -57984-08-16 02:52 J | -19457005.50 | -19457005.38 | -19457005.26 | 0.1845 | 0.0111 | | |
| Mercury | -57983-06-13 12:42 J | -19456704.10 | -19456703.97 | -19456703.83 | 0.1693 | 0.0964 | | |
| Earth | -57975-01-06 10:47 J | -19453940.23 | -19453940.05 | -19453939.86 | 0.1670 | 0.0265 | | |
| Moon | -57975-01-06 18:13 J | -19453939.93 | -19453939.74 | -19453939.56 | 0.1669 | 0.0471 | * | |
| Mercury | -57974-01-06 11:16 J | -19453575.14 | -19453575.03 | -19453574.93 | 0.1836 | 0.0759 | | |
| Mercury | -57974-11-03 13:40 J | -19453274.09 | -19453273.93 | -19453273.77 | 0.1701 | 0.0099 | | |
| Mercury | -57965-05-28 19:25 J | -19450144.74 | -19450144.69 | -19450144.64 | 0.1827 | 0.1616 | | |
| Mercury | -57964-03-25 14:52 J | -19449844.00 | -19449843.88 | -19449843.76 | 0.1709 | 0.1155 | | |
| Venus | -57960-09-17 23:59 J | -19448206.67 | -19448206.50 | -19448206.33 | 0.1629 | 0.0368 | | |
| Venus | -57955-04-25 12:28 J | -19446526.08 | -19446525.98 | -19446525.88 | 0.1919 | 0.1530 | | |
| Mercury | -57954-09-24 18:28 J | -19446008.83 | -19446008.73 | -19446008.64 | 0.1854 | 0.1076 | | |
| Mercury | -57944-02-14 02:52 J | -19442578.50 | -19442578.38 | -19442578.27 | 0.1845 | 0.0211 | | |
| Mercury | -57944-12-12 13:11 J | -19442277.07 | -19442276.95 | -19442276.83 | 0.1693 | 0.1094 | | |
| Mercury | -57935-07-07 11:01 J | -19439148.15 | -19439148.04 | -19439147.93 | 0.1836 | 0.0665 | | |
| Mercury | -57934-05-04 14:23 J | -19438847.06 | -19438846.90 | -19438846.73 | 0.1701 | 0.0070 | | |
| Mercury | -57926-11-27 19:40 J | -19435717.75 | -19435717.68 | -19435717.62 | 0.1827 | 0.1508 | | |
| Mercury | -57925-09-23 15:21 J | -19435416.99 | -19435416.86 | -19435416.73 | 0.1709 | 0.1024 | | |
| Mercury | -57914-03-25 18:28 J | -19431581.82 | -19431581.73 | -19431581.64 | 0.1854 | 0.1180 | | |
| Mercury | -57905-08-15 02:52 J | -19428151.50 | -19428151.38 | -19428151.27 | 0.1845 | 0.0307 | | |
| Mercury | -57904-06-12 13:54 J | -19427850.03 | -19427849.92 | -19427849.81 | 0.1693 | 0.1236 | | |
| Earth | -57896-01-08 17:59 J | -19425082.82 | -19425082.75 | -19425082.68 | 0.1665 | 0.1537 | | |

Moon -57896-01-08 21:21 J -19425082.71 -19425082.61 -19425082.51 0.1665 0.1384 *
 Mercury -57895-01-05 11:16 J -19424721.14 -19424721.03 -19424720.92 0.1836 0.0553
 Mercury -57895-11-02 14:52 J -19424420.04 -19424419.88 -19424419.72 0.1701 0.0173
 Venus -57894-07-16 11:30 J -19424164.18 -19424164.02 -19424163.86 0.1626 0.0625
 Mercury -57886-05-28 19:25 J -19421290.76 -19421290.69 -19421290.61 0.1827 0.1414
 Mercury -57885-03-24 16:04 J -19420989.97 -19420989.83 -19420989.70 0.1709 0.0880
 Mercury -57875-09-23 18:28 J -19417154.82 -19417154.73 -19417154.65 0.1854 0.1271
 Mercury -57865-02-14 02:52 J -19413724.49 -19413724.38 -19413724.26 0.1845 0.0410
 Mercury -57865-12-11 14:37 J -19413422.99 -19413422.89 -19413422.80 0.1693 0.1372
 Venus -57862-07-15 08:09 J -19412477.22 -19412477.16 -19412477.09 0.1635 0.1509
 Venus -57857-02-20 12:13 J -19410796.06 -19410795.99 -19410795.92 0.1909 0.1721
 Mercury -57856-07-06 11:16 J -19410294.14 -19410294.03 -19410293.91 0.1836 0.0449
 Mercury -57855-05-03 15:35 J -19409993.01 -19409992.85 -19409992.70 0.1701 0.0315
 Mercury -57847-11-26 19:40 J -19406863.77 -19406863.68 -19406863.60 0.1827 0.1310
 Mercury -57846-09-23 16:33 J -19406562.96 -19406562.81 -19406562.67 0.1709 0.0752
 Mercury -57835-03-24 18:28 J -19402727.81 -19402727.73 -19402727.65 0.1854 0.1375
 Venus -57828-05-12 22:47 J -19400121.69 -19400121.55 -19400121.40 0.1624 0.0890
 Mercury -57826-08-15 02:52 J -19399297.49 -19399297.38 -19399297.27 0.1845 0.0510
 Mercury -57825-06-11 15:06 J -19398995.94 -19398995.87 -19398995.80 0.1693 0.1506
 Mercury -57816-01-04 11:16 J -19395867.15 -19395867.03 -19395866.92 0.1837 0.0359
 Mercury -57816-11-01 16:18 J -19395565.98 -19395565.82 -19395565.67 0.1701 0.0459
 Mercury -57807-05-27 19:40 J -19392436.77 -19392436.68 -19392436.59 0.1828 0.1202
 Mercury -57806-03-24 17:01 J -19392135.94 -19392135.79 -19392135.64 0.1709 0.0616
 Mercury -57797-08-13 17:59 J -19388705.77 -19388705.75 -19388705.72 0.1717 0.1686
 Venus -57796-05-11 19:40 J -19388434.79 -19388434.68 -19388434.57 0.1633 0.1233
 Mercury -57796-09-22 18:28 J -19388300.79 -19388300.73 -19388300.66 0.1854 0.1484
 Venus -57792-12-17 16:04 J -19386753.97 -19386753.83 -19386753.68 0.1914 0.0980
 Mercury -57786-02-13 02:52 J -19384870.49 -19384870.38 -19384870.27 0.1845 0.0608
 Mercury -57786-12-11 15:49 J -19384568.88 -19384568.84 -19384568.81 0.1693 0.1645
 Mercury -57777-07-05 11:16 J -19381440.15 -19381440.03 -19381439.91 0.1837 0.0251

Mercury -57776-05-02 16:33 J -19381138.96 -19381138.81 -19381138.66 0.1701 0.0581

Moon -57770-01-04 17:01 J -19379065.92 -19379065.79 -19379065.65 0.1682 0.1146

Earth -57770-01-04 23:59 J -19379065.66 -19379065.50 -19379065.33 0.1681 0.0889 *

Mercury -57768-11-25 19:40 J -19378009.78 -19378009.68 -19378009.59 0.1827 0.1109

Mercury -57767-09-22 17:45 J -19377708.92 -19377708.76 -19377708.61 0.1709 0.0477

Venus -57762-03-10 10:47 J -19376079.17 -19376079.05 -19376078.92 0.1622 0.1134

Mercury -57757-02-12 18:42 J -19374278.79 -19374278.72 -19374278.65 0.1717 0.1545

Mercury -57756-03-23 18:28 J -19373873.79 -19373873.73 -19373873.67 0.1854 0.1568

Mercury -57747-08-14 02:52 J -19370443.48 -19370443.38 -19370443.27 0.1846 0.0717

Earth -57745-07-09 22:47 J -19369747.71 -19369747.55 -19369747.40 0.1862 0.1128

Moon -57745-07-10 07:11 J -19369747.34 -19369747.20 -19369747.06 0.1862 0.1266

Mercury -57737-01-04 11:16 J -19367013.14 -19367013.03 -19367012.91 0.1836 0.0158

Mercury -57737-10-31 17:16 J -19366711.93 -19366711.78 -19366711.64 0.1700 0.0719

Venus -57730-03-09 07:11 J -19364392.34 -19364392.20 -19364392.06 0.1630 0.0966

Mercury -57728-05-26 19:40 J -19363582.78 -19363582.68 -19363582.58 0.1828 0.1005

Mercury -57727-03-23 18:13 J -19363281.90 -19363281.74 -19363281.58 0.1708 0.0342

Venus -57726-10-14 19:25 J -19362711.86 -19362711.69 -19362711.52 0.1917 0.0194

Mercury -57718-08-13 19:11 J -19359851.79 -19359851.70 -19359851.62 0.1717 0.1422

Mercury -57717-09-21 18:28 J -19359446.77 -19359446.73 -19359446.68 0.1854 0.1677

Mercury -57707-02-12 02:52 J -19356016.48 -19356016.38 -19356016.27 0.1845 0.0808

Mercury -57698-07-05 11:16 J -19352586.15 -19352586.03 -19352585.91 0.1837 0.0061

Mercury -57697-05-01 17:59 J -19352284.89 -19352284.75 -19352284.61 0.1700 0.0867

Venus -57696-01-04 22:04 J -19352036.66 -19352036.58 -19352036.49 0.1619 0.1393

Moon -57691-01-07 04:33 J -19350208.50 -19350208.31 -19350208.11 0.1677 0.0576

Earth -57691-01-07 08:23 J -19350208.34 -19350208.15 -19350207.97 0.1676 0.0434 *

Mercury -57689-11-24 19:54 J -19349155.78 -19349155.67 -19349155.57 0.1828 0.0899

Mercury -57688-09-21 18:42 J -19348854.88 -19348854.72 -19348854.56 0.1708 0.0213

Mercury -57679-04-17 04:04 J -19345725.36 -19345725.33 -19345725.30 0.1819 0.1749

Mercury -57678-02-11 19:40 J -19345424.78 -19345424.68 -19345424.57 0.1717 0.1282

Mercury -57677-03-22 18:28 J -19345019.76 -19345019.73 -19345019.70 0.1854 0.1779

Mercury -57668-08-13 02:52 J -19341589.48 -19341589.38 -19341589.27 0.1845 0.0911

Earth -57666-07-14 03:49 J -19340889.48 -19340889.34 -19340889.20 0.1869 0.1299

Moon -57666-07-14 03:06 J -19340889.47 -19340889.37 -19340889.27 0.1869 0.1557 *

Venus -57664-01-03 18:13 J -19340349.90 -19340349.74 -19340349.58 0.1627 0.0686

Venus -57660-08-10 23:01 J -19338669.71 -19338669.54 -19338669.38 0.1921 0.0596

Mercury -57658-01-03 11:30 J -19338159.14 -19338159.02 -19338158.91 0.1837 0.0080

Mercury -57658-10-31 18:13 J -19337857.87 -19337857.74 -19337857.61 0.1700 0.0987

Mercury -57649-05-25 19:40 J -19334728.79 -19334728.68 -19334728.57 0.1828 0.0807

Mercury -57648-03-22 19:25 J -19334427.85 -19334427.69 -19334427.53 0.1708 0.0067

Mercury -57640-10-16 04:04 J -19331298.37 -19331298.33 -19331298.28 0.1819 0.1646

Mercury -57639-08-12 20:23 J -19330997.77 -19330997.65 -19330997.53 0.1716 0.1143

Mercury -57628-02-11 03:06 J -19327162.47 -19327162.37 -19327162.27 0.1846 0.1013

Mercury -57619-07-04 11:30 J -19323732.14 -19323732.02 -19323731.90 0.1837 0.0159

Mercury -57618-05-01 18:57 J -19323430.83 -19323430.71 -19323430.59 0.1700 0.1128

Moon -57612-01-09 21:49 J -19321350.64 -19321350.59 -19321350.54 0.1671 0.1611

Mercury -57610-11-24 19:54 J -19320301.78 -19320301.67 -19320301.56 0.1828 0.0706

Mercury -57609-09-20 19:54 J -19320000.83 -19320000.67 -19320000.51 0.1708 0.0063

Mercury -57600-04-16 04:18 J -19316871.39 -19316871.32 -19316871.26 0.1819 0.1545

Mercury -57599-02-10 20:52 J -19316570.76 -19316570.63 -19316570.51 0.1716 0.1018

Venus -57599-11-01 05:45 J -19316307.43 -19316307.26 -19316307.08 0.1625 0.0432

Venus -57594-06-08 02:37 J -19314627.51 -19314627.39 -19314627.27 0.1925 0.1364

Mercury -57589-08-12 03:06 J -19312735.47 -19312735.37 -19312735.28 0.1845 0.1109

Mercury -57579-01-02 11:16 J -19309305.14 -19309305.03 -19309304.91 0.1837 0.0253

Mercury -57579-10-30 19:40 J -19309003.79 -19309003.68 -19309003.57 0.1700 0.1270

Mercury -57570-05-25 19:54 J -19305874.78 -19305874.67 -19305874.56 0.1828 0.0596

Mercury -57569-03-21 20:23 J -19305573.81 -19305573.65 -19305573.49 0.1708 0.0197

Mercury -57561-10-15 04:18 J -19302444.39 -19302444.32 -19302444.25 0.1819 0.1442

Mercury -57560-08-11 21:21 J -19302143.74 -19302143.61 -19302143.47 0.1716 0.0878

Mercury -57549-02-11 02:52 J -19298308.46 -19298308.38 -19298308.29 0.1846 0.1207

Mercury -57540-07-03 11:30 J -19294878.14 -19294878.02 -19294877.90 0.1837 0.0354

Mercury -57539-04-30 20:09 J -19294576.75 -19294576.66 -19294576.57 0.1700 0.1395
 Venus -57533-08-28 17:16 J -19292264.96 -19292264.78 -19292264.60 0.1622 0.0163
 Mercury -57531-11-23 19:54 J -19291447.79 -19291447.67 -19291447.56 0.1828 0.0509
 Mercury -57530-09-20 21:06 J -19291146.78 -19291146.62 -19291146.46 0.1708 0.0337
 Mercury -57521-04-15 04:18 J -19288017.40 -19288017.32 -19288017.24 0.1820 0.1344
 Mercury -57520-02-09 22:04 J -19287716.73 -19287716.58 -19287716.44 0.1716 0.0741
 Mercury -57510-08-12 03:06 J -19283881.45 -19283881.37 -19283881.29 0.1846 0.1311
 Mercury -57500-01-01 11:30 J -19280451.14 -19280451.02 -19280450.91 0.1837 0.0452
 Mercury -57500-10-29 20:37 J -19280149.70 -19280149.64 -19280149.57 0.1700 0.1533
 Mercury -57491-05-24 19:54 J -19277020.79 -19277020.67 -19277020.55 0.1828 0.0402
 Mercury -57490-03-21 21:35 J -19276719.75 -19276719.60 -19276719.45 0.1708 0.0467
 Earth -57486-01-05 19:25 J -19275333.86 -19275333.69 -19275333.52 0.1689 0.0780
 Moon -57486-01-05 22:04 J -19275333.73 -19275333.58 -19275333.43 0.1689 0.0916 *
 Mercury -57482-10-15 04:18 J -19273590.41 -19273590.32 -19273590.23 0.1819 0.1240
 Mercury -57481-08-10 22:18 J -19273289.71 -19273289.57 -19273289.42 0.1716 0.0616
 Mercury -57472-12-31 23:30 J -19269859.55 -19269859.52 -19269859.48 0.1724 0.1679
 Mercury -57470-02-10 03:06 J -19269454.45 -19269454.37 -19269454.30 0.1846 0.1403
 Venus -57467-06-26 04:47 J -19268222.48 -19268222.30 -19268222.12 0.1620 0.0092
 Mercury -57461-07-02 11:30 J -19266024.13 -19266024.02 -19266023.91 0.1837 0.0548
 Earth -57461-07-09 18:13 J -19266016.82 -19266016.74 -19266016.66 0.1851 0.1690
 Mercury -57460-04-29 21:21 J -19265722.63 -19265722.61 -19265722.58 0.1699 0.1678
 Mercury -57452-11-22 19:54 J -19262593.78 -19262593.67 -19262593.55 0.1829 0.0298
 Mercury -57451-09-19 22:04 J -19262292.73 -19262292.58 -19262292.43 0.1708 0.0597
 Mercury -57442-04-15 04:18 J -19259163.41 -19259163.32 -19259163.23 0.1820 0.1144
 Mercury -57441-02-09 23:01 J -19258862.69 -19258862.54 -19258862.39 0.1716 0.0475
 Mercury -57432-07-01 23:59 J -19255432.57 -19255432.50 -19255432.44 0.1724 0.1557
 Mercury -57431-08-11 03:06 J -19255027.44 -19255027.37 -19255027.31 0.1846 0.1503
 Venus -57430-01-30 05:59 J -19254855.39 -19254855.25 -19254855.11 0.1920 0.1135
 Mercury -57421-01-01 11:30 J -19251597.13 -19251597.02 -19251596.91 0.1837 0.0651
 Mercury -57412-05-23 19:54 J -19248166.79 -19248166.67 -19248166.55 0.1828 0.0210

Mercury -57411-03-20 22:47 J -19247865.69 -19247865.55 -19247865.40 0.1708 0.0745
 Moon -57407-01-07 23:01 J -19246476.70 -19246476.54 -19246476.37 0.1684 0.0738
 Earth -57407-01-08 04:04 J -19246476.51 -19246476.33 -19246476.15 0.1684 0.0569 *
 Mercury -57403-10-14 04:18 J -19244736.41 -19244736.32 -19244736.22 0.1820 0.1041
 Mercury -57402-08-10 23:30 J -19244435.67 -19244435.52 -19244435.36 0.1715 0.0342
 Venus -57401-04-22 16:18 J -19244179.99 -19244179.82 -19244179.64 0.1618 0.0348
 Mercury -57393-12-31 00:28 J -19241005.57 -19241005.48 -19241005.39 0.1724 0.1423
 Mercury -57391-02-09 03:06 J -19240600.42 -19240600.37 -19240600.31 0.1846 0.1605
 Mercury -57382-07-02 11:30 J -19237170.13 -19237170.02 -19237169.91 0.1837 0.0749
 Earth -57382-07-13 20:23 J -19237158.83 -19237158.65 -19237158.46 0.1858 0.0616
 Moon -57382-07-14 03:49 J -19237158.51 -19237158.34 -19237158.17 0.1859 0.1053 *
 Mercury -57373-11-21 19:54 J -19233739.79 -19233739.67 -19233739.55 0.1829 0.0109
 Mercury -57372-09-18 23:16 J -19233438.67 -19233438.53 -19233438.39 0.1707 0.0869
 Venus -57365-11-26 09:35 J -19230813.27 -19230813.10 -19230812.93 0.1924 0.0363
 Mercury -57363-04-14 04:18 J -19230309.42 -19230309.32 -19230309.21 0.1820 0.0943
 Mercury -57362-02-08 23:59 J -19230008.66 -19230008.50 -19230008.34 0.1716 0.0213
 Mercury -57354-09-04 12:42 J -19226878.99 -19226878.97 -19226878.95 0.1811 0.1777
 Mercury -57353-07-01 01:11 J -19226578.55 -19226578.45 -19226578.34 0.1724 0.1278
 Mercury -57352-08-10 03:06 J -19226173.42 -19226173.37 -19226173.33 0.1846 0.1697
 Mercury -57343-12-31 11:30 J -19222743.12 -19222743.02 -19222742.92 0.1838 0.0843
 Venus -57335-02-18 04:18 J -19220137.48 -19220137.32 -19220137.15 0.1616 0.0592
 Mercury -57333-05-22 20:09 J -19219312.78 -19219312.66 -19219312.55 0.1829 0.0067
 Mercury -57332-03-19 23:45 J -19219011.64 -19219011.51 -19219011.38 0.1707 0.1005
 Moon -57328-01-10 06:13 J -19217619.29 -19217619.24 -19217619.18 0.1679 0.1613
 Mercury -57324-10-13 04:33 J -19215882.42 -19215882.31 -19215882.21 0.1820 0.0844
 Mercury -57323-08-10 00:42 J -19215581.63 -19215581.47 -19215581.31 0.1715 0.0073
 Mercury -57314-03-05 12:57 J -19212452.01 -19212451.96 -19212451.92 0.1811 0.1673
 Mercury -57314-12-31 01:25 J -19212151.55 -19212151.44 -19212151.32 0.1724 0.1159
 Mercury -57312-02-08 03:06 J -19211746.40 -19211746.37 -19211746.35 0.1846 0.1794
 Venus -57303-02-17 00:13 J -19208450.56 -19208450.49 -19208450.42 0.1623 0.1470

Mercury -57303-07-01 11:30 J -19208316.12 -19208316.02 -19208315.92 0.1838 0.0949

Venus -57299-09-23 12:28 J -19206771.15 -19206770.98 -19206770.82 0.1928 0.0451

Mercury -57294-11-21 19:54 J -19204885.79 -19204885.67 -19204885.55 0.1829 0.0097

Mercury -57293-09-18 00:28 J -19204584.60 -19204584.48 -19204584.36 0.1707 0.1148

Mercury -57284-04-13 04:33 J -19201455.42 -19201455.31 -19201455.21 0.1820 0.0744

Mercury -57283-02-08 01:11 J -19201154.61 -19201154.45 -19201154.29 0.1715 0.0066

Mercury -57275-09-03 12:57 J -19198025.02 -19198024.96 -19198024.90 0.1811 0.1568

Mercury -57274-07-01 02:09 J -19197724.54 -19197724.41 -19197724.28 0.1724 0.1020

Venus -57270-12-16 15:35 J -19196095.00 -19196094.85 -19196094.69 0.1613 0.0848

Mercury -57264-12-30 11:30 J -19193889.11 -19193889.02 -19193888.92 0.1838 0.1045

Mercury -57254-05-22 19:54 J -19190458.78 -19190458.67 -19190458.55 0.1829 0.0207

Mercury -57253-03-19 00:57 J -19190157.57 -19190157.46 -19190157.36 0.1707 0.1274

Mercury -57245-10-12 04:33 J -19187028.42 -19187028.31 -19187028.20 0.1820 0.0642

Mercury -57244-08-09 01:40 J -19186727.59 -19186727.43 -19186727.27 0.1715 0.0197

Venus -57238-12-15 11:16 J -19184408.14 -19184408.03 -19184407.91 0.1621 0.1200

Mercury -57235-03-04 12:57 J -19183598.03 -19183597.96 -19183597.90 0.1811 0.1477

Mercury -57235-12-30 02:52 J -19183297.52 -19183297.38 -19183297.25 0.1723 0.0877

Venus -57233-07-20 15:35 J -19182728.97 -19182728.85 -19182728.72 0.1931 0.1255

Mercury -57224-06-30 11:30 J -19179462.11 -19179462.02 -19179461.93 0.1838 0.1142

Mercury -57215-11-20 20:09 J -19176031.78 -19176031.66 -19176031.54 0.1829 0.0301

Mercury -57214-09-18 01:25 J -19175730.53 -19175730.44 -19175730.35 0.1707 0.1406

Mercury -57205-04-12 04:33 J -19172601.43 -19172601.31 -19172601.20 0.1820 0.0546

Mercury -57204-02-07 02:23 J -19172300.56 -19172300.40 -19172300.25 0.1715 0.0334

Venus -57204-10-13 03:49 J -19172052.47 -19172052.34 -19172052.21 0.1611 0.1087

Earth -57202-01-06 13:25 J -19171602.11 -19171601.94 -19171601.77 0.1697 0.0702

Moon -57202-01-06 18:13 J -19171601.92 -19171601.74 -19171601.57 0.1696 0.0844 *

Mercury -57196-09-02 12:57 J -19169171.03 -19169170.96 -19169170.88 0.1812 0.1369

Mercury -57195-06-30 03:06 J -19168870.51 -19168870.37 -19168870.23 0.1723 0.0755

Mercury -57185-12-29 11:30 J -19165035.10 -19165035.02 -19165034.93 0.1838 0.1243

Mercury -57175-05-21 19:54 J -19161604.78 -19161604.67 -19161604.55 0.1829 0.0392

Mercury -57174-03-19 02:09 J -19161303.47 -19161303.41 -19161303.34 0.1707 0.1556

Venus -57172-10-11 23:16 J -19160365.67 -19160365.53 -19160365.39 0.1619 0.0949

Mercury -57166-10-12 04:33 J -19158174.42 -19158174.31 -19158174.19 0.1821 0.0440

Mercury -57165-08-08 02:52 J -19157873.53 -19157873.38 -19157873.22 0.1715 0.0468

Mercury -57156-03-03 12:57 J -19154744.04 -19154743.96 -19154743.87 0.1811 0.1272

Mercury -57156-12-29 03:35 J -19154443.49 -19154443.35 -19154443.20 0.1723 0.0621

Mercury -57146-05-21 04:47 J -19151013.33 -19151013.30 -19151013.28 0.1732 0.1702

Mercury -57145-06-29 11:45 J -19150608.09 -19150608.01 -19150607.93 0.1838 0.1340

Venus -57138-08-10 15:35 J -19148009.95 -19148009.85 -19148009.76 0.1609 0.1328

Mercury -57136-11-19 20:09 J -19147177.78 -19147177.66 -19147177.55 0.1829 0.0495

Mercury -57135-09-17 02:37 J -19146876.42 -19146876.39 -19146876.36 0.1707 0.1677

Mercury -57126-04-12 04:33 J -19143747.43 -19143747.31 -19143747.19 0.1820 0.0346

Mercury -57125-02-07 03:21 J -19143446.51 -19143446.36 -19143446.21 0.1715 0.0600

Earth -57123-01-08 22:33 J -19142744.73 -19142744.56 -19142744.38 0.1691 0.0676

Moon -57123-01-09 04:18 J -19142744.47 -19142744.32 -19142744.17 0.1691 0.0964 *

Mercury -57117-09-01 12:57 J -19140317.05 -19140316.96 -19140316.87 0.1812 0.1176

Mercury -57116-06-29 04:18 J -19140016.47 -19140016.32 -19140016.16 0.1723 0.0477

Mercury -57107-11-19 05:16 J -19136586.35 -19136586.28 -19136586.22 0.1732 0.1572

Venus -57106-08-09 10:33 J -19136323.22 -19136323.06 -19136322.90 0.1616 0.0687

Mercury -57106-12-29 11:30 J -19136181.09 -19136181.02 -19136180.94 0.1838 0.1437

Moon -57098-07-13 08:23 J -19133428.36 -19133428.15 -19133427.95 0.1847 0.0151

Earth -57098-07-13 15:35 J -19133428.04 -19133427.85 -19133427.66 0.1848 0.0020 *

Mercury -57096-05-20 20:09 J -19132750.77 -19132750.66 -19132750.55 0.1829 0.0595

Mercury -57087-10-11 04:33 J -19129320.43 -19129320.31 -19129320.19 0.1820 0.0247

Mercury -57086-08-08 04:04 J -19129019.48 -19129019.33 -19129019.19 0.1715 0.0737

Mercury -57077-03-02 13:11 J -19125890.05 -19125889.95 -19125889.86 0.1812 0.1071

Mercury -57077-12-28 04:47 J -19125589.46 -19125589.30 -19125589.15 0.1723 0.0356

Venus -57072-06-07 03:06 J -19123967.40 -19123967.37 -19123967.33 0.1607 0.1572

Venus -57069-03-13 19:54 J -19122956.80 -19122956.67 -19122956.55 0.1926 0.1291

Mercury -57067-05-20 05:45 J -19122159.34 -19122159.26 -19122159.17 0.1732 0.1429

Mercury -57066-06-29 11:45 J -19121754.07 -19121754.01 -19121753.95 0.1838 0.1536

Mercury -57057-11-18 20:09 J -19118323.77 -19118323.66 -19118323.55 0.1829 0.0686

Mercury -57047-04-11 04:33 J -19114893.42 -19114893.31 -19114893.19 0.1821 0.0160

Mercury -57046-02-06 04:33 J -19114592.45 -19114592.31 -19114592.17 0.1715 0.0871

Venus -57040-06-05 22:33 J -19112280.73 -19112280.56 -19112280.39 0.1614 0.0445

Mercury -57038-09-01 13:11 J -19111463.05 -19111462.95 -19111462.85 0.1812 0.0969

Mercury -57037-06-28 05:16 J -19111162.43 -19111162.28 -19111162.12 0.1723 0.0218

Mercury -57028-01-21 21:35 J -19108032.61 -19108032.60 -19108032.59 0.1803 0.1793

Mercury -57028-11-18 06:13 J -19107732.34 -19107732.24 -19107732.14 0.1731 0.1303

Mercury -57027-12-28 11:45 J -19107327.07 -19107327.01 -19107326.96 0.1838 0.1631

Mercury -57017-05-19 20:09 J -19103896.77 -19103896.66 -19103896.55 0.1830 0.0788

Mercury -57008-10-10 04:33 J -19100466.43 -19100466.31 -19100466.19 0.1820 0.0077

Mercury -57007-08-07 05:01 J -19100165.42 -19100165.29 -19100165.16 0.1715 0.1008

Venus -57003-01-08 22:47 J -19098914.72 -19098914.55 -19098914.39 0.1930 0.0485

57TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 57th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -56998-03-02 13:11 J | -19097036.06 | -19097035.95 | -19097035.85 | 0.1812 | 0.0876 | | |
| Mercury | -56998-12-28 05:59 J | -19096735.41 | -19096735.25 | -19096735.09 | 0.1723 | 0.0075 | | |
| Mercury | -56989-07-22 21:35 J | -19093605.63 | -19093605.60 | -19093605.56 | 0.1803 | 0.1689 | | |
| Mercury | -56988-05-19 06:42 J | -19093305.33 | -19093305.22 | -19093305.10 | 0.1731 | 0.1170 | | |
| Mercury | -56987-06-28 11:45 J | -19092900.05 | -19092900.01 | -19092899.97 | 0.1839 | 0.1729 | | |

Mercury -56978-11-18 20:09 J -19089469.76 -19089469.66 -19089469.55 0.1830 0.0895

Venus -56974-04-03 10:18 J -19088238.25 -19088238.07 -19088237.90 0.1612 0.0199

Mercury -56968-04-10 04:47 J -19086039.42 -19086039.30 -19086039.19 0.1821 0.0085

Mercury -56967-02-05 05:45 J -19085738.38 -19085738.26 -19085738.14 0.1714 0.1143

Mercury -56959-08-31 13:11 J -19082609.06 -19082608.95 -19082608.84 0.1812 0.0771

Mercury -56958-06-28 06:28 J -19082308.39 -19082308.23 -19082308.07 0.1723 0.0064

Mercury -56949-01-21 21:35 J -19079178.65 -19079178.60 -19079178.54 0.1803 0.1597

Mercury -56949-11-17 07:25 J -19078878.32 -19078878.19 -19078878.06 0.1731 0.1026

Mercury -56948-12-27 11:45 J -19078473.02 -19078473.01 -19078473.00 0.1838 0.1828

Mercury -56938-05-19 20:09 J -19075042.76 -19075042.66 -19075042.56 0.1830 0.0979

Venus -56938-11-06 02:09 J -19074872.58 -19074872.41 -19074872.24 0.1934 0.0313

Mercury -56929-10-09 04:47 J -19071612.42 -19071612.30 -19071612.18 0.1821 0.0157

Mercury -56928-08-06 06:13 J -19071311.34 -19071311.24 -19071311.13 0.1714 0.1277

Mercury -56919-03-01 13:11 J -19068182.06 -19068181.95 -19068181.84 0.1812 0.0674

Mercury -56919-12-27 06:57 J -19067881.37 -19067881.21 -19067881.05 0.1723 0.0191

Moon -56918-01-06 23:59 J -19067870.66 -19067870.50 -19067870.34 0.1705 0.0969

Earth -56918-01-07 06:57 J -19067870.39 -19067870.21 -19067870.03 0.1704 0.0639 *

Mercury -56910-07-22 21:49 J -19064751.66 -19064751.59 -19064751.53 0.1804 0.1491

Mercury -56909-05-18 07:54 J -19064451.31 -19064451.17 -19064451.04 0.1731 0.0898

Venus -56908-01-28 22:04 J -19064195.75 -19064195.58 -19064195.40 0.1610 0.0061

Mercury -56899-11-17 20:23 J -19060615.75 -19060615.65 -19060615.56 0.1830 0.1088

Mercury -56889-04-09 04:47 J -19057185.42 -19057185.30 -19057185.19 0.1821 0.0253

Mercury -56888-02-04 06:42 J -19056884.30 -19056884.22 -19056884.13 0.1714 0.1414

Mercury -56880-08-30 13:11 J -19053755.06 -19053754.95 -19053754.83 0.1813 0.0579

Mercury -56879-06-27 07:40 J -19053454.33 -19053454.18 -19053454.02 0.1722 0.0335

Venus -56872-09-02 04:47 J -19050830.43 -19050830.30 -19050830.16 0.1937 0.1138

Mercury -56870-01-20 21:49 J -19050324.66 -19050324.59 -19050324.51 0.1804 0.1387

Mercury -56870-11-17 08:23 J -19050024.29 -19050024.15 -19050024.01 0.1731 0.0767

Mercury -56859-05-18 20:23 J -19046188.74 -19046188.65 -19046188.56 0.1830 0.1185

Mercury -56850-10-09 04:47 J -19042758.42 -19042758.30 -19042758.18 0.1821 0.0350

Mercury -56849-08-05 07:25 J -19042457.26 -19042457.19 -19042457.12 0.1714 0.1549
 Venus -56843-11-26 09:49 J -19040153.26 -19040153.09 -19040152.91 0.1608 0.0289
 Mercury -56840-02-28 13:25 J -19039328.06 -19039327.94 -19039327.83 0.1812 0.0473
 Mercury -56840-12-26 08:09 J -19039027.32 -19039027.16 -19039027.01 0.1722 0.0458
 Earth -56839-01-09 16:33 J -19039012.98 -19039012.81 -19039012.64 0.1699 0.0773
 Moon -56839-01-09 17:01 J -19039012.96 -19039012.79 -19039012.62 0.1699 0.1001 *
 Mercury -56831-07-21 21:49 J -19035897.67 -19035897.59 -19035897.51 0.1804 0.1296
 Mercury -56830-05-18 09:06 J -19035597.27 -19035597.12 -19035596.97 0.1731 0.0620
 Mercury -56821-10-07 09:49 J -19032167.10 -19032167.09 -19032167.07 0.1739 0.1722
 Mercury -56820-11-16 20:09 J -19031761.74 -19031761.66 -19031761.57 0.1830 0.1277
 Earth -56814-07-13 12:42 J -19029697.15 -19029696.97 -19029696.78 0.1837 0.0493
 Moon -56814-07-13 13:25 J -19029697.12 -19029696.94 -19029696.77 0.1837 0.0360 *
 Mercury -56810-04-09 04:47 J -19028331.41 -19028331.30 -19028331.18 0.1821 0.0455
 Mercury -56809-02-04 07:54 J -19028030.19 -19028030.17 -19028030.14 0.1714 0.1683
 Mercury -56801-08-29 13:25 J -19024901.06 -19024900.94 -19024900.82 0.1812 0.0372
 Mercury -56800-06-26 08:37 J -19024600.29 -19024600.14 -19024599.99 0.1722 0.0599
 Mercury -56791-01-19 21:49 J -19021470.68 -19021470.59 -19021470.50 0.1804 0.1193
 Mercury -56791-11-16 09:35 J -19021170.26 -19021170.10 -19021169.95 0.1730 0.0500
 Mercury -56781-04-07 10:18 J -19017740.13 -19017740.07 -19017740.01 0.1739 0.1591
 Mercury -56780-05-17 20:23 J -19017334.73 -19017334.65 -19017334.58 0.1830 0.1379
 Venus -56777-09-22 22:04 J -19016110.75 -19016110.58 -19016110.41 0.1606 0.0523
 Mercury -56771-10-08 04:47 J -19013904.41 -19013904.30 -19013904.18 0.1821 0.0547
 Mercury -56761-02-28 13:25 J -19010474.06 -19010473.94 -19010473.82 0.1813 0.0279
 Mercury -56761-12-25 09:21 J -19010173.25 -19010173.11 -19010172.97 0.1722 0.0738
 Mercury -56752-07-20 22:04 J -19007043.68 -19007043.58 -19007043.49 0.1804 0.1087
 Mercury -56751-05-17 10:04 J -19006743.23 -19006743.08 -19006742.92 0.1730 0.0360
 Venus -56745-09-21 17:16 J -19004423.85 -19004423.78 -19004423.71 0.1613 0.1482
 Mercury -56742-10-07 11:01 J -19003313.13 -19003313.04 -19003312.96 0.1739 0.1454
 Mercury -56741-11-15 20:23 J -19002907.72 -19002907.65 -19002907.58 0.1830 0.1481
 Moon -56735-07-16 05:30 J -19000839.38 -19000839.27 -19000839.16 0.1844 0.1465

Earth -56735-07-16 13:40 J -19000838.99 -19000838.93 -19000838.87 0.1844 0.1746
 Mercury -56731-04-08 04:47 J -18999477.41 -18999477.30 -18999477.19 0.1821 0.0646
 Mercury -56722-08-29 13:25 J -18996047.06 -18996046.94 -18996046.82 0.1813 0.0181
 Mercury -56721-06-25 09:49 J -18995746.23 -18995746.09 -18995745.95 0.1722 0.0864
 Mercury -56712-01-18 21:49 J -18992616.69 -18992616.59 -18992616.49 0.1804 0.0999
 Mercury -56712-11-15 10:47 J -18992316.21 -18992316.05 -18992315.89 0.1730 0.0215
 Venus -56711-07-21 09:49 J -18992068.24 -18992068.09 -18992067.93 0.1604 0.0759
 Venus -56708-04-26 08:52 J -18991058.25 -18991058.13 -18991058.02 0.1932 0.1402
 Mercury -56702-04-07 11:30 J -18988886.12 -18988886.02 -18988885.92 0.1739 0.1317
 Mercury -56701-05-16 20:23 J -18988480.71 -18988480.65 -18988480.59 0.1830 0.1568
 Mercury -56692-10-07 05:01 J -18985050.40 -18985050.29 -18985050.18 0.1822 0.0750
 Mercury -56682-02-27 13:25 J -18981620.06 -18981619.94 -18981619.82 0.1813 0.0095
 Mercury -56682-12-25 10:18 J -18981319.19 -18981319.07 -18981318.94 0.1722 0.1006
 Venus -56679-07-20 04:47 J -18980381.42 -18980381.30 -18980381.19 0.1611 0.1229
 Mercury -56673-07-19 22:04 J -18978189.68 -18978189.58 -18978189.48 0.1804 0.0890
 Mercury -56672-05-16 11:16 J -18977889.19 -18977889.03 -18977888.87 0.1730 0.0094
 Mercury -56664-12-10 06:28 J -18974759.26 -18974759.23 -18974759.19 0.1795 0.1701
 Mercury -56663-10-06 11:59 J -18974459.11 -18974459.00 -18974458.89 0.1739 0.1189
 Mercury -56662-11-15 20:23 J -18974053.69 -18974053.65 -18974053.60 0.1830 0.1674
 Mercury -56652-04-07 05:01 J -18970623.40 -18970623.29 -18970623.19 0.1821 0.0841
 Venus -56645-05-17 21:49 J -18968025.73 -18968025.59 -18968025.45 0.1603 0.0995
 Mercury -56643-08-28 13:40 J -18967193.05 -18967192.93 -18967192.81 0.1813 0.0060
 Venus -56642-02-21 12:42 J -18967016.13 -18967015.97 -18967015.81 0.1935 0.0635
 Mercury -56642-06-25 11:01 J -18966892.15 -18966892.04 -18966891.92 0.1721 0.1148
 Moon -56634-01-07 23:16 J -18964138.69 -18964138.53 -18964138.38 0.1712 0.0824
 Earth -56634-01-07 23:59 J -18964138.68 -18964138.50 -18964138.32 0.1712 0.0592 *
 Mercury -56633-01-18 22:04 J -18963762.68 -18963762.58 -18963762.47 0.1804 0.0790
 Mercury -56633-11-14 11:45 J -18963462.17 -18963462.01 -18963461.85 0.1730 0.0046
 Mercury -56624-06-10 06:42 J -18960332.28 -18960332.22 -18960332.17 0.1796 0.1601
 Mercury -56623-04-06 12:42 J -18960032.10 -18960031.97 -18960031.85 0.1738 0.1048

Mercury -56622-05-16 20:23 J -18959626.67 -18959626.65 -18959626.62 0.1830 0.1771

Venus -56613-05-16 16:47 J -18956338.94 -18956338.80 -18956338.66 0.1609 0.0993

Mercury -56613-10-06 05:01 J -18956196.39 -18956196.29 -18956196.19 0.1822 0.0942

Mercury -56603-02-26 13:40 J -18952766.05 -18952765.93 -18952765.81 0.1813 0.0125

Mercury -56603-12-24 11:30 J -18952465.13 -18952465.02 -18952464.91 0.1722 0.1271

Mercury -56594-07-19 22:04 J -18949335.69 -18949335.58 -18949335.47 0.1804 0.0698

Mercury -56593-05-15 12:28 J -18949035.14 -18949034.98 -18949034.82 0.1730 0.0194

Mercury -56585-12-09 06:42 J -18945905.28 -18945905.22 -18945905.15 0.1796 0.1497

Mercury -56584-10-05 13:11 J -18945605.09 -18945604.95 -18945604.82 0.1738 0.0916

Venus -56579-03-15 10:04 J -18943983.19 -18943983.08 -18943982.96 0.1601 0.1217

Venus -56577-12-18 15:21 J -18942974.03 -18942973.86 -18942973.69 0.1939 0.0189

Mercury -56573-04-06 05:01 J -18941769.38 -18941769.29 -18941769.19 0.1822 0.1045

Mercury -56564-08-27 13:40 J -18938339.05 -18938338.93 -18938338.81 0.1813 0.0222

Mercury -56563-06-24 12:13 J -18938038.08 -18938037.99 -18938037.90 0.1721 0.1413

Moon -56555-01-10 02:52 J -18935281.53 -18935281.38 -18935281.23 0.1707 0.1019

Earth -56555-01-10 10:18 J -18935281.23 -18935281.07 -18935280.90 0.1707 0.0862 *

Mercury -56554-01-17 22:18 J -18934908.69 -18934908.57 -18934908.46 0.1805 0.0595

Mercury -56554-11-14 12:57 J -18934608.12 -18934607.96 -18934607.81 0.1730 0.0319

Venus -56547-03-14 04:47 J -18932296.46 -18932296.30 -18932296.14 0.1607 0.0753

Mercury -56545-06-09 06:42 J -18931478.29 -18931478.22 -18931478.14 0.1796 0.1399

Mercury -56544-04-05 13:40 J -18931178.07 -18931177.93 -18931177.79 0.1738 0.0779

Mercury -56534-10-06 05:01 J -18927342.38 -18927342.29 -18927342.20 0.1822 0.1135

Earth -56530-07-13 13:25 J -18925966.11 -18925965.94 -18925965.77 0.1826 0.0899

Moon -56530-07-13 21:35 J -18925965.79 -18925965.60 -18925965.42 0.1827 0.0665 *

Mercury -56524-02-25 13:40 J -18923912.05 -18923911.93 -18923911.81 0.1813 0.0319

Mercury -56524-12-23 12:42 J -18923611.03 -18923610.97 -18923610.90 0.1721 0.1554

Mercury -56515-07-18 22:18 J -18920481.69 -18920481.57 -18920481.45 0.1805 0.0488

Mercury -56514-05-15 13:25 J -18920181.09 -18920180.94 -18920180.79 0.1730 0.0454

Venus -56513-01-10 22:04 J -18919940.66 -18919940.58 -18919940.51 0.1599 0.1452

Venus -56511-10-15 18:28 J -18918931.88 -18918931.73 -18918931.58 0.1942 0.1002

Mercury -56506-12-09 06:42 J -18917051.30 -18917051.22 -18917051.13 0.1796 0.1302
 Mercury -56505-10-04 14:09 J -18916751.05 -18916750.91 -18916750.76 0.1738 0.0646
 Mercury -56494-04-06 05:01 J -18912915.37 -18912915.29 -18912915.20 0.1822 0.1234
 Mercury -56485-08-26 13:40 J -18909485.04 -18909484.93 -18909484.81 0.1813 0.0428
 Mercury -56484-06-23 13:11 J -18909183.98 -18909183.95 -18909183.92 0.1721 0.1681
 Venus -56481-01-09 16:47 J -18908253.97 -18908253.80 -18908253.63 0.1605 0.0519
 Mercury -56475-01-16 22:18 J -18906054.69 -18906054.57 -18906054.46 0.1805 0.0401
 Mercury -56475-11-13 14:09 J -18905754.06 -18905753.91 -18905753.76 0.1729 0.0601
 Mercury -56466-06-09 06:57 J -18902624.30 -18902624.21 -18902624.12 0.1796 0.1197
 Mercury -56465-04-04 14:52 J -18902324.03 -18902323.88 -18902323.73 0.1738 0.0509
 Mercury -56456-08-25 15:35 J -18898893.91 -18898893.85 -18898893.79 0.1747 0.1615
 Mercury -56455-10-05 05:16 J -18898488.36 -18898488.28 -18898488.20 0.1822 0.1340
 Earth -56451-07-16 12:13 J -18897108.13 -18897107.99 -18897107.85 0.1834 0.1248
 Moon -56451-07-16 17:30 J -18897107.89 -18897107.77 -18897107.65 0.1834 0.1354 *
 Mercury -56445-02-25 13:40 J -18895058.04 -18895057.93 -18895057.81 0.1813 0.0522
 Venus -56445-08-11 21:21 J -18894889.67 -18894889.61 -18894889.56 0.1944 0.1836
 Mercury -56436-07-17 22:18 J -18891627.69 -18891627.57 -18891627.45 0.1805 0.0297
 Mercury -56435-05-14 14:37 J -18891327.04 -18891326.89 -18891326.75 0.1729 0.0725
 Mercury -56427-12-08 06:57 J -18888197.31 -18888197.21 -18888197.12 0.1796 0.1102
 Mercury -56426-10-04 15:21 J -18887897.02 -18887896.86 -18887896.71 0.1738 0.0376
 Mercury -56416-02-23 16:18 J -18884466.90 -18884466.82 -18884466.74 0.1746 0.1470
 Venus -56416-11-06 04:47 J -18884211.47 -18884211.30 -18884211.12 0.1603 0.0286
 Mercury -56415-04-05 05:01 J -18884061.36 -18884061.29 -18884061.21 0.1822 0.1428
 Mercury -56406-08-26 13:54 J -18880631.03 -18880630.92 -18880630.81 0.1814 0.0617
 Mercury -56396-01-15 22:33 J -18877200.68 -18877200.56 -18877200.44 0.1805 0.0202
 Mercury -56396-11-12 15:06 J -18876900.01 -18876899.87 -18876899.73 0.1729 0.0859
 Mercury -56387-06-08 06:57 J -18873770.31 -18873770.21 -18873770.11 0.1796 0.1001
 Mercury -56386-04-04 15:49 J -18873469.99 -18873469.84 -18873469.68 0.1738 0.0241
 Mercury -56377-08-24 16:33 J -18870039.91 -18870039.81 -18870039.71 0.1747 0.1352
 Mercury -56376-10-04 05:16 J -18869634.34 -18869634.28 -18869634.22 0.1822 0.1530

Mercury -56366-02-24 13:54 J -18866204.03 -18866203.92 -18866203.81 0.1813 0.0715

Mercury -56357-07-16 22:18 J -18862773.69 -18862773.57 -18862773.45 0.1805 0.0121

Mercury -56356-05-13 15:49 J -18862472.96 -18862472.84 -18862472.71 0.1729 0.1011

Earth -56350-01-08 15:49 J -18860407.02 -18860406.84 -18860406.65 0.1721 0.0575

Moon -56350-01-08 23:16 J -18860406.71 -18860406.53 -18860406.35 0.1720 0.0727 *

Venus -56350-09-03 17:01 J -18860168.97 -18860168.79 -18860168.61 0.1602 0.0057

Mercury -56348-12-07 07:11 J -18859343.31 -18859343.20 -18859343.10 0.1797 0.0898

Venus -56347-06-08 22:33 J -18859159.66 -18859159.56 -18859159.46 0.1937 0.1543

Mercury -56347-10-03 16:33 J -18859042.97 -18859042.81 -18859042.66 0.1737 0.0113

Mercury -56338-04-29 15:35 J -18855912.88 -18855912.85 -18855912.81 0.1788 0.1697

Mercury -56337-02-23 17:16 J -18855612.89 -18855612.78 -18855612.67 0.1746 0.1210

Mercury -56336-04-04 05:16 J -18855207.33 -18855207.28 -18855207.23 0.1822 0.1631

Mercury -56327-08-25 13:54 J -18851777.02 -18851776.92 -18851776.81 0.1814 0.0813

Mercury -56317-01-15 22:33 J -18848346.68 -18848346.56 -18848346.44 0.1805 0.0013

Mercury -56317-11-11 16:18 J -18848045.94 -18848045.82 -18848045.70 0.1729 0.1131

Mercury -56308-06-07 07:11 J -18844916.31 -18844916.20 -18844916.10 0.1796 0.0805

Mercury -56307-04-03 17:01 J -18844615.95 -18844615.79 -18844615.63 0.1738 0.0041

Mercury -56299-10-28 15:35 J -18841485.90 -18841485.85 -18841485.80 0.1788 0.1600

Mercury -56298-08-24 17:45 J -18841185.88 -18841185.76 -18841185.63 0.1746 0.1070

Mercury -56297-10-03 05:16 J -18840780.32 -18840780.28 -18840780.24 0.1822 0.1719

Mercury -56287-02-23 13:54 J -18837350.02 -18837349.92 -18837349.81 0.1814 0.0911

Venus -56284-07-01 05:01 J -18836126.47 -18836126.29 -18836126.11 0.1600 0.0174

Venus -56281-04-05 01:40 J -18835117.59 -18835117.43 -18835117.27 0.1940 0.0734

Mercury -56278-07-16 22:33 J -18833919.68 -18833919.56 -18833919.44 0.1805 0.0117

Mercury -56277-05-12 16:47 J -18833618.90 -18833618.80 -18833618.69 0.1729 0.1271

Earth -56271-01-11 03:35 J -18831549.51 -18831549.35 -18831549.19 0.1715 0.0937

Moon -56271-01-11 06:57 J -18831549.34 -18831549.21 -18831549.08 0.1715 0.1180 *

Mercury -56269-12-06 07:11 J -18830489.31 -18830489.20 -18830489.09 0.1797 0.0704

Mercury -56268-10-02 17:30 J -18830188.93 -18830188.77 -18830188.61 0.1737 0.0167

Mercury -56259-04-28 15:49 J -18827058.91 -18827058.84 -18827058.78 0.1788 0.1498

Mercury -56258-02-22 18:13 J -18826758.87 -18826758.74 -18826758.61 0.1746 0.0947
 Mercury -56257-04-03 05:16 J -18826353.28 -18826353.28 -18826353.27 0.1823 0.1820
 Mercury -56248-08-24 14:09 J -18822923.01 -18822922.91 -18822922.82 0.1814 0.1013
 Moon -56246-07-13 10:04 J -18822235.20 -18822235.08 -18822234.95 0.1816 0.1412
 Earth -56246-07-13 16:47 J -18822234.94 -18822234.80 -18822234.66 0.1816 0.1223
 Mercury -56238-01-14 22:33 J -18819492.68 -18819492.56 -18819492.44 0.1805 0.0194
 Mercury -56238-11-11 17:30 J -18819191.86 -18819191.77 -18819191.68 0.1729 0.1416
 Mercury -56229-06-06 07:11 J -18816062.31 -18816062.20 -18816062.08 0.1797 0.0602
 Mercury -56228-04-02 18:13 J -18815761.90 -18815761.74 -18815761.59 0.1737 0.0306
 Mercury -56220-10-27 15:49 J -18812631.91 -18812631.84 -18812631.77 0.1788 0.1396
 Mercury -56219-08-23 18:57 J -18812331.85 -18812331.71 -18812331.58 0.1746 0.0808
 Venus -56218-04-28 17:16 J -18812083.96 -18812083.78 -18812083.61 0.1598 0.0406
 Venus -56215-01-31 05:01 J -18811075.46 -18811075.29 -18811075.12 0.1943 0.0060
 Mercury -56208-02-22 14:09 J -18808496.01 -18808495.91 -18808495.82 0.1814 0.1106
 Mercury -56199-07-15 22:47 J -18805065.67 -18805065.55 -18805065.44 0.1806 0.0305
 Mercury -56198-05-12 17:59 J -18804764.82 -18804764.75 -18804764.68 0.1728 0.1539
 Mercury -56190-12-06 07:11 J -18801635.31 -18801635.20 -18801635.08 0.1797 0.0508
 Mercury -56189-10-01 18:42 J -18801334.87 -18801334.72 -18801334.57 0.1737 0.0440
 Venus -56186-04-27 11:45 J -18800397.05 -18800397.01 -18800396.97 0.1604 0.1556
 Mercury -56180-04-27 15:49 J -18798204.92 -18798204.84 -18798204.76 0.1788 0.1303
 Mercury -56179-02-21 19:25 J -18797904.83 -18797904.69 -18797904.54 0.1746 0.0665
 Mercury -56169-08-23 14:09 J -18794069.00 -18794068.91 -18794068.82 0.1814 0.1205
 Earth -56167-07-16 13:40 J -18793377.10 -18793376.93 -18793376.76 0.1824 0.0835
 Moon -56167-07-16 18:28 J -18793376.90 -18793376.73 -18793376.55 0.1824 0.0953 *
 Mercury -56159-01-13 22:47 J -18790638.67 -18790638.55 -18790638.43 0.1805 0.0400
 Mercury -56159-11-10 18:28 J -18790337.76 -18790337.73 -18790337.69 0.1728 0.1676
 Venus -56152-02-23 05:30 J -18788041.43 -18788041.27 -18788041.10 0.1597 0.0625
 Mercury -56150-06-06 07:25 J -18787208.31 -18787208.19 -18787208.08 0.1797 0.0410
 Venus -56150-11-28 07:40 J -18787033.33 -18787033.18 -18787033.03 0.1946 0.0891
 Mercury -56149-04-01 19:11 J -18786907.85 -18786907.70 -18786907.55 0.1737 0.0579

Mercury -56141-10-26 16:04 J -18783777.92 -18783777.83 -18783777.75 0.1788 0.1199

Mercury -56140-08-22 19:54 J -18783477.82 -18783477.67 -18783477.52 0.1746 0.0545

Mercury -56130-01-12 20:52 J -18780047.68 -18780047.63 -18780047.58 0.1754 0.1641

Mercury -56129-02-22 14:09 J -18779641.99 -18779641.91 -18779641.83 0.1814 0.1299

Venus -56120-02-21 23:45 J -18776354.61 -18776354.51 -18776354.41 0.1602 0.1317

Mercury -56120-07-14 22:47 J -18776211.67 -18776211.55 -18776211.44 0.1806 0.0492

Mercury -56111-12-05 07:25 J -18772781.31 -18772781.19 -18772781.07 0.1797 0.0304

Mercury -56110-10-01 19:40 J -18772480.82 -18772480.68 -18772480.53 0.1737 0.0709

Mercury -56101-04-26 15:49 J -18769350.93 -18769350.84 -18769350.74 0.1788 0.1105

Mercury -56100-02-20 20:23 J -18769050.80 -18769050.65 -18769050.49 0.1746 0.0404

Mercury -56091-07-13 21:06 J -18765620.69 -18765620.62 -18765620.54 0.1754 0.1517

Mercury -56090-08-23 14:09 J -18765214.98 -18765214.91 -18765214.84 0.1814 0.1396

Venus -56087-12-21 17:16 J -18763998.93 -18763998.78 -18763998.63 0.1595 0.0860

Venus -56084-09-24 10:33 J -18762991.14 -18762991.06 -18762990.98 0.1949 0.1716

Mercury -56080-01-12 22:47 J -18761784.66 -18761784.55 -18761784.44 0.1806 0.0593

Mercury -56071-06-05 07:25 J -18758354.31 -18758354.19 -18758354.07 0.1797 0.0215

Mercury -56070-04-01 20:23 J -18758053.79 -18758053.65 -18758053.51 0.1737 0.0851

Moon -56066-01-09 02:52 J -18756675.56 -18756675.38 -18756675.20 0.1729 0.0857

Earth -56066-01-09 06:42 J -18756675.40 -18756675.22 -18756675.04 0.1729 0.0592 *

Mercury -56062-10-26 16:04 J -18754923.93 -18754923.83 -18754923.73 0.1789 0.1004

Mercury -56061-08-21 21:06 J -18754623.78 -18754623.62 -18754623.46 0.1745 0.0262

Venus -56055-12-20 11:45 J -18752312.14 -18752312.01 -18752311.88 0.1601 0.1085

Mercury -56051-01-11 21:35 J -18751193.69 -18751193.60 -18751193.50 0.1754 0.1385

Mercury -56050-02-21 14:09 J -18750787.97 -18750787.91 -18750787.84 0.1815 0.1495

Mercury -56041-07-13 22:47 J -18747357.66 -18747357.55 -18747357.44 0.1806 0.0694

Mercury -56032-12-04 07:25 J -18743927.31 -18743927.19 -18743927.07 0.1797 0.0117

Mercury -56031-09-30 20:52 J -18743626.76 -18743626.63 -18743626.50 0.1736 0.0979

Mercury -56022-04-26 16:04 J -18740496.93 -18740496.83 -18740496.73 0.1789 0.0904

Mercury -56021-02-20 21:21 J -18740196.76 -18740196.61 -18740196.45 0.1745 0.0148

Venus -56021-10-18 05:45 J -18739956.39 -18739956.26 -18739956.13 0.1594 0.1071

Mercury -56013-09-16 00:42 J -18737066.51 -18737066.47 -18737066.44 0.1780 0.1694

Mercury -56012-07-12 22:18 J -18736766.67 -18736766.57 -18736766.46 0.1754 0.1239

Mercury -56011-08-22 14:09 J -18736360.96 -18736360.91 -18736360.85 0.1814 0.1590

Mercury -56001-01-12 22:47 J -18732930.66 -18732930.55 -18732930.44 0.1806 0.0781

56TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 56th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -55992-06-04 07:40 J | -18729500.30 | -18729500.18 | -18729500.06 | 0.1798 | 0.0052 | | |
| Mercury | -55991-03-31 21:35 J | -18729199.72 | -18729199.60 | -18729199.48 | 0.1736 | 0.1117 | | |
| Venus | -55989-10-16 23:59 J | -18728269.65 | -18728269.50 | -18728269.35 | 0.1599 | 0.0858 | | |
| Earth | -55987-01-11 19:11 J | -18727817.85 | -18727817.70 | -18727817.54 | 0.1723 | 0.0977 | | |
| Moon | -55987-01-12 00:28 J | -18727817.62 | -18727817.48 | -18727817.34 | 0.1723 | 0.1238 | * | |
| Venus | -55986-07-22 11:16 J | -18727261.12 | -18727261.03 | -18727260.94 | 0.1942 | 0.1627 | | |
| Mercury | -55983-10-25 16:04 J | -18726069.93 | -18726069.83 | -18726069.72 | 0.1789 | 0.0807 | | |
| Mercury | -55982-08-21 22:04 J | -18725769.74 | -18725769.58 | -18725769.42 | 0.1745 | 0.0009 | | |
| Mercury | -55973-03-17 00:42 J | -18722639.52 | -18722639.47 | -18722639.42 | 0.1780 | 0.1593 | | |
| Mercury | -55972-01-10 22:47 J | -18722339.67 | -18722339.55 | -18722339.43 | 0.1754 | 0.1119 | | |
| Mercury | -55971-02-20 14:09 J | -18721933.95 | -18721933.91 | -18721933.87 | 0.1815 | 0.1683 | | |
| Moon | -55962-07-13 19:25 J | -18718503.75 | -18718503.69 | -18718503.64 | 0.1806 | 0.1708 | | |
| Earth | -55962-07-13 20:37 J | -18718503.74 | -18718503.64 | -18718503.54 | 0.1806 | 0.1519 | * | |
| Mercury | -55962-07-13 23:01 J | -18718503.65 | -18718503.54 | -18718503.44 | 0.1806 | 0.0885 | * | |
| Venus | -55955-08-15 17:45 J | -18715913.86 | -18715913.76 | -18715913.66 | 0.1592 | 0.1298 | | |

Mercury -55953-12-03 07:25 J -18715073.31 -18715073.19 -18715073.07 0.1797 0.0098

Mercury -55952-09-29 22:04 J -18714772.69 -18714772.58 -18714772.47 0.1736 0.1254

Mercury -55943-04-25 16:04 J -18711642.94 -18711642.83 -18711642.72 0.1789 0.0714

Mercury -55942-02-19 22:47 J -18711342.71 -18711342.55 -18711342.40 0.1745 0.0147

Mercury -55934-09-16 00:57 J -18708212.53 -18708212.46 -18708212.40 0.1780 0.1490

Mercury -55933-07-11 23:16 J -18707912.66 -18707912.53 -18707912.40 0.1754 0.0983

Mercury -55932-08-21 14:23 J -18707506.92 -18707506.90 -18707506.88 0.1815 0.1784

Venus -55923-08-14 12:13 J -18704227.16 -18704226.99 -18704226.83 0.1597 0.0630

Mercury -55922-01-11 23:01 J -18704076.64 -18704076.54 -18704076.44 0.1806 0.0981

Venus -55920-05-18 14:37 J -18703219.04 -18703218.89 -18703218.74 0.1945 0.0839

Mercury -55913-06-03 07:40 J -18700646.30 -18700646.18 -18700646.06 0.1798 0.0182

Mercury -55912-03-30 22:33 J -18700345.65 -18700345.56 -18700345.46 0.1736 0.1387

Mercury -55904-10-24 16:18 J -18697215.94 -18697215.82 -18697215.71 0.1789 0.0610

Mercury -55903-08-20 23:01 J -18696915.70 -18696915.54 -18696915.38 0.1745 0.0264

Mercury -55894-03-17 00:42 J -18693785.54 -18693785.47 -18693785.39 0.1780 0.1402

Mercury -55893-01-10 23:59 J -18693485.64 -18693485.50 -18693485.36 0.1754 0.0838

Venus -55889-06-12 05:59 J -18691871.30 -18691871.25 -18691871.19 0.1591 0.1512

Mercury -55883-07-12 23:01 J -18689649.64 -18689649.54 -18689649.45 0.1806 0.1072

Moon -55883-07-16 09:06 J -18689646.30 -18689646.12 -18689645.94 0.1813 0.0566

Earth -55883-07-16 17:01 J -18689645.98 -18689645.79 -18689645.60 0.1813 0.0481 *

Mercury -55874-12-03 07:40 J -18686219.30 -18686219.18 -18686219.06 0.1798 0.0281

Mercury -55873-09-28 23:01 J -18685918.61 -18685918.54 -18685918.46 0.1736 0.1516

Mercury -55864-04-24 16:18 J -18682788.94 -18682788.82 -18682788.71 0.1789 0.0515

Mercury -55863-02-18 23:45 J -18682488.67 -18682488.51 -18682488.36 0.1745 0.0406

Venus -55857-06-11 00:13 J -18680184.66 -18680184.49 -18680184.31 0.1596 0.0404

Mercury -55855-09-15 00:57 J -18679358.54 -18679358.46 -18679358.38 0.1781 0.1296

Venus -55854-03-15 17:30 J -18679176.94 -18679176.77 -18679176.60 0.1947 0.0017

Mercury -55854-07-12 00:13 J -18679058.63 -18679058.49 -18679058.34 0.1753 0.0718

Mercury -55843-01-10 23:01 J -18675222.63 -18675222.54 -18675222.45 0.1806 0.1171

Mercury -55834-06-03 07:40 J -18671792.30 -18671792.18 -18671792.06 0.1798 0.0369

Mercury -55833-03-29 23:45 J -18671491.55 -18671491.51 -18671491.46 0.1736 0.1663

Mercury -55825-10-23 16:18 J -18668361.94 -18668361.82 -18668361.70 0.1789 0.0416

Mercury -55824-08-20 00:13 J -18668061.64 -18668061.49 -18668061.34 0.1744 0.0543

Mercury -55815-03-16 00:57 J -18664931.55 -18664931.46 -18664931.37 0.1781 0.1198

Mercury -55814-01-10 00:42 J -18664631.61 -18664631.47 -18664631.32 0.1753 0.0586

Mercury -55805-06-01 01:40 J -18661201.47 -18661201.43 -18661201.39 0.1762 0.1699

Mercury -55804-07-11 23:01 J -18660795.62 -18660795.54 -18660795.45 0.1806 0.1268

Mercury -55795-12-02 07:40 J -18657365.29 -18657365.18 -18657365.06 0.1798 0.0471

Venus -55791-04-08 12:28 J -18656142.16 -18656141.98 -18656141.80 0.1595 0.0176

Venus -55788-01-09 20:37 J -18655134.80 -18655134.64 -18655134.49 0.1950 0.0793

Mercury -55785-04-23 16:18 J -18653934.94 -18653934.82 -18653934.70 0.1789 0.0323

Mercury -55784-02-18 00:42 J -18653634.62 -18653634.47 -18653634.33 0.1745 0.0668

Moon -55782-01-09 15:49 J -18652943.99 -18652943.84 -18652943.68 0.1738 0.0879

Earth -55782-01-09 19:25 J -18652943.87 -18652943.69 -18652943.51 0.1738 0.0665 *

Mercury -55776-09-14 00:57 J -18650504.55 -18650504.46 -18650504.36 0.1781 0.1107

Mercury -55775-07-11 01:25 J -18650204.59 -18650204.44 -18650204.28 0.1753 0.0440

Mercury -55766-12-01 02:09 J -18646774.48 -18646774.41 -18646774.34 0.1762 0.1569

Mercury -55764-01-09 23:01 J -18646368.62 -18646368.54 -18646368.46 0.1807 0.1358

Mercury -55755-06-02 07:54 J -18642938.29 -18642938.17 -18642938.06 0.1798 0.0572

Mercury -55746-10-23 16:33 J -18639507.93 -18639507.81 -18639507.70 0.1789 0.0234

Mercury -55745-08-19 01:11 J -18639207.59 -18639207.45 -18639207.31 0.1744 0.0807

Mercury -55736-03-15 01:11 J -18636077.55 -18636077.45 -18636077.35 0.1781 0.1006

Mercury -55735-01-09 01:54 J -18635777.58 -18635777.42 -18635777.27 0.1753 0.0323

Mercury -55726-06-01 02:37 J -18632347.48 -18632347.39 -18632347.30 0.1762 0.1433

Venus -55725-02-04 00:42 J -18632099.65 -18632099.47 -18632099.29 0.1593 0.0047

Mercury -55725-07-10 23:16 J -18631941.60 -18631941.53 -18631941.47 0.1807 0.1460

Venus -55723-11-06 22:47 J -18631092.63 -18631092.55 -18631092.46 0.1952 0.1654

Mercury -55716-12-01 07:40 J -18628511.29 -18628511.18 -18628511.07 0.1798 0.0658

Mercury -55706-04-23 16:33 J -18625080.93 -18625080.81 -18625080.69 0.1790 0.0140

Mercury -55705-02-18 01:54 J -18624780.55 -18624780.42 -18624780.29 0.1744 0.0943

Moon -55703-01-12 02:09 J -18624086.56 -18624086.41 -18624086.24 0.1732 0.1006
 Earth -55703-01-12 09:06 J -18624086.28 -18624086.12 -18624085.96 0.1732 0.0959 *
 Mercury -55697-09-13 01:11 J -18621650.55 -18621650.45 -18621650.35 0.1781 0.0904
 Mercury -55696-07-10 02:23 J -18621350.56 -18621350.40 -18621350.24 0.1753 0.0182
 Mercury -55687-02-03 09:49 J -18618220.13 -18618220.09 -18618220.06 0.1772 0.1683
 Mercury -55687-11-30 03:06 J -18617920.47 -18617920.37 -18617920.27 0.1762 0.1303
 Mercury -55685-01-09 23:16 J -18617514.59 -18617514.53 -18617514.48 0.1807 0.1553
 Earth -55678-07-14 01:25 J -18614772.46 -18614772.44 -18614772.42 0.1796 0.1782
 Mercury -55676-06-01 07:54 J -18614084.28 -18614084.17 -18614084.07 0.1798 0.0758
 Mercury -55667-10-22 16:33 J -18610653.93 -18610653.81 -18610653.69 0.1789 0.0031
 Mercury -55666-08-19 02:09 J -18610353.53 -18610353.41 -18610353.28 0.1744 0.1070
 Venus -55660-12-01 12:28 J -18608057.15 -18608056.98 -18608056.80 0.1592 0.0278
 Mercury -55657-03-14 01:11 J -18607223.56 -18607223.45 -18607223.35 0.1781 0.0817
 Mercury -55656-01-08 03:06 J -18606923.53 -18606923.37 -18606923.21 0.1753 0.0043
 Mercury -55648-08-04 09:49 J -18603793.14 -18603793.09 -18603793.03 0.1773 0.1582
 Mercury -55647-05-31 03:35 J -18603493.46 -18603493.35 -18603493.23 0.1761 0.1172
 Mercury -55646-07-10 23:01 J -18603087.58 -18603087.54 -18603087.49 0.1807 0.1644
 Mercury -55637-11-30 07:54 J -18599657.27 -18599657.17 -18599657.06 0.1798 0.0857
 Mercury -55627-04-22 16:33 J -18596226.93 -18596226.81 -18596226.69 0.1789 0.0066
 Mercury -55626-02-17 02:52 J -18595926.49 -18595926.38 -18595926.27 0.1744 0.1208
 Venus -55625-09-02 23:59 J -18595362.58 -18595362.50 -18595362.42 0.1946 0.1703
 Mercury -55618-09-13 01:11 J -18592796.56 -18592796.45 -18592796.34 0.1781 0.0714
 Mercury -55617-07-09 03:21 J -18592496.52 -18592496.36 -18592496.20 0.1753 0.0080
 Mercury -55608-02-02 09:49 J -18589366.15 -18589366.09 -18589366.03 0.1772 0.1492
 Mercury -55608-11-29 04:04 J -18589066.45 -18589066.33 -18589066.20 0.1762 0.1038
 Mercury -55606-01-08 23:16 J -18588660.56 -18588660.53 -18588660.50 0.1807 0.1740
 Earth -55599-07-16 20:37 J -18585914.83 -18585914.64 -18585914.45 0.1803 0.0154
 Moon -55599-07-16 23:30 J -18585914.69 -18585914.52 -18585914.34 0.1803 0.0445 *
 Mercury -55597-05-31 07:54 J -18585230.28 -18585230.17 -18585230.07 0.1798 0.0944
 Venus -55594-09-29 00:57 J -18584014.63 -18584014.46 -18584014.29 0.1590 0.0491

Mercury -55588-10-21 16:33 J -18581799.93 -18581799.81 -18581799.69 0.1790 0.0170

Mercury -55587-08-18 03:21 J -18581499.46 -18581499.36 -18581499.26 0.1744 0.1343

Mercury -55578-03-14 01:11 J -18578369.56 -18578369.45 -18578369.33 0.1781 0.0620

Mercury -55577-01-08 03:49 J -18578069.49 -18578069.34 -18578069.18 0.1753 0.0217

Mercury -55569-08-03 10:04 J -18574939.16 -18574939.08 -18574939.01 0.1773 0.1392

Mercury -55568-05-30 04:33 J -18574639.44 -18574639.31 -18574639.17 0.1761 0.0906

Venus -55562-09-27 18:57 J -18572327.79 -18572327.71 -18572327.63 0.1595 0.1415

Venus -55559-07-01 02:23 J -18571320.55 -18571320.40 -18571320.25 0.1949 0.0867

Mercury -55558-11-30 07:54 J -18570803.27 -18570803.17 -18570803.07 0.1798 0.1043

Mercury -55548-04-21 16:33 J -18567372.93 -18567372.81 -18567372.69 0.1790 0.0256

Mercury -55547-02-16 03:49 J -18567072.42 -18567072.34 -18567072.26 0.1744 0.1470

Mercury -55539-09-12 01:11 J -18563942.56 -18563942.45 -18563942.33 0.1781 0.0529

Mercury -55538-07-09 04:33 J -18563642.46 -18563642.31 -18563642.15 0.1752 0.0363

Mercury -55529-02-02 10:04 J -18560512.16 -18560512.08 -18560512.00 0.1773 0.1291

Mercury -55529-11-28 05:01 J -18560212.43 -18560212.29 -18560212.15 0.1761 0.0777

Venus -55528-07-26 12:57 J -18559972.12 -18559971.96 -18559971.80 0.1589 0.0718

Mercury -55518-05-31 07:54 J -18556376.26 -18556376.17 -18556376.08 0.1799 0.1141

Mercury -55509-10-20 16:33 J -18552945.92 -18552945.81 -18552945.69 0.1790 0.0359

Mercury -55508-08-17 04:18 J -18552645.37 -18552645.32 -18552645.26 0.1744 0.1609

Mercury -55499-03-13 01:25 J -18549515.56 -18549515.44 -18549515.32 0.1781 0.0425

Mercury -55498-01-07 04:47 J -18549215.45 -18549215.30 -18549215.15 0.1752 0.0479

Earth -55498-01-10 05:45 J -18549212.43 -18549212.26 -18549212.08 0.1747 0.0803

Moon -55498-01-10 13:25 J -18549212.10 -18549211.94 -18549211.77 0.1746 0.0855 *

Venus -55496-07-25 07:11 J -18548285.32 -18548285.20 -18548285.09 0.1594 0.1187

Venus -55493-04-27 05:45 J -18547278.43 -18547278.26 -18547278.09 0.1951 0.0084

Mercury -55490-08-03 10:04 J -18546085.17 -18546085.08 -18546084.99 0.1773 0.1201

Mercury -55489-05-29 05:45 J -18545785.41 -18545785.26 -18545785.12 0.1761 0.0638

Mercury -55480-10-19 06:13 J -18542355.24 -18542355.24 -18542355.23 0.1770 0.1766

Mercury -55479-11-29 07:54 J -18541949.26 -18541949.17 -18541949.08 0.1798 0.1226

Mercury -55469-04-20 16:47 J -18538518.92 -18538518.80 -18538518.69 0.1790 0.0451

Mercury -55468-02-15 05:01 J -18538218.29 -18538218.29 -18538218.29 0.1743 0.1742

Venus -55462-05-24 01:11 J -18535929.59 -18535929.45 -18535929.30 0.1588 0.0930

Mercury -55460-09-11 01:25 J -18535088.56 -18535088.44 -18535088.32 0.1781 0.0327

Mercury -55459-07-08 05:30 J -18534788.42 -18534788.27 -18534788.12 0.1752 0.0617

Mercury -55450-02-01 10:04 J -18531658.17 -18531658.08 -18531657.98 0.1773 0.1102

Mercury -55450-11-28 05:59 J -18531358.40 -18531358.25 -18531358.10 0.1761 0.0512

Mercury -55440-04-19 06:42 J -18527928.27 -18527928.22 -18527928.16 0.1770 0.1643

Mercury -55439-05-30 07:54 J -18527522.25 -18527522.17 -18527522.09 0.1799 0.1326

Venus -55430-05-22 19:11 J -18524242.84 -18524242.70 -18524242.55 0.1592 0.0964

Mercury -55430-10-20 16:47 J -18524091.92 -18524091.80 -18524091.69 0.1790 0.0544

Venus -55427-02-22 08:09 J -18523236.32 -18523236.16 -18523236.00 0.1953 0.0775

Mercury -55420-03-12 01:25 J -18520661.56 -18520661.44 -18520661.32 0.1782 0.0239

Mercury -55419-01-06 06:13 J -18520361.39 -18520361.24 -18520361.10 0.1752 0.0760

Earth -55419-01-12 20:52 J -18520354.80 -18520354.63 -18520354.46 0.1740 0.0882

Moon -55419-01-12 21:35 J -18520354.75 -18520354.60 -18520354.45 0.1740 0.0955 *

Mercury -55411-08-02 10:18 J -18517231.17 -18517231.07 -18517230.97 0.1773 0.1003

Mercury -55410-05-29 06:28 J -18516931.38 -18516931.23 -18516931.07 0.1761 0.0382

Mercury -55401-10-18 07:11 J -18513501.28 -18513501.20 -18513501.12 0.1770 0.1507

Mercury -55400-11-28 08:09 J -18513095.23 -18513095.16 -18513095.09 0.1799 0.1425

Venus -55396-03-20 13:40 J -18511887.05 -18511886.93 -18511886.81 0.1587 0.1144

Mercury -55390-04-20 16:47 J -18509664.91 -18509664.80 -18509664.69 0.1790 0.0636

Mercury -55381-09-10 01:25 J -18506234.56 -18506234.44 -18506234.32 0.1782 0.0147

Mercury -55380-07-07 06:28 J -18505934.37 -18505934.23 -18505934.10 0.1752 0.0877

Mercury -55371-01-31 10:04 J -18502804.18 -18502804.08 -18502803.97 0.1773 0.0913

Mercury -55371-11-27 07:11 J -18502504.36 -18502504.20 -18502504.05 0.1761 0.0240

Venus -55364-03-19 07:40 J -18500200.34 -18500200.18 -18500200.03 0.1591 0.0742

Mercury -55362-06-23 18:57 J -18499373.75 -18499373.71 -18499373.68 0.1765 0.1671

Venus -55362-12-20 11:01 J -18499194.13 -18499194.04 -18499193.94 0.1955 0.1591

Mercury -55361-04-18 07:54 J -18499074.27 -18499074.17 -18499074.07 0.1769 0.1367

Mercury -55360-05-29 07:54 J -18498668.23 -18498668.17 -18498668.10 0.1799 0.1509

Mercury -55351-10-19 16:47 J -18495237.91 -18495237.80 -18495237.69 0.1790 0.0736

Mercury -55341-03-11 01:40 J -18491807.56 -18491807.43 -18491807.31 0.1782 0.0077

Mercury -55340-01-05 06:57 J -18491507.33 -18491507.21 -18491507.08 0.1752 0.1015

Mercury -55332-08-01 10:18 J -18488377.18 -18488377.07 -18488376.96 0.1773 0.0812

Mercury -55331-05-28 07:40 J -18488077.34 -18488077.18 -18488077.03 0.1760 0.0116

Venus -55330-01-16 01:54 J -18487844.51 -18487844.42 -18487844.33 0.1586 0.1358

Mercury -55323-12-22 18:57 J -18484946.76 -18484946.71 -18484946.66 0.1765 0.1573

Mercury -55322-10-18 08:09 J -18484647.27 -18484647.16 -18484647.05 0.1770 0.1252

Mercury -55321-11-27 08:09 J -18484241.21 -18484241.16 -18484241.11 0.1799 0.1608

Earth -55315-07-17 01:54 J -18482183.61 -18482183.42 -18482183.22 0.1793 0.0129

Moon -55315-07-17 07:25 J -18482183.39 -18482183.19 -18482182.98 0.1794 0.0207 *

Mercury -55311-04-19 16:47 J -18480810.91 -18480810.80 -18480810.69 0.1790 0.0824

Mercury -55302-09-10 01:40 J -18477380.56 -18477380.43 -18477380.31 0.1782 0.0085

Mercury -55301-07-06 07:40 J -18477080.30 -18477080.18 -18477080.06 0.1751 0.1160

Venus -55298-01-14 19:40 J -18476157.84 -18476157.68 -18476157.51 0.1590 0.0522

Mercury -55292-01-30 10:18 J -18473950.18 -18473950.07 -18473949.96 0.1774 0.0713

Mercury -55292-11-26 08:09 J -18473650.32 -18473650.16 -18473650.01 0.1760 0.0049

Mercury -55283-06-22 18:57 J -18470519.77 -18470519.71 -18470519.64 0.1765 0.1479

Mercury -55282-04-18 08:52 J -18470220.25 -18470220.13 -18470220.01 0.1769 0.1110

Mercury -55281-05-28 08:09 J -18469814.20 -18469814.16 -18469814.13 0.1799 0.1703

Mercury -55272-10-18 16:47 J -18466383.90 -18466383.80 -18466383.69 0.1790 0.0924

Venus -55265-11-12 14:09 J -18463801.93 -18463801.91 -18463801.89 0.1585 0.1571

Venus -55264-10-16 11:30 J -18463464.10 -18463464.02 -18463463.95 0.1950 0.1727

Mercury -55262-03-11 01:40 J -18462953.55 -18462953.43 -18462953.31 0.1782 0.0150

Mercury -55261-01-05 07:54 J -18462653.27 -18462653.17 -18462653.06 0.1752 0.1276

Mercury -55253-07-31 10:18 J -18459523.18 -18459523.07 -18459522.96 0.1773 0.0625

Mercury -55252-05-27 08:37 J -18459223.29 -18459223.14 -18459222.98 0.1760 0.0164

Mercury -55244-12-21 19:11 J -18456092.78 -18456092.70 -18456092.63 0.1765 0.1384

Mercury -55243-10-17 09:21 J -18455793.24 -18455793.11 -18455792.98 0.1769 0.0977

Mercury -55242-11-27 08:09 J -18455387.17 -18455387.16 -18455387.16 0.1799 0.1790

Moon -55236-07-20 02:52 J -18453325.44 -18453325.38 -18453325.31 0.1801 0.1657
 Venus -55233-11-11 07:54 J -18452115.35 -18452115.17 -18452115.00 0.1589 0.0299
 Mercury -55232-04-18 17:01 J -18451956.89 -18451956.79 -18451956.70 0.1791 0.1020
 Mercury -55223-09-09 01:40 J -18448526.55 -18448526.43 -18448526.31 0.1782 0.0246
 Mercury -55222-07-06 08:37 J -18448226.23 -18448226.14 -18448226.05 0.1751 0.1416
 Moon -55214-01-10 13:40 J -18445481.10 -18445480.93 -18445480.76 0.1756 0.1042
 Earth -55214-01-10 15:06 J -18445481.03 -18445480.87 -18445480.71 0.1756 0.0985 *
 Mercury -55213-01-30 10:18 J -18445096.18 -18445096.07 -18445095.95 0.1774 0.0527
 Mercury -55213-11-25 09:06 J -18444796.28 -18444796.12 -18444795.97 0.1760 0.0285
 Mercury -55204-06-21 19:11 J -18441665.78 -18441665.70 -18441665.62 0.1765 0.1283
 Mercury -55203-04-17 09:35 J -18441366.23 -18441366.10 -18441365.96 0.1769 0.0852
 Venus -55198-08-13 14:37 J -18439422.04 -18439421.89 -18439421.74 0.1952 0.0918
 Mercury -55193-10-17 17:01 J -18437529.89 -18437529.79 -18437529.70 0.1790 0.1111
 Mercury -55183-03-10 01:40 J -18434099.55 -18434099.43 -18434099.31 0.1782 0.0335
 Mercury -55182-01-04 09:06 J -18433799.18 -18433799.12 -18433799.04 0.1751 0.1558
 Mercury -55174-07-31 10:33 J -18430669.18 -18430669.06 -18430668.94 0.1774 0.0424
 Mercury -55173-05-26 09:35 J -18430369.25 -18430369.10 -18430368.95 0.1760 0.0417
 Venus -55167-09-08 20:09 J -18428072.83 -18428072.66 -18428072.48 0.1588 0.0094
 Mercury -55165-12-20 19:11 J -18427238.79 -18427238.70 -18427238.61 0.1765 0.1190
 Mercury -55164-10-16 10:18 J -18426939.22 -18426939.07 -18426938.93 0.1769 0.0716
 Mercury -55153-04-17 17:01 J -18423102.88 -18423102.79 -18423102.71 0.1791 0.1203
 Mercury -55144-09-08 01:54 J -18419672.54 -18419672.42 -18419672.31 0.1782 0.0441
 Mercury -55143-07-05 09:35 J -18419372.14 -18419372.10 -18419372.06 0.1751 0.1677
 Earth -55135-01-13 06:57 J -18416623.38 -18416623.21 -18416623.04 0.1749 0.0758
 Moon -55135-01-13 14:37 J -18416623.06 -18416622.89 -18416622.72 0.1749 0.0917 *
 Mercury -55134-01-29 10:18 J -18416242.18 -18416242.07 -18416241.95 0.1774 0.0345
 Mercury -55134-11-25 10:18 J -18415942.22 -18415942.07 -18415941.92 0.1760 0.0561
 Venus -55132-06-09 16:47 J -18415379.97 -18415379.80 -18415379.63 0.1954 0.0077
 Mercury -55125-06-20 19:11 J -18412811.79 -18412811.70 -18412811.60 0.1766 0.1093
 Mercury -55124-04-16 10:47 J -18412512.20 -18412512.05 -18412511.90 0.1769 0.0577

Mercury -55115-09-06 11:16 J -18409082.06 -18409082.03 -18409081.99 0.1778 0.1722
 Mercury -55114-10-17 17:01 J -18408675.87 -18408675.79 -18408675.71 0.1791 0.1303
 Mercury -55104-03-09 01:54 J -18405245.54 -18405245.42 -18405245.31 0.1782 0.0533
 Venus -55101-07-06 08:09 J -18404030.33 -18404030.16 -18404029.98 0.1587 0.0142
 Mercury -55095-07-30 10:33 J -18401815.18 -18401815.06 -18401814.94 0.1774 0.0237
 Mercury -55094-05-26 10:33 J -18401515.20 -18401515.06 -18401514.91 0.1760 0.0688
 Mercury -55086-12-20 19:11 J -18398384.80 -18398384.70 -18398384.60 0.1765 0.0998
 Mercury -55085-10-15 11:01 J -18398085.19 -18398085.04 -18398084.89 0.1769 0.0459
 Mercury -55075-03-07 11:59 J -18394655.07 -18394655.00 -18394654.93 0.1778 0.1573
 Mercury -55074-04-17 17:01 J -18394248.86 -18394248.79 -18394248.72 0.1791 0.1389
 Venus -55066-04-06 20:09 J -18391337.81 -18391337.66 -18391337.50 0.1956 0.0734
 Mercury -55065-09-07 01:54 J -18390818.54 -18390818.42 -18390818.31 0.1783 0.0624
 Mercury -55055-01-28 10:33 J -18387388.18 -18387388.06 -18387387.93 0.1774 0.0149
 Mercury -55055-11-24 11:01 J -18387088.18 -18387088.04 -18387087.90 0.1760 0.0816
 Mercury -55046-06-20 19:25 J -18383957.80 -18383957.69 -18383957.59 0.1766 0.0901
 Mercury -55045-04-15 11:45 J -18383658.16 -18383658.01 -18383657.85 0.1768 0.0314
 Mercury -55037-11-10 04:04 J -18380527.37 -18380527.33 -18380527.29 0.1758 0.1652
 Mercury -55036-09-05 12:13 J -18380228.07 -18380227.99 -18380227.90 0.1777 0.1460
 Venus -55035-05-03 20:37 J -18379987.81 -18379987.64 -18379987.46 0.1586 0.0349
 Mercury -55035-10-16 17:01 J -18379821.85 -18379821.79 -18379821.72 0.1791 0.1487
 Moon -55031-07-17 01:40 J -18378452.62 -18378452.43 -18378452.24 0.1783 0.0188
 Earth -55031-07-17 09:49 J -18378452.28 -18378452.09 -18378451.91 0.1783 0.0338 *
 Mercury -55025-03-08 01:54 J -18376391.53 -18376391.42 -18376391.31 0.1783 0.0720
 Mercury -55016-07-29 10:33 J -18372961.18 -18372961.06 -18372960.94 0.1774 0.0059
 Mercury -55015-05-25 11:45 J -18372661.14 -18372661.01 -18372660.87 0.1760 0.0965
 Mercury -55007-12-19 19:25 J -18369530.80 -18369530.69 -18369530.58 0.1766 0.0803
 Mercury -55006-10-15 12:13 J -18369231.14 -18369230.99 -18369230.83 0.1768 0.0183
 Venus -55003-05-02 14:37 J -18368300.94 -18368300.89 -18368300.84 0.1589 0.1526

55TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 55th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Venus | -55000-01-31 22:33 J | -18367295.66 | -18367295.56 | -18367295.46 | 0.1957 | 0.1575 | | |
| Mercury | -54997-05-11 04:04 J | -18366100.38 | -18366100.33 | -18366100.27 | 0.1758 | 0.1557 | | |
| Mercury | -54996-03-06 12:57 J | -18365801.07 | -18365800.96 | -18365800.86 | 0.1777 | 0.1323 | | |
| Mercury | -54995-04-16 17:16 J | -18365394.84 | -18365394.78 | -18365394.73 | 0.1791 | 0.1584 | | |
| Mercury | -54986-09-07 01:54 J | -18361964.53 | -18361964.42 | -18361964.31 | 0.1783 | 0.0814 | | |
| Mercury | -54976-01-27 10:47 J | -18358534.17 | -18358534.05 | -18358533.93 | 0.1774 | 0.0062 | | |
| Mercury | -54976-11-23 12:13 J | -18358234.11 | -18358233.99 | -18358233.87 | 0.1759 | 0.1085 | | |
| Venus | -54969-02-29 09:06 J | -18355945.29 | -18355945.12 | -18355944.95 | 0.1585 | 0.0561 | | |
| Mercury | -54967-06-19 19:25 J | -18355103.80 | -18355103.69 | -18355103.58 | 0.1766 | 0.0709 | | |
| Mercury | -54966-04-15 12:42 J | -18354804.13 | -18354803.97 | -18354803.81 | 0.1768 | 0.0053 | | |
| Mercury | -54958-11-10 04:04 J | -18351673.39 | -18351673.33 | -18351673.26 | 0.1758 | 0.1466 | | |
| Mercury | -54957-09-04 13:25 J | -18351374.05 | -18351373.94 | -18351373.82 | 0.1777 | 0.1181 | | |
| Mercury | -54956-10-15 17:01 J | -18350967.83 | -18350967.79 | -18350967.75 | 0.1791 | 0.1672 | | |
| Moon | -54952-07-20 03:21 J | -18349594.49 | -18349594.36 | -18349594.21 | 0.1790 | 0.1322 | | |
| Earth | -54952-07-20 02:52 J | -18349594.47 | -18349594.38 | -18349594.28 | 0.1790 | 0.1552 | * | |
| Mercury | -54946-03-08 01:54 J | -18347537.52 | -18347537.42 | -18347537.31 | 0.1783 | 0.0906 | | |
| Venus | -54937-02-28 02:52 J | -18344258.48 | -18344258.38 | -18344258.28 | 0.1588 | 0.1308 | | |
| Mercury | -54937-07-28 10:47 J | -18344107.17 | -18344107.05 | -18344106.93 | 0.1774 | 0.0152 | | |
| Mercury | -54936-05-24 12:42 J | -18343807.08 | -18343806.97 | -18343806.86 | 0.1759 | 0.1220 | | |
| Moon | -54930-01-10 17:30 J | -18341749.90 | -18341749.77 | -18341749.64 | 0.1766 | 0.1232 | | |

Earth -54930-01-10 23:45 J -18341749.65 -18341749.51 -18341749.37 0.1766 0.1190 *
 Mercury -54928-12-18 19:25 J -18340676.80 -18340676.69 -18340676.57 0.1766 0.0618
 Mercury -54927-10-14 13:11 J -18340377.10 -18340376.95 -18340376.79 0.1768 0.0089
 Mercury -54918-05-11 04:18 J -18337246.40 -18337246.32 -18337246.25 0.1758 0.1365
 Mercury -54917-03-05 13:40 J -18336947.05 -18336946.93 -18336946.80 0.1777 0.1064
 Mercury -54916-04-15 17:16 J -18336540.80 -18336540.78 -18336540.77 0.1791 0.1765
 Mercury -54907-09-06 02:09 J -18333110.51 -18333110.41 -18333110.31 0.1783 0.1006
 Venus -54904-12-26 21:21 J -18331902.76 -18331902.61 -18331902.45 0.1584 0.0771
 Venus -54903-11-29 00:13 J -18331565.55 -18331565.49 -18331565.43 0.1953 0.1805
 Mercury -54897-01-27 10:47 J -18329680.17 -18329680.05 -18329679.93 0.1774 0.0235
 Mercury -54897-11-22 13:25 J -18329380.04 -18329379.94 -18329379.84 0.1759 0.1365
 Mercury -54888-06-18 19:40 J -18326249.80 -18326249.68 -18326249.56 0.1766 0.0516
 Mercury -54887-04-14 13:54 J -18325950.08 -18325949.92 -18325949.77 0.1768 0.0222
 Mercury -54879-11-09 04:18 J -18322819.40 -18322819.32 -18322819.23 0.1758 0.1266
 Mercury -54878-09-04 14:23 J -18322520.03 -18322519.90 -18322519.77 0.1777 0.0928
 Venus -54872-12-25 15:06 J -18320216.00 -18320215.87 -18320215.74 0.1587 0.1092
 Mercury -54867-03-07 02:09 J -18318683.51 -18318683.41 -18318683.32 0.1783 0.1097
 Mercury -54858-07-28 10:47 J -18315253.16 -18315253.05 -18315252.93 0.1775 0.0341
 Mercury -54857-05-23 13:54 J -18314953.01 -18314952.92 -18314952.84 0.1759 0.1488
 Moon -54851-01-13 10:18 J -18312892.26 -18312892.07 -18312891.87 0.1759 0.0405
 Earth -54851-01-13 16:18 J -18312892.00 -18312891.82 -18312891.64 0.1759 0.0602 *
 Mercury -54849-12-17 19:40 J -18311822.80 -18311822.68 -18311822.56 0.1766 0.0421
 Mercury -54848-10-13 14:09 J -18311523.06 -18311522.91 -18311522.75 0.1768 0.0348
 Mercury -54839-05-10 04:18 J -18308392.41 -18308392.32 -18308392.23 0.1758 0.1177
 Mercury -54838-03-05 15:06 J -18308093.01 -18308092.87 -18308092.73 0.1777 0.0781
 Venus -54838-10-24 10:04 J -18307860.22 -18307860.08 -18307859.94 0.1583 0.0977
 Venus -54837-09-25 02:23 J -18307523.55 -18307523.40 -18307523.25 0.1955 0.0949
 Mercury -54828-09-05 02:09 J -18304256.50 -18304256.41 -18304256.32 0.1783 0.1190
 Mercury -54818-01-26 11:01 J -18300826.16 -18300826.04 -18300825.92 0.1775 0.0434
 Mercury -54818-11-22 14:23 J -18300525.96 -18300525.90 -18300525.84 0.1759 0.1620

Mercury -54809-06-17 19:40 J -18297395.80 -18297395.68 -18297395.56 0.1766 0.0328
 Mercury -54808-04-13 14:52 J -18297096.03 -18297095.88 -18297095.73 0.1768 0.0488
 Venus -54806-10-23 03:35 J -18296173.50 -18296173.35 -18296173.20 0.1586 0.0876
 Mercury -54800-11-08 04:33 J -18293965.41 -18293965.31 -18293965.21 0.1758 0.1073
 Mercury -54799-09-03 15:21 J -18293666.01 -18293665.86 -18293665.72 0.1777 0.0668
 Mercury -54788-03-06 02:09 J -18289829.49 -18289829.41 -18289829.33 0.1783 0.1286
 Mercury -54779-07-27 11:01 J -18286399.16 -18286399.04 -18286398.93 0.1775 0.0523
 Venus -54772-08-20 22:18 J -18283817.68 -18283817.57 -18283817.45 0.1583 0.1187
 Venus -54771-07-23 05:30 J -18283481.44 -18283481.27 -18283481.10 0.1956 0.0143
 Mercury -54770-12-17 19:54 J -18282968.79 -18282968.67 -18282968.55 0.1767 0.0231
 Mercury -54769-10-12 15:21 J -18282669.01 -18282668.86 -18282668.71 0.1767 0.0618
 Mercury -54760-05-09 04:33 J -18279538.41 -18279538.31 -18279538.21 0.1758 0.0979
 Mercury -54759-03-04 15:49 J -18279238.99 -18279238.84 -18279238.69 0.1777 0.0527
 Mercury -54751-09-29 13:25 J -18276107.96 -18276107.94 -18276107.93 0.1750 0.1724
 Mercury -54750-07-25 16:33 J -18275808.86 -18275808.81 -18275808.76 0.1785 0.1669
 Mercury -54749-09-04 02:09 J -18275402.48 -18275402.41 -18275402.33 0.1783 0.1381
 Earth -54747-07-17 18:42 J -18274720.90 -18274720.72 -18274720.53 0.1774 0.0501
 Moon -54747-07-17 18:57 J -18274720.89 -18274720.71 -18274720.54 0.1774 0.0270 *
 Venus -54740-08-19 16:04 J -18272131.00 -18272130.83 -18272130.67 0.1585 0.0669
 Mercury -54739-01-25 11:01 J -18271972.15 -18271972.04 -18271971.93 0.1775 0.0621
 Mercury -54730-06-17 19:54 J -18268541.79 -18268541.67 -18268541.55 0.1766 0.0137
 Mercury -54729-04-12 15:49 J -18268241.98 -18268241.84 -18268241.70 0.1768 0.0752
 Mercury -54721-11-07 04:33 J -18265111.41 -18265111.31 -18265111.20 0.1758 0.0887
 Mercury -54720-09-02 16:33 J -18264811.96 -18264811.81 -18264811.66 0.1776 0.0384
 Mercury -54711-03-30 13:25 J -18261680.98 -18261680.94 -18261680.90 0.1750 0.1624
 Mercury -54710-01-23 17:01 J -18261381.87 -18261381.79 -18261381.72 0.1785 0.1541
 Mercury -54709-03-05 02:09 J -18260975.47 -18260975.41 -18260975.34 0.1784 0.1473
 Venus -54706-06-18 10:47 J -18259775.13 -18259775.05 -18259774.97 0.1582 0.1390
 Venus -54705-05-19 07:54 J -18259439.33 -18259439.17 -18259439.02 0.1958 0.0709
 Mercury -54700-07-26 11:16 J -18257545.14 -18257545.03 -18257544.92 0.1775 0.0721

Mercury -54691-12-16 19:54 J -18254114.79 -18254114.67 -18254114.55 0.1767 0.0040

Mercury -54690-10-12 16:18 J -18253814.95 -18253814.82 -18253814.68 0.1767 0.0887

Mercury -54681-05-08 04:47 J -18250684.41 -18250684.30 -18250684.19 0.1758 0.0787

Mercury -54680-03-03 16:47 J -18250384.95 -18250384.80 -18250384.65 0.1776 0.0265

Venus -54674-06-17 04:04 J -18248088.50 -18248088.33 -18248088.16 0.1585 0.0451

Mercury -54672-09-28 13:25 J -18247254.00 -18247253.94 -18247253.88 0.1750 0.1533

Mercury -54671-07-24 17:30 J -18246954.86 -18246954.77 -18246954.67 0.1785 0.1399

Mercury -54670-09-04 02:23 J -18246548.46 -18246548.40 -18246548.35 0.1783 0.1569

Moon -54668-07-20 04:18 J -18245863.47 -18245863.32 -18245863.17 0.1780 0.1019

Earth -54668-07-20 11:45 J -18245863.13 -18245863.01 -18245862.88 0.1781 0.1349

Mercury -54660-01-24 11:01 J -18243118.14 -18243118.04 -18243117.93 0.1775 0.0804

Mercury -54651-06-16 20:09 J -18239687.79 -18239687.66 -18239687.54 0.1767 0.0086

Mercury -54650-04-12 17:01 J -18239387.92 -18239387.79 -18239387.66 0.1767 0.1023

Earth -54646-01-11 07:40 J -18238018.29 -18238018.18 -18238018.07 0.1775 0.1425

Moon -54646-01-11 13:25 J -18238018.06 -18238017.94 -18238017.81 0.1775 0.1267

Mercury -54642-11-07 04:47 J -18236257.41 -18236257.30 -18236257.19 0.1759 0.0689

Mercury -54641-09-01 17:16 J -18235957.93 -18235957.78 -18235957.62 0.1776 0.0136

Venus -54639-03-16 11:16 J -18235397.14 -18235397.03 -18235396.92 0.1959 0.1505

Mercury -54632-03-29 13:40 J -18232827.00 -18232826.93 -18232826.87 0.1750 0.1436

Mercury -54631-01-22 17:59 J -18232527.86 -18232527.75 -18232527.64 0.1785 0.1274

Mercury -54630-03-05 02:23 J -18232121.44 -18232121.40 -18232121.36 0.1783 0.1659

Mercury -54621-07-25 11:16 J -18228691.13 -18228691.03 -18228690.93 0.1775 0.0905

Mercury -54612-12-15 20:09 J -18225260.79 -18225260.66 -18225260.54 0.1767 0.0166

Mercury -54611-10-11 17:30 J -18224960.89 -18224960.77 -18224960.65 0.1767 0.1154

Venus -54608-04-13 16:47 J -18224045.98 -18224045.80 -18224045.62 0.1584 0.0248

Mercury -54602-05-08 04:47 J -18221830.41 -18221830.30 -18221830.18 0.1759 0.0600

Mercury -54601-03-02 17:59 J -18221530.90 -18221530.75 -18221530.59 0.1776 0.0040

Mercury -54593-09-27 13:40 J -18218400.01 -18218399.93 -18218399.85 0.1751 0.1333

Mercury -54592-07-23 18:28 J -18218100.85 -18218100.73 -18218100.61 0.1785 0.1144

Mercury -54591-09-03 02:23 J -18217694.42 -18217694.40 -18217694.38 0.1784 0.1754

Mercury -54581-01-24 11:16 J -18214264.13 -18214264.03 -18214263.93 0.1775 0.1002
 Mercury -54572-06-15 20:09 J -18210833.78 -18210833.66 -18210833.54 0.1767 0.0247
 Mercury -54571-04-11 17:59 J -18210533.85 -18210533.75 -18210533.64 0.1767 0.1294
 Moon -54567-01-13 22:04 J -18209160.76 -18209160.58 -18209160.40 0.1768 0.0221
 Earth -54567-01-14 00:57 J -18209160.65 -18209160.46 -18209160.27 0.1768 0.0413 *
 Mercury -54563-11-06 05:01 J -18207403.41 -18207403.29 -18207403.18 0.1759 0.0499
 Mercury -54562-09-01 18:13 J -18207103.89 -18207103.74 -18207103.58 0.1776 0.0136
 Mercury -54553-03-28 13:40 J -18203973.02 -18203972.93 -18203972.85 0.1750 0.1246
 Mercury -54552-01-21 19:11 J -18203673.83 -18203673.70 -18203673.58 0.1785 0.1001
 Venus -54542-02-09 05:16 J -18200003.46 -18200003.28 -18200003.10 0.1583 0.0046
 Mercury -54542-07-25 11:16 J -18199837.12 -18199837.03 -18199836.93 0.1775 0.1089
 Venus -54541-01-11 12:57 J -18199667.00 -18199666.96 -18199666.91 0.1956 0.1882
 Mercury -54533-12-14 20:09 J -18196406.78 -18196406.66 -18196406.54 0.1767 0.0347
 Mercury -54532-10-10 18:28 J -18196106.82 -18196106.73 -18196106.64 0.1767 0.1422
 Mercury -54523-05-07 05:01 J -18192976.41 -18192976.29 -18192976.17 0.1759 0.0405
 Mercury -54522-03-02 18:57 J -18192676.86 -18192676.71 -18192676.56 0.1776 0.0275
 Mercury -54514-09-27 13:54 J -18189546.02 -18189545.92 -18189545.83 0.1751 0.1144
 Mercury -54513-07-22 19:25 J -18189246.82 -18189246.69 -18189246.55 0.1785 0.0875
 Mercury -54502-01-23 11:30 J -18185410.11 -18185410.02 -18185409.93 0.1776 0.1187
 Mercury -54493-06-14 20:09 J -18181979.78 -18181979.66 -18181979.54 0.1767 0.0435
 Mercury -54492-04-10 19:11 J -18181679.77 -18181679.70 -18181679.63 0.1767 0.1561
 Mercury -54484-11-05 05:01 J -18178549.41 -18178549.29 -18178549.17 0.1759 0.0311
 Mercury -54483-08-31 19:40 J -18178249.83 -18178249.68 -18178249.53 0.1775 0.0419
 Venus -54477-12-06 17:30 J -18175960.95 -18175960.77 -18175960.59 0.1582 0.0173
 Venus -54476-11-07 15:21 J -18175625.00 -18175624.86 -18175624.71 0.1957 0.1036
 Mercury -54474-03-28 13:54 J -18175119.02 -18175118.92 -18175118.82 0.1751 0.1046
 Mercury -54473-01-21 19:54 J -18174819.81 -18174819.67 -18174819.53 0.1785 0.0745
 Earth -54463-07-18 05:59 J -18170989.43 -18170989.25 -18170989.07 0.1765 0.0614
 Moon -54463-07-18 12:28 J -18170989.17 -18170988.98 -18170988.78 0.1765 0.0326 *
 Mercury -54463-07-24 11:30 J -18170983.10 -18170983.02 -18170982.94 0.1776 0.1283

Mercury -54454-12-14 20:23 J -18167552.77 -18167552.65 -18167552.54 0.1767 0.0532

Mercury -54453-10-09 19:40 J -18167252.72 -18167252.68 -18167252.64 0.1766 0.1693

Mercury -54444-05-06 05:16 J -18164122.41 -18164122.28 -18164122.16 0.1759 0.0222

Mercury -54443-03-01 19:54 J -18163822.82 -18163822.67 -18163822.52 0.1775 0.0537

Mercury -54435-09-26 13:54 J -18160692.02 -18160691.92 -18160691.82 0.1751 0.0957

Mercury -54434-07-22 20:37 J -18160392.79 -18160392.64 -18160392.49 0.1784 0.0600

Mercury -54425-02-16 22:47 J -18157261.58 -18157261.55 -18157261.52 0.1743 0.1685

Mercury -54425-12-11 21:06 J -18156962.65 -18156962.62 -18156962.59 0.1793 0.1757

Mercury -54423-01-22 11:30 J -18156556.10 -18156556.02 -18156555.95 0.1776 0.1369

Mercury -54414-06-14 20:23 J -18153125.76 -18153125.65 -18153125.54 0.1768 0.0629

Venus -54411-10-04 06:13 J -18151918.42 -18151918.24 -18151918.07 0.1582 0.0377

Venus -54410-09-04 17:45 J -18151582.93 -18151582.76 -18151582.59 0.1959 0.0184

Mercury -54405-11-04 05:16 J -18149695.40 -18149695.28 -18149695.16 0.1759 0.0118

Mercury -54404-08-30 20:23 J -18149395.79 -18149395.65 -18149395.50 0.1775 0.0677

Mercury -54395-03-27 13:54 J -18146265.02 -18146264.92 -18146264.81 0.1751 0.0861

Mercury -54394-01-20 20:52 J -18145965.78 -18145965.63 -18145965.48 0.1784 0.0480

Mercury -54386-08-17 22:47 J -18142834.60 -18142834.55 -18142834.50 0.1743 0.1588

Mercury -54385-06-11 21:35 J -18142535.66 -18142535.60 -18142535.54 0.1793 0.1631

Earth -54384-07-20 22:04 J -18142131.72 -18142131.58 -18142131.44 0.1771 0.1191

Moon -54384-07-21 02:23 J -18142131.54 -18142131.40 -18142131.26 0.1772 0.1100 *

Mercury -54384-07-23 11:30 J -18142129.08 -18142129.02 -18142128.95 0.1776 0.1470

Venus -54379-10-02 23:45 J -18140231.58 -18140231.51 -18140231.45 0.1584 0.1462

Mercury -54375-12-13 20:23 J -18138698.76 -18138698.65 -18138698.54 0.1767 0.0717

Mercury -54365-05-05 05:16 J -18135268.40 -18135268.28 -18135268.16 0.1760 0.0032

Mercury -54364-02-28 21:06 J -18134968.76 -18134968.62 -18134968.48 0.1775 0.0817

Moon -54362-01-11 15:06 J -18134286.98 -18134286.87 -18134286.75 0.1785 0.1503

Earth -54362-01-11 14:37 J -18134286.95 -18134286.89 -18134286.84 0.1785 0.1710 *

Mercury -54356-09-25 14:09 J -18131838.02 -18131837.91 -18131837.80 0.1751 0.0758

Mercury -54355-07-21 21:35 J -18131538.76 -18131538.60 -18131538.45 0.1784 0.0349

Mercury -54346-02-15 22:47 J -18128407.61 -18128407.55 -18128407.48 0.1743 0.1495

Mercury -54346-12-11 22:04 J -18128108.66 -18128108.58 -18128108.50 0.1793 0.1495
 Venus -54345-07-31 18:28 J -18127875.90 -18127875.73 -18127875.56 0.1581 0.0585
 Mercury -54344-01-21 11:45 J -18127702.07 -18127702.01 -18127701.96 0.1776 0.1563
 Venus -54344-07-01 20:37 J -18127540.80 -18127540.64 -18127540.47 0.1959 0.0628
 Mercury -54335-06-13 20:23 J -18124271.75 -18124271.65 -18124271.54 0.1768 0.0814
 Mercury -54326-11-04 05:16 J -18120841.40 -18120841.28 -18120841.15 0.1759 0.0101
 Mercury -54325-08-29 21:21 J -18120541.74 -18120541.61 -18120541.47 0.1775 0.0937
 Mercury -54316-03-26 14:09 J -18117411.02 -18117410.91 -18117410.80 0.1751 0.0672
 Mercury -54315-01-19 22:04 J -18117111.73 -18117111.58 -18117111.42 0.1784 0.0203
 Venus -54313-07-30 11:59 J -18116189.10 -18116189.00 -18116188.89 0.1584 0.1255
 Mercury -54307-08-16 23:01 J -18113980.61 -18113980.54 -18113980.47 0.1744 0.1396
 Mercury -54306-06-11 22:33 J -18113681.66 -18113681.56 -18113681.46 0.1793 0.1361
 Mercury -54305-07-22 11:30 J -18113275.06 -18113275.02 -18113274.97 0.1776 0.1651
 Mercury -54296-12-12 20:37 J -18109844.75 -18109844.64 -18109844.54 0.1768 0.0910
 Mercury -54286-05-05 05:30 J -18106414.40 -18106414.27 -18106414.15 0.1760 0.0173
 Mercury -54285-02-28 22:04 J -18106114.70 -18106114.58 -18106114.46 0.1775 0.1078
 Earth -54283-01-14 07:54 J -18105429.36 -18105429.17 -18105428.98 0.1778 0.0175
 Moon -54283-01-14 15:35 J -18105429.04 -18105428.85 -18105428.66 0.1777 0.0108 *
 Venus -54279-05-29 06:57 J -18103833.36 -18103833.21 -18103833.05 0.1581 0.0788
 Venus -54278-04-28 23:01 J -18103498.65 -18103498.54 -18103498.43 0.1960 0.1472
 Mercury -54277-09-24 14:23 J -18102984.02 -18102983.90 -18102983.79 0.1752 0.0573
 Mercury -54276-07-20 22:33 J -18102684.72 -18102684.56 -18102684.41 0.1784 0.0088
 Mercury -54267-02-14 23:01 J -18099553.62 -18099553.54 -18099553.46 0.1743 0.1303
 Mercury -54267-12-10 23:01 J -18099254.65 -18099254.54 -18099254.43 0.1793 0.1238
 Mercury -54265-01-21 11:45 J -18098848.03 -18098848.01 -18098847.99 0.1776 0.1745
 Mercury -54256-06-12 20:37 J -18095417.74 -18095417.64 -18095417.54 0.1768 0.0997
 Venus -54247-05-28 00:13 J -18092146.62 -18092146.49 -18092146.35 0.1583 0.1039
 Mercury -54247-11-03 05:30 J -18091987.39 -18091987.27 -18091987.15 0.1760 0.0259
 Mercury -54246-08-29 22:47 J -18091687.67 -18091687.55 -18091687.44 0.1774 0.1218
 Mercury -54237-03-25 14:23 J -18088557.02 -18088556.90 -18088556.78 0.1752 0.0475

Mercury -54236-01-18 23:01 J -18088257.70 -18088257.54 -18088257.39 0.1784 0.0064

Mercury -54228-08-15 23:16 J -18085126.62 -18085126.53 -18085126.45 0.1744 0.1208

Mercury -54227-06-10 23:30 J -18084827.64 -18084827.52 -18084827.40 0.1793 0.1098

Mercury -54217-12-11 20:37 J -18080990.73 -18080990.64 -18080990.54 0.1768 0.1093

Venus -54213-03-25 19:25 J -18079790.83 -18079790.69 -18079790.55 0.1580 0.0994

Mercury -54207-05-04 05:30 J -18077560.39 -18077560.27 -18077560.15 0.1760 0.0355

Mercury -54206-02-27 23:01 J -18077260.64 -18077260.54 -18077260.44 0.1775 0.1337

Mercury -54198-09-24 14:23 J -18074130.02 -18074129.90 -18074129.78 0.1752 0.0388

Mercury -54197-07-19 23:45 J -18073830.67 -18073830.51 -18073830.36 0.1783 0.0203

Mercury -54188-02-13 23:16 J -18070699.62 -18070699.53 -18070699.44 0.1744 0.1110

Mercury -54188-12-09 23:59 J -18070400.63 -18070400.50 -18070400.37 0.1792 0.0968

Venus -54181-03-24 12:57 J -18068104.11 -18068103.96 -18068103.81 0.1582 0.0840

Venus -54180-02-23 01:25 J -18067768.46 -18067768.44 -18067768.41 0.1958 0.1932

Moon -54179-07-18 12:42 J -18067258.16 -18067257.97 -18067257.79 0.1755 0.0633

Earth -54179-07-18 18:28 J -18067257.90 -18067257.73 -18067257.55 0.1756 0.0690 *

Mercury -54177-06-11 20:52 J -18066563.72 -18066563.63 -18066563.55 0.1768 0.1190

Mercury -54168-11-02 05:30 J -18063133.38 -18063133.27 -18063133.15 0.1760 0.0451

Mercury -54167-08-28 23:30 J -18062833.60 -18062833.52 -18062833.43 0.1774 0.1478

Mercury -54158-03-25 14:23 J -18059703.02 -18059702.90 -18059702.78 0.1752 0.0293

Mercury -54157-01-18 23:59 J -18059403.65 -18059403.50 -18059403.35 0.1783 0.0318

Mercury -54149-08-14 23:16 J -18056272.63 -18056272.53 -18056272.43 0.1744 0.1017

Mercury -54148-06-10 00:28 J -18055973.61 -18055973.48 -18055973.34 0.1793 0.0837

Venus -54147-01-21 07:54 J -18055748.28 -18055748.17 -18055748.05 0.1580 0.1195

Mercury -54138-12-11 20:37 J -18052136.72 -18052136.64 -18052136.55 0.1768 0.1274

Mercury -54128-05-03 05:45 J -18048706.38 -18048706.26 -18048706.15 0.1760 0.0541

Mercury -54127-02-27 00:13 J -18048406.55 -18048406.49 -18048406.43 0.1774 0.1616

Mercury -54119-09-23 14:37 J -18045276.01 -18045275.89 -18045275.77 0.1752 0.0192

Mercury -54118-07-20 00:28 J -18044976.63 -18044976.48 -18044976.33 0.1783 0.0452

Venus -54115-01-20 01:11 J -18044061.61 -18044061.45 -18044061.29 0.1582 0.0626

Venus -54115-12-21 04:18 J -18043726.46 -18043726.32 -18043726.18 0.1959 0.1112

Mercury -54109-02-13 23:16 J -18041845.63 -18041845.53 -18041845.42 0.1744 0.0926

Mercury -54109-12-09 00:57 J -18041546.60 -18041546.46 -18041546.32 0.1792 0.0705

Mercury -54100-07-06 08:09 J -18038415.19 -18038415.16 -18038415.12 0.1736 0.1644

Earth -54100-07-21 09:35 J -18038400.25 -18038400.10 -18038399.95 0.1762 0.1065

Moon -54100-07-21 12:57 J -18038400.12 -18038399.96 -18038399.79 0.1762 0.1025 *

Mercury -54098-06-11 20:52 J -18037709.71 -18037709.63 -18037709.56 0.1768 0.1370

Mercury -54089-11-01 05:45 J -18034279.37 -18034279.26 -18034279.15 0.1760 0.0635

Mercury -54088-08-28 00:28 J -18033979.50 -18033979.48 -18033979.45 0.1774 0.1737

Venus -54082-11-18 19:54 J -18031705.74 -18031705.67 -18031705.59 0.1580 0.1410

Mercury -54079-03-24 14:37 J -18030849.02 -18030848.89 -18030848.77 0.1752 0.0120

Mercury -54078-01-18 01:11 J -18030549.60 -18030549.45 -18030549.31 0.1783 0.0596

Mercury -54070-08-14 23:30 J -18027418.63 -18027418.52 -18027418.41 0.1744 0.0826

Mercury -54069-06-09 01:25 J -18027119.58 -18027119.44 -18027119.29 0.1792 0.0573

Mercury -54060-01-04 08:23 J -18023988.21 -18023988.15 -18023988.10 0.1736 0.1550

Mercury -54060-10-30 01:54 J -18023689.45 -18023689.42 -18023689.38 0.1801 0.1733

Mercury -54059-12-10 20:52 J -18023282.69 -18023282.63 -18023282.56 0.1769 0.1466

Venus -54050-11-17 13:40 J -18020019.11 -18020018.93 -18020018.76 0.1581 0.0421

Mercury -54049-05-02 05:45 J -18019852.37 -18019852.26 -18019852.15 0.1760 0.0724

Venus -54049-10-17 06:13 J -18019684.40 -18019684.24 -18019684.07 0.1960 0.0257

Mercury -54040-09-22 14:37 J -18016422.01 -18016421.89 -18016421.77 0.1752 0.0034

Mercury -54039-07-19 01:25 J -18016122.58 -18016122.44 -18016122.30 0.1783 0.0713

Mercury -54030-02-12 23:30 J -18012991.63 -18012991.52 -18012991.41 0.1744 0.0736

Mercury -54030-12-09 01:54 J -18012692.57 -18012692.42 -18012692.27 0.1792 0.0444

Mercury -54021-07-05 08:23 J -18009561.22 -18009561.15 -18009561.09 0.1736 0.1458

Mercury -54020-04-30 02:37 J -18009262.46 -18009262.39 -18009262.32 0.1801 0.1588

Mercury -54019-06-10 20:52 J -18008855.69 -18008855.63 -18008855.58 0.1768 0.1549

Mercury -54010-11-01 05:45 J -18005425.36 -18005425.26 -18005425.15 0.1761 0.0821

54TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 54th millennium BCE.

| PLANET | MAX- | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|----------------------|--------------|--------------|--------------|--------|--------|-------|---|
| TRANSIT | | | | | | | | |
| TIME | | | | | | | | |
| Mercury | -54000-03-23 14:37 J | -18001995.01 | -18001994.89 | -18001994.76 | 0.1752 | 0.0106 | | |
| Moon | -53999-01-14 08:23 J | -18001698.35 | -18001698.15 | -18001697.95 | 0.1788 | 0.0476 | | |
| Earth | -53999-01-14 12:57 J | -18001698.15 | -18001697.96 | -18001697.76 | 0.1787 | 0.0139 | * | |
| Mercury | -53999-01-17 01:54 J | -18001695.56 | -18001695.42 | -18001695.28 | 0.1783 | 0.0846 | | |
| Mercury | -53991-08-13 23:30 J | -17998564.63 | -17998564.52 | -17998564.40 | 0.1744 | 0.0643 | | |
| Mercury | -53990-06-09 02:23 J | -17998265.55 | -17998265.40 | -17998265.25 | 0.1792 | 0.0309 | | |
| Venus | -53984-09-14 02:09 J | -17995976.59 | -17995976.41 | -17995976.23 | 0.1581 | 0.0214 | | |
| Venus | -53983-08-14 08:37 J | -17995642.30 | -17995642.14 | -17995641.98 | 0.1961 | 0.0596 | | |
| Mercury | -53981-01-04 08:23 J | -17995134.22 | -17995134.15 | -17995134.07 | 0.1736 | 0.1361 | | |
| Mercury | -53981-10-29 02:52 J | -17994835.47 | -17994835.38 | -17994835.30 | 0.1801 | 0.1478 | | |
| Mercury | -53980-12-09 20:52 J | -17994428.67 | -17994428.63 | -17994428.58 | 0.1769 | 0.1645 | | |
| Mercury | -53970-05-02 05:45 J | -17990998.36 | -17990998.26 | -17990998.15 | 0.1760 | 0.0912 | | |
| Mercury | -53961-09-21 14:37 J | -17987568.01 | -17987567.89 | -17987567.76 | 0.1752 | 0.0187 | | |
| Mercury | -53960-07-18 02:37 J | -17987268.52 | -17987268.39 | -17987268.26 | 0.1783 | 0.0994 | | |
| Mercury | -53951-02-11 23:45 J | -17984137.63 | -17984137.51 | -17984137.40 | 0.1745 | 0.0545 | | |
| Mercury | -53951-12-08 02:52 J | -17983838.53 | -17983838.38 | -17983838.23 | 0.1792 | 0.0181 | | |
| Mercury | -53942-07-05 08:37 J | -17980707.23 | -17980707.14 | -17980707.06 | 0.1736 | 0.1266 | | |
| Mercury | -53941-04-29 03:21 J | -17980408.46 | -17980408.36 | -17980408.25 | 0.1801 | 0.1339 | | |
| Mercury | -53940-06-09 21:06 J | -17980001.64 | -17980001.62 | -17980001.60 | 0.1769 | 0.1739 | | |
| Mercury | -53931-10-31 05:59 J | -17976571.35 | -17976571.25 | -17976571.15 | 0.1760 | 0.1003 | | |
| Mercury | -53921-03-22 14:52 J | -17973141.00 | -17973140.88 | -17973140.76 | 0.1752 | 0.0273 | | |
| Mercury | -53920-01-16 02:52 J | -17972841.50 | -17972841.38 | -17972841.26 | 0.1782 | 0.1109 | | |

Earth -53920-01-17 06:57 J -17972840.24 -17972840.21 -17972840.19 0.1780 0.1760
 Venus -53918-07-12 14:23 J -17971934.08 -17971933.90 -17971933.72 0.1581 0.0020
 Venus -53917-06-10 11:30 J -17971600.14 -17971600.02 -17971599.91 0.1961 0.1411
 Mercury -53912-08-12 23:45 J -17969710.63 -17969710.51 -17969710.39 0.1744 0.0455
 Mercury -53911-06-08 03:21 J -17969411.51 -17969411.36 -17969411.20 0.1792 0.0051
 Mercury -53902-01-03 08:37 J -17966280.23 -17966280.14 -17966280.05 0.1737 0.1177
 Mercury -53902-10-29 04:04 J -17965981.45 -17965981.33 -17965981.22 0.1800 0.1203
 Moon -53895-07-19 04:33 J -17963526.47 -17963526.31 -17963526.14 0.1747 0.0729
 Earth -53895-07-19 07:11 J -17963526.37 -17963526.20 -17963526.03 0.1747 0.0758 *
 Mercury -53891-05-01 05:59 J -17962144.34 -17962144.25 -17962144.16 0.1761 0.1093
 Mercury -53882-09-21 14:52 J -17958714.00 -17958713.88 -17958713.76 0.1753 0.0370
 Mercury -53881-07-17 03:21 J -17958414.47 -17958414.36 -17958414.25 0.1782 0.1245
 Mercury -53872-02-10 23:45 J -17955283.63 -17955283.51 -17955283.39 0.1744 0.0362
 Mercury -53872-12-07 03:49 J -17954984.50 -17954984.34 -17954984.19 0.1791 0.0083
 Mercury -53863-07-04 08:37 J -17951853.23 -17951853.14 -17951853.04 0.1737 0.1078
 Mercury -53862-04-29 04:18 J -17951554.44 -17951554.32 -17951554.20 0.1800 0.1085
 Venus -53852-05-09 02:52 J -17947891.56 -17947891.38 -17947891.20 0.1580 0.0202
 Mercury -53852-10-30 05:59 J -17947717.34 -17947717.25 -17947717.16 0.1761 0.1187
 Mercury -53842-03-22 14:52 J -17944287.00 -17944286.88 -17944286.76 0.1753 0.0451
 Mercury -53841-01-16 04:04 J -17943987.42 -17943987.33 -17943987.23 0.1782 0.1387
 Mercury -53833-08-11 23:59 J -17940856.62 -17940856.50 -17940856.38 0.1745 0.0267
 Mercury -53832-06-07 04:18 J -17940557.47 -17940557.32 -17940557.17 0.1791 0.0214
 Mercury -53823-01-02 08:52 J -17937426.24 -17937426.13 -17937426.03 0.1737 0.0987
 Mercury -53823-10-28 04:47 J -17937127.43 -17937127.30 -17937127.17 0.1800 0.0950
 Moon -53816-07-21 14:09 J -17934669.08 -17934668.91 -17934668.74 0.1753 0.0812
 Earth -53816-07-21 21:49 J -17934668.75 -17934668.59 -17934668.43 0.1753 0.0954 *
 Mercury -53814-05-25 17:30 J -17933995.78 -17933995.77 -17933995.75 0.1729 0.1702
 Mercury -53812-04-30 05:59 J -17933290.33 -17933290.25 -17933290.17 0.1761 0.1274
 Mercury -53803-09-20 15:06 J -17929859.99 -17929859.87 -17929859.76 0.1753 0.0553
 Mercury -53802-07-17 04:18 J -17929560.40 -17929560.32 -17929560.24 0.1782 0.1504

Mercury -53793-02-10 23:59 J -17926429.63 -17926429.50 -17926429.38 0.1745 0.0187

Mercury -53793-12-06 04:47 J -17926130.45 -17926130.30 -17926130.15 0.1791 0.0346

Venus -53786-03-06 15:06 J -17923849.04 -17923848.87 -17923848.69 0.1580 0.0412

Mercury -53784-07-03 08:52 J -17922999.24 -17922999.13 -17922999.03 0.1737 0.0894

Mercury -53783-04-28 05:30 J -17922700.41 -17922700.27 -17922700.14 0.1800 0.0811

Mercury -53775-11-23 17:45 J -17919568.81 -17919568.76 -17919568.72 0.1729 0.1606

Mercury -53773-10-29 06:13 J -17918863.32 -17918863.24 -17918863.17 0.1761 0.1370

Mercury -53763-03-21 15:06 J -17915432.98 -17915432.87 -17915432.76 0.1753 0.0643

Mercury -53762-01-15 04:47 J -17915133.35 -17915133.30 -17915133.24 0.1782 0.1638

Venus -53754-03-05 08:37 J -17912162.22 -17912162.14 -17912162.06 0.1581 0.1409

Mercury -53754-08-11 23:59 J -17912002.62 -17912002.50 -17912002.38 0.1745 0.0082

Venus -53753-02-02 15:49 J -17911827.98 -17911827.84 -17911827.70 0.1960 0.1124

Mercury -53753-06-06 05:16 J -17911703.43 -17911703.28 -17911703.13 0.1791 0.0478

Mercury -53744-01-01 08:52 J -17908572.24 -17908572.13 -17908572.02 0.1737 0.0798

Mercury -53744-10-27 05:30 J -17908273.41 -17908273.27 -17908273.13 0.1800 0.0700

Mercury -53735-05-24 17:45 J -17905141.82 -17905141.76 -17905141.71 0.1729 0.1520

Mercury -53733-04-29 06:13 J -17904436.31 -17904436.24 -17904436.18 0.1761 0.1457

Mercury -53724-09-19 15:06 J -17901005.98 -17901005.87 -17901005.76 0.1753 0.0730

Venus -53720-01-01 03:35 J -17899806.52 -17899806.35 -17899806.19 0.1580 0.0615

Moon -53715-01-14 10:18 J -17897967.23 -17897967.07 -17897966.91 0.1798 0.0899

Earth -53715-01-14 15:35 J -17897967.04 -17897966.85 -17897966.67 0.1797 0.0536 *

Mercury -53714-02-09 23:59 J -17897575.62 -17897575.50 -17897575.37 0.1745 0.0056

Mercury -53714-12-06 05:45 J -17897276.41 -17897276.26 -17897276.12 0.1791 0.0604

Mercury -53705-07-02 08:52 J -17894145.24 -17894145.13 -17894145.01 0.1737 0.0707

Mercury -53704-04-27 06:13 J -17893846.39 -17893846.24 -17893846.10 0.1800 0.0559

Mercury -53696-11-22 17:45 J -17890714.83 -17890714.76 -17890714.69 0.1729 0.1421

Mercury -53695-09-17 06:42 J -17890416.26 -17890416.22 -17890416.18 0.1809 0.1726

Mercury -53694-10-29 06:13 J -17890009.30 -17890009.24 -17890009.19 0.1761 0.1548

Venus -53689-12-30 20:37 J -17888119.75 -17888119.64 -17888119.52 0.1581 0.1195

Venus -53688-11-29 18:42 J -17887785.89 -17887785.72 -17887785.55 0.1960 0.0302

Mercury -53684-03-20 15:06 J -17886578.97 -17886578.87 -17886578.76 0.1753 0.0825
 Mercury -53675-08-10 23:59 J -17883148.62 -17883148.50 -17883148.38 0.1745 0.0105
 Mercury -53674-06-06 06:13 J -17882849.38 -17882849.24 -17882849.10 0.1791 0.0741
 Mercury -53665-01-01 09:06 J -17879718.24 -17879718.12 -17879718.01 0.1737 0.0618
 Mercury -53665-10-26 06:42 J -17879419.37 -17879419.22 -17879419.07 0.1799 0.0424
 Mercury -53656-05-23 17:59 J -17876287.83 -17876287.75 -17876287.68 0.1730 0.1325
 Mercury -53655-03-18 07:11 J -17875989.27 -17875989.20 -17875989.13 0.1809 0.1595
 Venus -53655-10-29 15:49 J -17875764.00 -17875763.84 -17875763.69 0.1579 0.0826
 Mercury -53654-04-29 06:13 J -17875582.28 -17875582.24 -17875582.20 0.1761 0.1638
 Mercury -53645-09-18 15:06 J -17872151.97 -17872151.87 -17872151.76 0.1753 0.0919
 Moon -53636-01-17 02:09 J -17869109.50 -17869109.41 -17869109.31 0.1791 0.1561
 Earth -53636-01-17 10:04 J -17869109.19 -17869109.08 -17869108.96 0.1790 0.1420
 Mercury -53635-02-09 00:13 J -17868721.62 -17868721.49 -17868721.37 0.1745 0.0199
 Mercury -53635-12-05 06:42 J -17868422.36 -17868422.22 -17868422.09 0.1790 0.0868
 Mercury -53626-07-02 09:06 J -17865291.24 -17865291.12 -17865291.00 0.1737 0.0519
 Mercury -53625-04-26 06:57 J -17864992.36 -17864992.21 -17864992.06 0.1800 0.0306
 Venus -53623-10-28 09:21 J -17864077.25 -17864077.11 -17864076.97 0.1581 0.0992
 Venus -53622-09-26 20:37 J -17863743.80 -17863743.64 -17863743.48 0.1960 0.0557
 Mercury -53617-11-21 17:59 J -17861860.84 -17861860.75 -17861860.67 0.1730 0.1240
 Mercury -53616-09-16 07:40 J -17861562.27 -17861562.18 -17861562.09 0.1809 0.1457
 Mercury -53615-10-28 06:13 J -17861155.26 -17861155.24 -17861155.22 0.1761 0.1728
 Earth -53611-07-19 20:52 J -17859794.80 -17859794.63 -17859794.46 0.1738 0.0809
 Moon -53611-07-20 04:33 J -17859794.48 -17859794.31 -17859794.14 0.1739 0.0702 *
 Mercury -53605-03-19 15:06 J -17857724.97 -17857724.87 -17857724.77 0.1753 0.1002
 Mercury -53596-08-10 00:13 J -17854294.61 -17854294.49 -17854294.37 0.1745 0.0291
 Mercury -53595-06-05 07:11 J -17853995.33 -17853995.20 -17853995.07 0.1790 0.0998
 Venus -53589-08-26 04:04 J -17851721.46 -17851721.33 -17851721.19 0.1580 0.1027
 Mercury -53587-12-31 09:06 J -17850864.24 -17850864.12 -17850864.00 0.1737 0.0429
 Mercury -53586-10-26 07:25 J -17850565.34 -17850565.19 -17850565.03 0.1799 0.0176
 Mercury -53577-05-22 17:59 J -17847433.84 -17847433.75 -17847433.66 0.1730 0.1142

Mercury -53576-03-17 07:54 J -17847135.27 -17847135.17 -17847135.07 0.1808 0.1339

Mercury -53566-09-18 15:21 J -17843297.95 -17843297.86 -17843297.77 0.1753 0.1099

Venus -53557-08-24 21:35 J -17840034.75 -17840034.60 -17840034.44 0.1580 0.0782

Mercury -53556-02-08 00:13 J -17839867.61 -17839867.49 -17839867.37 0.1745 0.0374

Venus -53556-07-23 23:01 J -17839701.66 -17839701.54 -17839701.43 0.1961 0.1397

Mercury -53556-12-04 07:40 J -17839568.30 -17839568.18 -17839568.06 0.1791 0.1134

Mercury -53547-07-01 09:06 J -17836437.24 -17836437.12 -17836437.00 0.1738 0.0341

Mercury -53546-04-26 08:09 J -17836138.32 -17836138.16 -17836138.01 0.1799 0.0037

Mercury -53538-11-21 18:13 J -17833006.84 -17833006.74 -17833006.65 0.1730 0.1047

Mercury -53537-09-15 08:23 J -17832708.26 -17832708.15 -17832708.04 0.1808 0.1213

Earth -53532-07-22 10:04 J -17830937.25 -17830937.08 -17830936.92 0.1744 0.0852

Moon -53532-07-22 11:59 J -17830937.15 -17830937.00 -17830936.85 0.1744 0.0944 *

Mercury -53526-03-19 15:21 J -17828870.95 -17828870.86 -17828870.77 0.1753 0.1188

Venus -53523-06-23 16:18 J -17827678.93 -17827678.82 -17827678.72 0.1579 0.1240

Mercury -53517-08-09 00:13 J -17825440.60 -17825440.49 -17825440.37 0.1745 0.0473

Mercury -53516-06-04 08:09 J -17825141.27 -17825141.16 -17825141.05 0.1790 0.1262

Mercury -53508-12-30 09:21 J -17822010.24 -17822010.11 -17822009.99 0.1738 0.0248

Mercury -53507-10-25 08:23 J -17821711.31 -17821711.15 -17821711.00 0.1799 0.0091

Mercury -53498-05-22 17:59 J -17818579.85 -17818579.75 -17818579.64 0.1730 0.0962

Mercury -53497-03-16 09:06 J -17818281.24 -17818281.12 -17818281.00 0.1808 0.1065

Venus -53491-06-22 09:49 J -17815992.26 -17815992.09 -17815991.92 0.1580 0.0573

Mercury -53489-10-12 03:06 J -17815149.40 -17815149.37 -17815149.34 0.1723 0.1659

Mercury -53487-09-17 15:21 J -17814443.94 -17814443.86 -17814443.78 0.1754 0.1274

Mercury -53477-02-08 00:28 J -17811013.60 -17811013.48 -17811013.37 0.1746 0.0564

Mercury -53477-12-03 08:23 J -17810714.24 -17810714.15 -17810714.05 0.1790 0.1388

Mercury -53468-06-30 09:21 J -17807583.23 -17807583.11 -17807582.99 0.1738 0.0151

Mercury -53467-04-25 08:52 J -17807284.28 -17807284.13 -17807283.97 0.1799 0.0227

Mercury -53459-11-20 18:13 J -17804152.85 -17804152.74 -17804152.63 0.1730 0.0862

Mercury -53458-09-15 09:21 J -17803854.24 -17803854.11 -17803853.98 0.1808 0.0955

Venus -53457-04-20 04:33 J -17803636.37 -17803636.31 -17803636.23 0.1580 0.1442

Mercury -53449-04-12 03:06 J -17800722.42 -17800722.37 -17800722.32 0.1722 0.1571

Mercury -53447-03-18 15:21 J -17800016.93 -17800016.86 -17800016.78 0.1754 0.1369

Mercury -53438-08-09 00:28 J -17796586.60 -17796586.48 -17796586.37 0.1745 0.0650

Mercury -53437-06-03 09:06 J -17796287.19 -17796287.12 -17796287.04 0.1790 0.1531

Earth -53431-01-14 16:04 J -17794235.99 -17794235.83 -17794235.67 0.1807 0.1013

Moon -53431-01-14 23:59 J -17794235.65 -17794235.50 -17794235.35 0.1807 0.1125

Mercury -53429-12-29 09:21 J -17793156.23 -17793156.11 -17793155.99 0.1738 0.0063

Mercury -53428-10-24 09:21 J -17792857.26 -17792857.11 -17792856.96 0.1799 0.0358

Venus -53425-04-18 22:18 J -17791949.74 -17791949.57 -17791949.39 0.1580 0.0371

Mercury -53419-05-21 18:13 J -17789725.85 -17789725.74 -17789725.62 0.1730 0.0770

Mercury -53418-03-16 09:49 J -17789427.23 -17789427.09 -17789426.96 0.1808 0.0822

Mercury -53410-10-12 03:06 J -17786295.43 -17786295.37 -17786295.30 0.1722 0.1476

Mercury -53408-09-16 15:35 J -17785589.92 -17785589.85 -17785589.79 0.1754 0.1460

Mercury -53398-02-07 00:28 J -17782159.59 -17782159.48 -17782159.37 0.1746 0.0742

Mercury -53398-12-03 09:35 J -17781860.16 -17781860.10 -17781860.05 0.1790 0.1653

Venus -53392-03-17 04:04 J -17779929.47 -17779929.33 -17779929.20 0.1960 0.1154

Mercury -53389-06-29 09:35 J -17778729.23 -17778729.10 -17778728.98 0.1738 0.0075

Mercury -53388-04-24 09:49 J -17778430.24 -17778430.09 -17778429.94 0.1799 0.0477

Mercury -53380-11-19 18:13 J -17775298.85 -17775298.74 -17775298.62 0.1730 0.0683

Mercury -53379-09-14 10:18 J -17775000.21 -17775000.07 -17774999.93 0.1808 0.0683

Mercury -53370-04-12 03:21 J -17771868.43 -17771868.36 -17771868.29 0.1723 0.1382

Mercury -53368-03-17 15:35 J -17771162.91 -17771162.85 -17771162.80 0.1754 0.1545

Venus -53359-02-14 10:33 J -17767907.23 -17767907.06 -17767906.88 0.1580 0.0164

Mercury -53359-08-08 00:42 J -17767732.58 -17767732.47 -17767732.37 0.1746 0.0840

Mercury -53358-06-03 10:04 J -17767433.09 -17767433.08 -17767433.07 0.1790 0.1784

Earth -53352-01-17 11:45 J -17765378.17 -17765378.01 -17765377.85 0.1801 0.1013

Moon -53352-01-17 11:16 J -17765378.16 -17765378.03 -17765377.90 0.1801 0.1234 *

Mercury -53350-12-29 09:35 J -17764302.23 -17764302.10 -17764301.98 0.1738 0.0133

Mercury -53349-10-23 10:18 J -17764003.22 -17764003.07 -17764002.93 0.1799 0.0611

Mercury -53340-05-20 18:28 J -17760871.85 -17760871.73 -17760871.61 0.1730 0.0585

Mercury -53339-03-15 10:33 J -17760573.20 -17760573.06 -17760572.91 0.1808 0.0566

Mercury -53331-10-11 03:21 J -17757441.44 -17757441.36 -17757441.28 0.1723 0.1290

Mercury -53330-08-05 11:16 J -17757143.07 -17757143.03 -17757142.99 0.1817 0.1732

Mercury -53329-09-15 15:35 J -17756735.89 -17756735.85 -17756735.81 0.1754 0.1640

Moon -53327-07-20 10:18 J -17756063.25 -17756063.07 -17756062.89 0.1730 0.0880

Earth -53327-07-20 12:13 J -17756063.16 -17756062.99 -17756062.82 0.1730 0.0818 *

Venus -53326-01-12 06:13 J -17755887.41 -17755887.24 -17755887.08 0.1960 0.0315

Mercury -53319-02-06 00:28 J -17753305.58 -17753305.48 -17753305.37 0.1746 0.0920

Mercury -53310-06-29 09:35 J -17749875.22 -17749875.10 -17749874.98 0.1738 0.0215

Mercury -53309-04-23 10:47 J -17749576.19 -17749576.05 -17749575.91 0.1798 0.0751

Mercury -53301-11-18 18:28 J -17746444.84 -17746444.73 -17746444.61 0.1730 0.0492

Mercury -53300-09-13 11:01 J -17746146.19 -17746146.04 -17746145.89 0.1807 0.0437

Venus -53294-12-12 23:01 J -17743864.72 -17743864.54 -17743864.36 0.1580 0.0054

Mercury -53291-04-11 03:21 J -17743014.45 -17743014.36 -17743014.27 0.1723 0.1198

Mercury -53290-02-03 11:45 J -17742716.08 -17742716.01 -17742715.94 0.1816 0.1603

Mercury -53289-03-16 15:35 J -17742308.86 -17742308.85 -17742308.83 0.1754 0.1728

Mercury -53280-08-07 00:42 J -17738878.57 -17738878.47 -17738878.37 0.1746 0.1015

Mercury -53271-12-28 09:35 J -17735448.22 -17735448.10 -17735447.98 0.1738 0.0309

Mercury -53270-10-23 11:01 J -17735149.17 -17735149.04 -17735148.90 0.1799 0.0868

Mercury -53261-05-19 18:28 J -17732017.85 -17732017.73 -17732017.61 0.1731 0.0406

Venus -53261-11-08 08:52 J -17731845.29 -17731845.13 -17731844.96 0.1960 0.0506

Mercury -53260-03-14 11:45 J -17731719.16 -17731719.01 -17731718.86 0.1807 0.0290

Mercury -53252-10-10 03:35 J -17728587.45 -17728587.35 -17728587.26 0.1723 0.1101

Mercury -53251-08-04 11:59 J -17728289.08 -17728289.00 -17728288.91 0.1816 0.1477

Earth -53248-07-22 23:59 J -17727205.67 -17727205.50 -17727205.33 0.1736 0.0791

Moon -53248-07-23 06:42 J -17727205.39 -17727205.22 -17727205.06 0.1736 0.0980 *

Mercury -53240-02-05 00:42 J -17724451.56 -17724451.47 -17724451.37 0.1746 0.1109

Mercury -53231-06-28 09:35 J -17721021.21 -17721021.10 -17721020.98 0.1738 0.0403

Mercury -53230-04-23 11:45 J -17720722.14 -17720722.01 -17720721.88 0.1798 0.1009

Venus -53228-10-09 11:16 J -17719822.21 -17719822.03 -17719821.85 0.1580 0.0253

Mercury -53222-11-18 18:42 J -17717590.84 -17717590.72 -17717590.60 0.1731 0.0307

Mercury -53221-09-12 11:59 J -17717292.15 -17717292.00 -17717291.85 0.1807 0.0178

Mercury -53212-04-10 03:35 J -17714160.45 -17714160.35 -17714160.25 0.1723 0.1015

Mercury -53211-02-02 12:28 J -17713862.08 -17713861.98 -17713861.87 0.1816 0.1346

Mercury -53203-08-31 12:28 J -17710729.99 -17710729.98 -17710729.97 0.1716 0.1707

Mercury -53201-08-06 00:42 J -17710024.56 -17710024.47 -17710024.38 0.1746 0.1192

Venus -53196-10-08 04:47 J -17708135.33 -17708135.30 -17708135.27 0.1580 0.1554

Venus -53195-09-05 11:01 J -17707803.16 -17707803.04 -17707802.91 0.1960 0.1347

Mercury -53192-12-27 09:49 J -17706594.21 -17706594.09 -17706593.97 0.1739 0.0490

Mercury -53191-10-22 12:13 J -17706295.11 -17706294.99 -17706294.87 0.1798 0.1138

Mercury -53182-05-19 18:42 J -17703163.84 -17703163.72 -17703163.60 0.1731 0.0216

Mercury -53181-03-13 12:28 J -17702865.13 -17702864.98 -17702864.82 0.1807 0.0049

Mercury -53173-10-09 03:35 J -17699733.45 -17699733.35 -17699733.24 0.1723 0.0918

Mercury -53172-08-03 12:57 J -17699435.07 -17699434.96 -17699434.85 0.1816 0.1216

Mercury -53163-03-01 12:28 J -17696303.01 -17696302.98 -17696302.94 0.1716 0.1614

Venus -53162-08-06 23:30 J -17695779.69 -17695779.52 -17695779.35 0.1580 0.0455

Mercury -53161-02-05 00:42 J -17695597.55 -17695597.47 -17695597.38 0.1746 0.1287

Mercury -53152-06-27 09:49 J -17692167.21 -17692167.09 -17692166.97 0.1738 0.0580

Mercury -53151-04-22 12:42 J -17691868.08 -17691867.97 -17691867.86 0.1798 0.1264

Moon -53147-01-14 12:57 J -17690505.00 -17690504.96 -17690504.92 0.1818 0.1777

Earth -53147-01-14 15:21 J -17690504.95 -17690504.86 -17690504.76 0.1818 0.1558 *

Mercury -53143-11-17 18:42 J -17688736.84 -17688736.72 -17688736.59 0.1731 0.0133

Mercury -53142-09-12 13:11 J -17688438.10 -17688437.95 -17688437.80 0.1807 0.0101

Mercury -53133-04-09 03:49 J -17685306.45 -17685306.34 -17685306.23 0.1723 0.0824

Mercury -53132-02-01 13:25 J -17685008.06 -17685007.94 -17685007.82 0.1816 0.1088

Venus -53130-08-05 17:01 J -17684092.88 -17684092.79 -17684092.69 0.1580 0.1347

Mercury -53124-08-30 12:42 J -17681876.03 -17681875.97 -17681875.92 0.1716 0.1519

Mercury -53122-08-06 00:57 J -17681170.53 -17681170.46 -17681170.39 0.1747 0.1380

Mercury -53113-12-26 09:49 J -17677740.20 -17677740.09 -17677739.97 0.1739 0.0671

Mercury -53112-10-21 13:11 J -17677441.05 -17677440.95 -17677440.86 0.1798 0.1398

Mercury -53103-05-18 18:57 J -17674309.84 -17674309.71 -17674309.59 0.1731 0.0040
 Mercury -53102-03-13 13:25 J -17674011.09 -17674010.94 -17674010.79 0.1807 0.0217
 Venus -53096-06-03 11:45 J -17671737.17 -17671737.01 -17671736.85 0.1580 0.0663
 Mercury -53094-10-09 03:49 J -17670879.45 -17670879.34 -17670879.23 0.1723 0.0734
 Mercury -53093-08-02 13:54 J -17670581.05 -17670580.92 -17670580.79 0.1816 0.0954
 Mercury -53084-02-28 12:42 J -17667449.04 -17667448.97 -17667448.90 0.1716 0.1429
 Mercury -53082-02-04 00:57 J -17666743.53 -17666743.46 -17666743.40 0.1746 0.1462
 Mercury -53073-06-26 10:04 J -17663313.19 -17663313.08 -17663312.97 0.1739 0.0764
 Mercury -53072-04-21 13:40 J -17663014.00 -17663013.93 -17663013.85 0.1797 0.1537
 Earth -53068-01-17 12:42 J -17661647.16 -17661646.97 -17661646.79 0.1811 0.0568
 Moon -53068-01-17 19:40 J -17661646.85 -17661646.68 -17661646.50 0.1810 0.0835 *
 Venus -53064-06-02 05:30 J -17660050.39 -17660050.27 -17660050.15 0.1580 0.1142
 Mercury -53064-11-16 18:57 J -17659882.83 -17659882.71 -17659882.58 0.1731 0.0067
 Mercury -53063-09-11 13:54 J -17659584.07 -17659583.92 -17659583.77 0.1807 0.0349
 Mercury -53054-04-09 03:49 J -17656452.45 -17656452.34 -17656452.22 0.1723 0.0642
 Mercury -53053-02-01 14:23 J -17656154.04 -17656153.90 -17656153.77 0.1815 0.0829
 Mercury -53045-08-29 12:57 J -17653022.04 -17653021.96 -17653021.89 0.1716 0.1333
 Moon -53043-07-20 23:59 J -17652331.65 -17652331.50 -17652331.35 0.1722 0.0983
 Earth -53043-07-21 05:16 J -17652331.45 -17652331.28 -17652331.11 0.1722 0.0785 *
 Mercury -53043-08-05 00:57 J -17652316.51 -17652316.46 -17652316.40 0.1747 0.1557
 Mercury -53034-12-26 10:04 J -17648886.19 -17648886.08 -17648885.98 0.1739 0.0853
 Mercury -53033-10-20 14:09 J -17648586.97 -17648586.91 -17648586.86 0.1798 0.1658
 Venus -53031-04-29 15:49 J -17648030.98 -17648030.84 -17648030.71 0.1959 0.1170
 Venus -53030-04-01 00:13 J -17647694.64 -17647694.49 -17647694.34 0.1580 0.0861
 Mercury -53024-05-17 18:57 J -17645455.83 -17645455.71 -17645455.59 0.1731 0.0150
 Mercury -53023-03-12 14:37 J -17645157.04 -17645156.89 -17645156.74 0.1806 0.0495
 Mercury -53015-10-08 04:04 J -17642025.45 -17642025.33 -17642025.21 0.1724 0.0545
 Mercury -53014-08-02 14:52 J -17641727.02 -17641726.88 -17641726.74 0.1815 0.0699
 Mercury -53005-02-28 12:57 J -17638595.04 -17638594.96 -17638594.87 0.1716 0.1240
 Mercury -53003-02-03 01:11 J -17637889.49 -17637889.45 -17637889.42 0.1747 0.1650

53RD MILLENNIUM BCE

This is a list of transits visible from Mars in the 53rd millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Venus | -52998-03-30 17:59 J | -17636007.89 | -17636007.75 | -17636007.60 | 0.1580 | 0.0944 | | |
| Mercury | -52994-06-26 10:04 J | -17634459.18 | -17634459.08 | -17634458.98 | 0.1739 | 0.0943 | | |
| Mercury | -52985-11-15 19:11 J | -17631028.82 | -17631028.70 | -17631028.58 | 0.1731 | 0.0246 | | |
| Mercury | -52984-09-10 14:52 J | -17630730.03 | -17630729.88 | -17630729.74 | 0.1806 | 0.0607 | | |
| Mercury | -52975-04-08 04:04 J | -17627598.45 | -17627598.33 | -17627598.21 | 0.1723 | 0.0459 | | |
| Mercury | -52974-01-31 15:21 J | -17627300.00 | -17627299.86 | -17627299.72 | 0.1815 | 0.0562 | | |
| Mercury | -52966-08-29 12:57 J | -17624168.05 | -17624167.96 | -17624167.86 | 0.1716 | 0.1149 | | |
| Venus | -52965-02-24 18:57 J | -17623988.88 | -17623988.71 | -17623988.55 | 0.1959 | 0.0377 | | |
| Mercury | -52965-06-22 15:49 J | -17623869.88 | -17623869.84 | -17623869.79 | 0.1824 | 0.1736 | | |
| Venus | -52964-01-26 12:42 J | -17623652.11 | -17623651.97 | -17623651.84 | 0.1581 | 0.1068 | | |
| Moon | -52964-07-23 10:47 J | -17623474.22 | -17623474.05 | -17623473.87 | 0.1727 | 0.0868 | | |
| Earth | -52964-07-23 16:33 J | -17623473.98 | -17623473.81 | -17623473.64 | 0.1728 | 0.0790 | * | |
| Mercury | -52964-08-04 00:57 J | -17623462.47 | -17623462.46 | -17623462.44 | 0.1747 | 0.1733 | | |
| Mercury | -52955-12-25 10:04 J | -17620032.17 | -17620032.08 | -17620031.98 | 0.1739 | 0.1036 | | |
| Mercury | -52945-05-16 19:11 J | -17616601.82 | -17616601.70 | -17616601.58 | 0.1731 | 0.0335 | | |
| Mercury | -52944-03-11 15:21 J | -17616303.00 | -17616302.86 | -17616302.72 | 0.1806 | 0.0746 | | |
| Mercury | -52936-10-07 04:04 J | -17613171.45 | -17613171.33 | -17613171.20 | 0.1724 | 0.0367 | | |
| Mercury | -52935-08-01 15:49 J | -17612872.99 | -17612872.84 | -17612872.70 | 0.1815 | 0.0438 | | |
| Venus | -52932-01-25 06:13 J | -17611965.39 | -17611965.24 | -17611965.08 | 0.1580 | 0.0737 | | |

Mercury -52926-02-27 13:11 J -17609741.05 -17609740.95 -17609740.85 0.1716 0.1054

Mercury -52926-12-22 16:04 J -17609442.89 -17609442.83 -17609442.76 0.1824 0.1623

Mercury -52915-06-25 10:18 J -17605605.17 -17605605.07 -17605604.98 0.1739 0.1124

Mercury -52906-11-15 19:11 J -17602174.82 -17602174.70 -17602174.58 0.1732 0.0425

Mercury -52905-09-09 16:04 J -17601875.97 -17601875.83 -17601875.70 0.1806 0.0887

Venus -52900-12-21 21:21 J -17599946.77 -17599946.61 -17599946.44 0.1959 0.0444

Venus -52899-11-24 00:42 J -17599609.57 -17599609.47 -17599609.36 0.1581 0.1273

Mercury -52896-04-07 04:18 J -17598744.44 -17598744.32 -17598744.20 0.1724 0.0269

Mercury -52895-01-30 16:04 J -17598445.98 -17598445.83 -17598445.68 0.1815 0.0313

Mercury -52887-08-28 13:11 J -17595314.05 -17595313.95 -17595313.85 0.1716 0.0962

Mercury -52886-06-22 16:47 J -17595015.89 -17595015.80 -17595015.72 0.1824 0.1484

Mercury -52877-01-18 22:04 J -17591883.60 -17591883.58 -17591883.55 0.1709 0.1650

Mercury -52876-12-24 10:18 J -17591178.16 -17591178.07 -17591177.98 0.1739 0.1214

Venus -52867-11-22 18:42 J -17587922.89 -17587922.72 -17587922.55 0.1580 0.0537

Mercury -52866-05-16 19:25 J -17587747.81 -17587747.69 -17587747.58 0.1732 0.0519

Mercury -52865-03-10 16:18 J -17587448.95 -17587448.82 -17587448.69 0.1806 0.1003

Mercury -52857-10-06 04:18 J -17584317.44 -17584317.32 -17584317.20 0.1724 0.0182

Mercury -52856-07-31 16:47 J -17584018.95 -17584018.80 -17584018.65 0.1815 0.0169

Mercury -52847-02-26 13:25 J -17580887.05 -17580886.94 -17580886.84 0.1717 0.0871

Mercury -52847-12-21 17:16 J -17580588.88 -17580588.78 -17580588.68 0.1823 0.1351

Mercury -52838-07-19 22:18 J -17577456.62 -17577456.57 -17577456.52 0.1709 0.1554

Mercury -52836-06-24 10:18 J -17576751.14 -17576751.07 -17576750.99 0.1740 0.1308

Venus -52834-10-19 00:13 J -17575904.62 -17575904.49 -17575904.36 0.1959 0.1251

Venus -52833-09-20 13:25 J -17575567.00 -17575566.94 -17575566.88 0.1581 0.1472

Mercury -52827-11-14 19:25 J -17573320.80 -17573320.69 -17573320.57 0.1732 0.0609

Mercury -52826-09-09 16:47 J -17573021.92 -17573021.80 -17573021.68 0.1806 0.1138

Mercury -52817-04-06 04:18 J -17569890.44 -17569890.32 -17569890.19 0.1724 0.0104

Mercury -52816-01-29 17:01 J -17569591.94 -17569591.79 -17569591.63 0.1815 0.0061

Mercury -52808-08-27 13:25 J -17566460.05 -17566459.94 -17566459.83 0.1717 0.0775

Mercury -52807-06-21 17:30 J -17566161.88 -17566161.77 -17566161.66 0.1824 0.1231

Venus -52801-09-19 07:11 J -17563880.38 -17563880.20 -17563880.03 0.1581 0.0331

Mercury -52798-01-17 22:18 J -17563029.63 -17563029.57 -17563029.51 0.1710 0.1467

Mercury -52797-12-23 10:18 J -17562324.14 -17562324.07 -17562323.99 0.1739 0.1395

Mercury -52787-05-15 19:25 J -17558893.80 -17558893.69 -17558893.58 0.1732 0.0695

Mercury -52786-03-10 17:30 J -17558594.88 -17558594.77 -17558594.66 0.1805 0.1282

Moon -52784-01-17 05:59 J -17557916.45 -17557916.25 -17557916.04 0.1821 0.0011

Earth -52784-01-17 12:42 J -17557916.16 -17557915.97 -17557915.77 0.1821 0.0085 *

Mercury -52778-10-06 04:33 J -17555463.43 -17555463.31 -17555463.19 0.1724 0.0013

Mercury -52777-07-30 17:30 J -17555164.92 -17555164.77 -17555164.61 0.1814 0.0098

Mercury -52768-02-25 13:25 J -17552033.05 -17552032.94 -17552032.82 0.1717 0.0686

Mercury -52768-12-20 17:59 J -17551734.87 -17551734.75 -17551734.63 0.1823 0.1096

Mercury -52759-07-18 22:33 J -17548602.63 -17548602.56 -17548602.49 0.1710 0.1369

Earth -52759-07-21 23:30 J -17548599.69 -17548599.52 -17548599.34 0.1714 0.0719

Moon -52759-07-22 05:30 J -17548599.43 -17548599.27 -17548599.11 0.1715 0.0789 *

Mercury -52757-06-23 10:33 J -17547897.12 -17547897.06 -17547897.00 0.1740 0.1484

Mercury -52748-11-13 19:40 J -17544466.79 -17544466.68 -17544466.57 0.1732 0.0792

Mercury -52747-09-08 17:45 J -17544167.86 -17544167.76 -17544167.66 0.1805 0.1396

Mercury -52738-04-06 04:33 J -17541036.43 -17541036.31 -17541036.19 0.1724 0.0094

Mercury -52737-01-29 18:13 J -17540737.89 -17540737.74 -17540737.59 0.1814 0.0226

Venus -52735-07-17 19:25 J -17539837.87 -17539837.69 -17539837.51 0.1581 0.0130

Mercury -52729-08-26 13:40 J -17537606.05 -17537605.93 -17537605.81 0.1717 0.0591

Mercury -52728-06-20 18:42 J -17537307.85 -17537307.72 -17537307.60 0.1823 0.0962

Mercury -52719-01-16 22:33 J -17534175.64 -17534175.56 -17534175.48 0.1710 0.1276

Mercury -52718-12-23 10:33 J -17533470.11 -17533470.06 -17533470.01 0.1740 0.1577

Mercury -52708-05-14 19:40 J -17530039.79 -17530039.68 -17530039.58 0.1732 0.0881

Mercury -52707-03-09 18:13 J -17529740.81 -17529740.74 -17529740.66 0.1805 0.1538

Mercury -52699-10-05 04:47 J -17526609.43 -17526609.30 -17526609.18 0.1725 0.0195

Mercury -52698-07-30 18:28 J -17526310.88 -17526310.73 -17526310.58 0.1814 0.0350

Mercury -52689-02-25 13:40 J -17523179.05 -17523178.93 -17523178.81 0.1717 0.0500

Mercury -52689-12-19 18:57 J -17522880.85 -17522880.71 -17522880.58 0.1823 0.0845

Mercury -52680-07-17 22:33 J -17519748.64 -17519748.56 -17519748.47 0.1710 0.1188

Moon -52680-07-24 08:37 J -17519742.29 -17519742.14 -17519742.00 0.1720 0.1009

Earth -52680-07-24 10:18 J -17519742.23 -17519742.07 -17519741.90 0.1720 0.0828 *

Mercury -52678-06-23 10:33 J -17519043.09 -17519043.06 -17519043.02 0.1740 0.1663

Venus -52670-06-12 04:33 J -17516132.44 -17516132.31 -17516132.18 0.1958 0.1233

Venus -52669-05-14 07:40 J -17515795.36 -17515795.18 -17515795.00 0.1581 0.0082

Mercury -52669-11-12 19:40 J -17515612.78 -17515612.68 -17515612.58 0.1732 0.0970

Mercury -52668-09-07 18:57 J -17515313.76 -17515313.71 -17515313.66 0.1805 0.1676

Mercury -52659-04-05 04:47 J -17512182.42 -17512182.30 -17512182.18 0.1725 0.0281

Mercury -52658-01-28 18:57 J -17511883.86 -17511883.71 -17511883.56 0.1814 0.0477

Mercury -52650-08-26 13:54 J -17508752.04 -17508751.92 -17508751.80 0.1717 0.0409

Mercury -52649-06-19 19:25 J -17508453.83 -17508453.69 -17508453.55 0.1823 0.0703

Mercury -52640-01-15 22:47 J -17505321.65 -17505321.55 -17505321.45 0.1710 0.1090

Mercury -52629-05-13 19:54 J -17501185.77 -17501185.67 -17501185.58 0.1732 0.1062

Mercury -52628-03-08 19:11 J -17500886.71 -17500886.70 -17500886.68 0.1805 0.1793

Mercury -52620-10-04 04:47 J -17497755.42 -17497755.30 -17497755.18 0.1725 0.0367

Mercury -52619-07-29 19:40 J -17497456.82 -17497456.68 -17497456.54 0.1814 0.0621

Mercury -52610-02-24 13:54 J -17494325.04 -17494324.92 -17494324.80 0.1717 0.0314

Mercury -52610-12-19 19:54 J -17494026.81 -17494026.67 -17494026.53 0.1823 0.0573

Venus -52604-04-08 07:25 J -17492090.35 -17492090.19 -17492090.02 0.1958 0.0431

Venus -52603-03-11 20:09 J -17491752.84 -17491752.66 -17491752.48 0.1582 0.0279

Mercury -52601-07-16 22:47 J -17490894.65 -17490894.55 -17490894.44 0.1710 0.0999

Mercury -52600-05-10 20:23 J -17490596.69 -17490596.65 -17490596.61 0.1832 0.1754

Mercury -52592-12-07 07:54 J -17487464.19 -17487464.17 -17487464.16 0.1703 0.1681

Mercury -52590-11-12 19:54 J -17486758.76 -17486758.67 -17486758.58 0.1732 0.1152

Mercury -52580-04-04 05:01 J -17483328.41 -17483328.29 -17483328.17 0.1725 0.0464

Mercury -52579-01-27 19:54 J -17483029.81 -17483029.67 -17483029.53 0.1814 0.0741

Venus -52571-03-10 14:09 J -17480065.96 -17480065.91 -17480065.87 0.1581 0.1520

Mercury -52571-08-25 13:54 J -17479898.04 -17479897.92 -17479897.79 0.1717 0.0228

Mercury -52570-06-19 20:23 J -17479599.80 -17479599.65 -17479599.51 0.1823 0.0450

Mercury -52561-01-15 23:01 J -17476467.65 -17476467.54 -17476467.44 0.1710 0.0912

Mercury -52561-11-08 21:06 J -17476169.69 -17476169.62 -17476169.55 0.1831 0.1616

Mercury -52552-06-07 07:54 J -17473037.21 -17473037.17 -17473037.12 0.1703 0.1585

Mercury -52550-05-13 19:54 J -17472331.75 -17472331.67 -17472331.59 0.1733 0.1238

Mercury -52541-10-03 05:01 J -17468901.41 -17468901.29 -17468901.17 0.1725 0.0556

Mercury -52540-07-28 20:23 J -17468602.78 -17468602.65 -17468602.51 0.1814 0.0873

Venus -52538-02-03 10:33 J -17468048.22 -17468048.06 -17468047.89 0.1957 0.0351

Venus -52537-01-07 08:23 J -17467710.32 -17467710.15 -17467709.98 0.1582 0.0486

Mercury -52531-02-23 14:09 J -17465471.04 -17465470.91 -17465470.79 0.1717 0.0139

Mercury -52531-12-18 20:52 J -17465172.78 -17465172.63 -17465172.48 0.1822 0.0316

Mercury -52522-07-16 23:01 J -17462040.65 -17462040.54 -17462040.43 0.1710 0.0813

Mercury -52521-05-09 21:21 J -17461742.70 -17461742.61 -17461742.53 0.1831 0.1501

Mercury -52513-12-06 07:54 J -17458610.22 -17458610.17 -17458610.11 0.1703 0.1497

Mercury -52511-11-11 20:09 J -17457904.74 -17457904.66 -17457904.59 0.1733 0.1334

Venus -52505-01-06 02:09 J -17456023.51 -17456023.41 -17456023.31 0.1581 0.1312

Mercury -52501-04-03 05:01 J -17454474.40 -17454474.29 -17454474.18 0.1725 0.0638

Moon -52500-01-17 10:18 J -17454185.23 -17454185.07 -17454184.90 0.1830 0.0587

Earth -52500-01-17 11:01 J -17454185.22 -17454185.04 -17454184.85 0.1830 0.0500 *

Mercury -52500-01-26 21:06 J -17454175.75 -17454175.62 -17454175.49 0.1814 0.1014

Mercury -52492-08-24 14:09 J -17451044.03 -17451043.91 -17451043.78 0.1718 0.0043

Mercury -52491-06-18 21:21 J -17450745.76 -17450745.61 -17450745.46 0.1822 0.0182

Mercury -52482-01-14 23:16 J -17447613.65 -17447613.53 -17447613.42 0.1710 0.0722

Mercury -52482-11-08 21:49 J -17447315.69 -17447315.59 -17447315.49 0.1831 0.1369

Earth -52475-07-22 19:25 J -17444867.86 -17444867.69 -17444867.51 0.1707 0.0620

Moon -52475-07-22 22:04 J -17444867.76 -17444867.58 -17444867.39 0.1707 0.0732 *

Mercury -52473-06-06 08:09 J -17444183.23 -17444183.16 -17444183.09 0.1703 0.1401

Venus -52473-11-30 13:25 J -17444006.08 -17444005.94 -17444005.81 0.1956 0.1151

Venus -52472-11-03 20:37 J -17443667.80 -17443667.64 -17443667.48 0.1583 0.0689

Mercury -52471-05-12 20:09 J -17443477.73 -17443477.66 -17443477.59 0.1733 0.1419

Mercury -52462-10-03 05:16 J -17440047.39 -17440047.28 -17440047.17 0.1725 0.0735

Mercury -52461-07-27 21:21 J -17439748.73 -17439748.61 -17439748.49 0.1813 0.1133
 Mercury -52452-02-22 14:09 J -17436617.03 -17436616.91 -17436616.78 0.1718 0.0072
 Mercury -52452-12-17 21:35 J -17436318.75 -17436318.60 -17436318.44 0.1822 0.0075
 Mercury -52443-07-15 23:16 J -17433186.65 -17433186.53 -17433186.42 0.1711 0.0633
 Mercury -52442-05-09 22:18 J -17432888.68 -17432888.57 -17432888.45 0.1831 0.1226
 Venus -52440-11-02 14:52 J -17431981.01 -17431980.88 -17431980.76 0.1582 0.1116
 Mercury -52434-12-06 08:09 J -17429756.23 -17429756.16 -17429756.08 0.1704 0.1309
 Mercury -52432-11-10 20:09 J -17429050.72 -17429050.66 -17429050.60 0.1733 0.1508
 Mercury -52422-04-03 05:16 J -17425620.39 -17425620.28 -17425620.17 0.1725 0.0825
 Moon -52421-01-21 01:25 J -17425327.52 -17425327.44 -17425327.36 0.1824 0.1655
 Earth -52421-01-21 09:49 J -17425327.16 -17425327.09 -17425327.03 0.1823 0.1716
 Mercury -52421-01-26 21:49 J -17425321.70 -17425321.59 -17425321.48 0.1813 0.1264
 Mercury -52413-08-23 14:23 J -17422190.03 -17422189.90 -17422189.78 0.1718 0.0144
 Mercury -52412-06-17 22:18 J -17421891.72 -17421891.57 -17421891.42 0.1822 0.0084
 Venus -52407-09-27 16:18 J -17419963.84 -17419963.82 -17419963.80 0.1955 0.1940
 Venus -52406-09-01 09:06 J -17419625.27 -17419625.12 -17419624.97 0.1583 0.0892
 Mercury -52403-01-13 23:16 J -17418759.64 -17418759.53 -17418759.41 0.1711 0.0541
 Mercury -52403-11-07 22:33 J -17418461.68 -17418461.56 -17418461.44 0.1831 0.1118
 Earth -52396-07-25 05:16 J -17416010.44 -17416010.28 -17416010.11 0.1713 0.0889
 Moon -52396-07-25 12:42 J -17416010.10 -17416009.97 -17416009.84 0.1713 0.1193
 Mercury -52394-06-06 08:23 J -17415329.24 -17415329.15 -17415329.07 0.1703 0.1222
 Mercury -52392-05-11 20:09 J -17414623.70 -17414623.66 -17414623.61 0.1733 0.1597
 Mercury -52383-10-02 05:16 J -17411193.38 -17411193.28 -17411193.17 0.1725 0.0910
 Mercury -52382-07-27 22:33 J -17410894.65 -17410894.56 -17410894.46 0.1813 0.1410
 Venus -52374-08-31 02:52 J -17407938.53 -17407938.38 -17407938.23 0.1582 0.0906
 Mercury -52373-02-22 14:23 J -17407763.02 -17407762.90 -17407762.77 0.1718 0.0235
 Mercury -52373-12-16 22:47 J -17407464.71 -17407464.55 -17407464.40 0.1822 0.0213
 Mercury -52364-07-14 23:30 J -17404332.64 -17404332.52 -17404332.40 0.1711 0.0447
 Mercury -52363-05-08 23:01 J -17404034.66 -17404034.54 -17404034.41 0.1831 0.0981
 Mercury -52355-12-05 08:23 J -17400902.24 -17400902.15 -17400902.05 0.1704 0.1125

Mercury -52353-11-09 20:23 J -17400196.68 -17400196.65 -17400196.63 0.1733 0.1687
 Mercury -52343-04-02 05:30 J -17396766.37 -17396766.27 -17396766.17 0.1725 0.1004
 Mercury -52342-01-25 22:47 J -17396467.63 -17396467.55 -17396467.47 0.1813 0.1525
 Venus -52340-06-28 21:06 J -17395582.75 -17395582.62 -17395582.50 0.1584 0.1103
 Mercury -52334-08-23 14:23 J -17393336.02 -17393335.90 -17393335.77 0.1718 0.0326
 Mercury -52333-06-16 23:01 J -17393037.69 -17393037.54 -17393037.39 0.1822 0.0337
 Mercury -52324-01-12 23:30 J -17389905.64 -17389905.52 -17389905.40 0.1711 0.0360
 Mercury -52324-11-06 23:45 J -17389607.65 -17389607.51 -17389607.38 0.1830 0.0843
 Mercury -52315-06-05 08:37 J -17386475.24 -17386475.14 -17386475.04 0.1704 0.1031
 Venus -52309-07-24 17:01 J -17384233.92 -17384233.79 -17384233.67 0.1956 0.1274
 Venus -52308-06-27 15:06 J -17383896.03 -17383895.87 -17383895.71 0.1583 0.0705
 Mercury -52304-10-01 05:30 J -17382339.36 -17382339.27 -17382339.17 0.1726 0.1094
 Mercury -52303-07-26 23:16 J -17382040.59 -17382040.53 -17382040.47 0.1813 0.1658
 Mercury -52294-02-21 14:37 J -17378909.01 -17378908.89 -17378908.77 0.1718 0.0413
 Mercury -52294-12-16 23:30 J -17378610.66 -17378610.52 -17378610.37 0.1822 0.0468
 Mercury -52285-07-13 23:45 J -17375478.64 -17375478.51 -17375478.39 0.1711 0.0266
 Mercury -52284-05-07 23:59 J -17375180.64 -17375180.50 -17375180.37 0.1830 0.0730
 Mercury -52276-12-04 08:37 J -17372048.25 -17372048.14 -17372048.04 0.1704 0.0946
 Venus -52274-04-26 09:21 J -17371540.21 -17371540.11 -17371540.01 0.1584 0.1304
 Mercury -52266-04-26 17:30 J -17368617.80 -17368617.77 -17368617.73 0.1697 0.1617
 Mercury -52264-04-01 05:30 J -17367912.36 -17367912.27 -17367912.18 0.1726 0.1175
 Mercury -52263-01-24 23:59 J -17367613.51 -17367613.50 -17367613.49 0.1813 0.1800
 Mercury -52255-08-22 14:37 J -17364482.01 -17364481.89 -17364481.77 0.1719 0.0506
 Mercury -52254-06-16 23:59 J -17364183.64 -17364183.50 -17364183.35 0.1821 0.0600
 Mercury -52245-01-12 23:45 J -17361051.64 -17361051.51 -17361051.39 0.1711 0.0175
 Mercury -52245-11-06 00:28 J -17360753.63 -17360753.48 -17360753.34 0.1830 0.0597
 Venus -52243-05-21 20:23 J -17360191.82 -17360191.65 -17360191.49 0.1956 0.0508
 Venus -52242-04-25 03:21 J -17359853.53 -17359853.36 -17359853.19 0.1583 0.0495
 Mercury -52236-06-04 08:37 J -17357621.24 -17357621.14 -17357621.03 0.1704 0.0853
 Mercury -52235-03-29 00:57 J -17357323.49 -17357323.46 -17357323.42 0.1839 0.1776

Mercury -52227-10-25 17:45 J -17354190.81 -17354190.76 -17354190.71 0.1697 0.1522
 Mercury -52225-09-30 05:45 J -17353485.35 -17353485.26 -17353485.18 0.1726 0.1271
 Earth -52216-01-17 06:42 J -17350454.37 -17350454.22 -17350454.07 0.1840 0.1184
 Moon -52216-01-17 15:21 J -17350454.01 -17350453.86 -17350453.71 0.1840 0.1191
 Mercury -52215-02-20 14:37 J -17350055.00 -17350054.89 -17350054.77 0.1718 0.0591
 Mercury -52215-12-16 00:28 J -17349756.62 -17349756.48 -17349756.34 0.1822 0.0724
 Venus -52208-02-20 21:35 J -17347497.65 -17347497.60 -17347497.56 0.1585 0.1518
 Mercury -52206-07-13 23:45 J -17346624.63 -17346624.51 -17346624.38 0.1711 0.0089
 Mercury -52205-05-07 00:57 J -17346326.60 -17346326.46 -17346326.31 0.1830 0.0456
 Mercury -52197-12-03 08:52 J -17343194.24 -17343194.13 -17343194.02 0.1704 0.0758
 Mercury -52196-09-27 01:25 J -17342896.51 -17342896.44 -17342896.38 0.1839 0.1656
 Moon -52191-07-23 08:23 J -17341136.31 -17341136.15 -17341135.99 0.1700 0.0841
 Earth -52191-07-23 15:35 J -17341136.03 -17341135.85 -17341135.67 0.1700 0.0517 *
 Mercury -52187-04-25 17:45 J -17339763.82 -17339763.76 -17339763.69 0.1697 0.1432
 Mercury -52185-03-31 05:45 J -17339058.34 -17339058.26 -17339058.19 0.1726 0.1359
 Venus -52177-03-17 23:16 J -17336149.70 -17336149.53 -17336149.36 0.1954 0.0284
 Venus -52176-02-19 15:35 J -17335811.02 -17335810.85 -17335810.67 0.1584 0.0292
 Mercury -52176-08-21 14:52 J -17335628.00 -17335627.88 -17335627.77 0.1719 0.0681
 Mercury -52175-06-16 00:57 J -17335329.59 -17335329.46 -17335329.32 0.1821 0.0859
 Mercury -52166-01-11 23:59 J -17332197.63 -17332197.50 -17332197.38 0.1711 0.0052
 Mercury -52166-11-06 01:11 J -17331899.60 -17331899.45 -17331899.30 0.1830 0.0349
 Mercury -52157-06-03 08:52 J -17328767.24 -17328767.13 -17328767.02 0.1704 0.0672
 Mercury -52156-03-28 01:54 J -17328469.50 -17328469.42 -17328469.33 0.1839 0.1512
 Mercury -52148-10-24 17:59 J -17325336.83 -17325336.75 -17325336.68 0.1698 0.1339
 Mercury -52146-09-30 05:45 J -17324631.33 -17324631.26 -17324631.20 0.1726 0.1442
 Earth -52137-01-21 05:59 J -17321596.40 -17321596.25 -17321596.09 0.1833 0.1099
 Moon -52137-01-21 10:33 J -17321596.17 -17321596.06 -17321595.94 0.1833 0.1401 *
 Mercury -52136-02-19 14:52 J -17321200.99 -17321200.88 -17321200.77 0.1719 0.0771
 Mercury -52136-12-15 01:25 J -17320902.57 -17320902.44 -17320902.31 0.1821 0.0983
 Mercury -52127-07-12 23:59 J -17317770.62 -17317770.50 -17317770.38 0.1711 0.0096

Mercury -52126-05-07 01:40 J -17317472.58 -17317472.43 -17317472.28 0.1830 0.0212

Mercury -52118-12-03 09:06 J -17314340.24 -17314340.12 -17314340.01 0.1704 0.0580

Mercury -52117-09-26 02:09 J -17314042.50 -17314042.41 -17314042.31 0.1838 0.1398

Moon -52112-07-25 23:16 J -17312278.68 -17312278.53 -17312278.38 0.1705 0.1145

Earth -52112-07-26 01:11 J -17312278.60 -17312278.45 -17312278.29 0.1706 0.0968 *

Venus -52111-01-13 02:23 J -17312107.54 -17312107.40 -17312107.25 0.1953 0.1052

Venus -52111-12-18 03:35 J -17311768.53 -17311768.35 -17311768.17 0.1584 0.0080

Mercury -52108-04-24 17:59 J -17310909.83 -17310909.75 -17310909.67 0.1697 0.1249

Mercury -52106-03-31 05:45 J -17310204.31 -17310204.26 -17310204.20 0.1726 0.1533

Mercury -52097-08-20 14:52 J -17306773.98 -17306773.88 -17306773.77 0.1719 0.0856

Mercury -52096-06-15 01:54 J -17306475.54 -17306475.42 -17306475.30 0.1821 0.1116

Mercury -52087-01-10 23:59 J -17303343.62 -17303343.50 -17303343.37 0.1712 0.0184

Mercury -52087-11-05 02:23 J -17303045.56 -17303045.40 -17303045.25 0.1829 0.0092

Mercury -52078-06-03 09:06 J -17299913.24 -17299913.12 -17299913.00 0.1705 0.0486

Mercury -52077-03-27 02:37 J -17299615.50 -17299615.39 -17299615.28 0.1838 0.1270

Mercury -52069-10-23 17:59 J -17296482.84 -17296482.75 -17296482.65 0.1697 0.1159

Mercury -52067-09-29 05:59 J -17295777.29 -17295777.25 -17295777.21 0.1726 0.1623

Mercury -52057-02-19 15:06 J -17292346.98 -17292346.87 -17292346.77 0.1719 0.0947

Mercury -52057-12-14 02:23 J -17292048.51 -17292048.40 -17292048.29 0.1821 0.1244

Mercury -52048-07-12 00:13 J -17288916.62 -17288916.49 -17288916.37 0.1712 0.0279

Mercury -52047-05-06 02:23 J -17288618.55 -17288618.40 -17288618.24 0.1829 0.0066

Venus -52046-11-10 05:16 J -17288065.33 -17288065.28 -17288065.22 0.1952 0.1839

Venus -52045-10-14 15:49 J -17287726.02 -17287725.84 -17287725.66 0.1585 0.0129

Mercury -52039-12-02 09:06 J -17285486.24 -17285486.12 -17285486.00 0.1704 0.0402

Mercury -52038-09-26 03:06 J -17285188.48 -17285188.37 -17285188.25 0.1838 0.1136

Mercury -52029-04-23 18:13 J -17282055.84 -17282055.74 -17282055.65 0.1698 0.1068

Mercury -52027-03-30 05:45 J -17281350.27 -17281350.26 -17281350.24 0.1726 0.1705

Mercury -52018-08-20 15:06 J -17277919.97 -17277919.87 -17277919.77 0.1719 0.1037

Mercury -52017-06-14 02:52 J -17277621.48 -17277621.38 -17277621.28 0.1820 0.1374

Mercury -52008-01-10 00:13 J -17274489.61 -17274489.49 -17274489.37 0.1712 0.0363

Mercury -52008-11-04 03:06 J -17274191.53 -17274191.37 -17274191.22 0.1829 0.0183

52ND MILLENNIUM BCE

This is a list of transits visible from Mars in the 52nd millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -51999-06-02 09:21 J | -17271059.24 | -17271059.11 | -17271058.99 | 0.1705 | 0.0312 | | |
| Mercury | -51998-03-27 03:21 J | -17270761.48 | -17270761.36 | -17270761.23 | 0.1838 | 0.1017 | | |
| Mercury | -51990-10-23 18:13 J | -17267628.84 | -17267628.74 | -17267628.64 | 0.1698 | 0.0976 | | |
| Moon | -51986-07-22 09:35 J | -17266261.16 | -17266261.10 | -17266261.04 | 0.1688 | 0.1593 | | |
| Mercury | -51980-03-15 03:06 J | -17264198.39 | -17264198.37 | -17264198.34 | 0.1691 | 0.1646 | | |
| Venus | -51979-08-12 04:04 J | -17263683.51 | -17263683.33 | -17263683.16 | 0.1586 | 0.0335 | | |
| Mercury | -51978-02-18 15:06 J | -17263492.96 | -17263492.87 | -17263492.78 | 0.1719 | 0.1119 | | |
| Mercury | -51978-12-14 03:06 J | -17263194.45 | -17263194.37 | -17263194.28 | 0.1821 | 0.1503 | | |
| Mercury | -51969-07-11 00:13 J | -17260062.61 | -17260062.49 | -17260062.37 | 0.1712 | 0.0450 | | |
| Mercury | -51968-05-05 03:35 J | -17259764.50 | -17259764.35 | -17259764.20 | 0.1829 | 0.0313 | | |
| Mercury | -51960-12-01 09:21 J | -17256632.23 | -17256632.11 | -17256631.98 | 0.1705 | 0.0217 | | |
| Mercury | -51959-09-25 03:49 J | -17256334.47 | -17256334.34 | -17256334.21 | 0.1838 | 0.0893 | | |
| Mercury | -51950-04-23 18:13 J | -17253201.84 | -17253201.74 | -17253201.63 | 0.1698 | 0.0890 | | |
| Venus | -51948-09-06 05:45 J | -17252335.38 | -17252335.26 | -17252335.14 | 0.1954 | 0.1333 | | |
| Venus | -51947-08-10 22:04 J | -17251996.65 | -17251996.58 | -17251996.52 | 0.1584 | 0.1459 | | |
| Mercury | -51941-09-13 03:21 J | -17249771.41 | -17249771.36 | -17249771.31 | 0.1691 | 0.1550 | | |
| Mercury | -51939-08-19 15:06 J | -17249065.95 | -17249065.87 | -17249065.78 | 0.1719 | 0.1210 | | |
| Mercury | -51938-06-14 03:35 J | -17248767.41 | -17248767.35 | -17248767.28 | 0.1820 | 0.1632 | | |

Mercury -51929-01-10 00:28 J -17245635.60 -17245635.48 -17245635.37 0.1712 0.0544

Mercury -51929-11-03 03:49 J -17245337.49 -17245337.34 -17245337.20 0.1829 0.0425

Mercury -51920-06-01 09:21 J -17242205.23 -17242205.11 -17242204.98 0.1705 0.0134

Mercury -51919-03-26 04:33 J -17241907.45 -17241907.31 -17241907.18 0.1838 0.0750

Venus -51913-06-08 15:49 J -17239641.00 -17239640.84 -17239640.67 0.1586 0.0549

Mercury -51911-10-22 18:28 J -17238774.84 -17238774.73 -17238774.62 0.1698 0.0795

Earth -51907-07-24 11:30 J -17237404.20 -17237404.02 -17237403.83 0.1693 0.0423

Moon -51907-07-24 12:57 J -17237404.13 -17237403.96 -17237403.80 0.1693 0.0621 *

Mercury -51901-03-14 03:21 J -17235344.42 -17235344.36 -17235344.29 0.1691 0.1461

Mercury -51899-02-17 15:21 J -17234638.94 -17234638.86 -17234638.78 0.1719 0.1299

Mercury -51899-12-13 04:04 J -17234340.37 -17234340.33 -17234340.29 0.1820 0.1756

Mercury -51890-07-11 00:28 J -17231208.60 -17231208.48 -17231208.37 0.1712 0.0630

Mercury -51889-05-04 04:18 J -17230910.46 -17230910.32 -17230910.17 0.1829 0.0562

Venus -51882-07-04 08:23 J -17228293.31 -17228293.15 -17228292.99 0.1953 0.0537

Venus -51881-06-07 10:18 J -17227954.18 -17227954.07 -17227953.96 0.1585 0.1257

Mercury -51881-11-30 09:35 J -17227778.23 -17227778.10 -17227777.98 0.1705 0.0057

Mercury -51880-09-24 04:33 J -17227480.45 -17227480.31 -17227480.17 0.1838 0.0641

Mercury -51871-04-22 18:28 J -17224347.84 -17224347.73 -17224347.61 0.1698 0.0709

Mercury -51870-02-14 05:01 J -17224050.30 -17224050.29 -17224050.27 0.1847 0.1832

Mercury -51862-09-13 03:35 J -17220917.42 -17220917.35 -17220917.28 0.1691 0.1372

Mercury -51860-08-18 15:21 J -17220211.93 -17220211.86 -17220211.79 0.1719 0.1382

Earth -51853-01-20 23:45 J -17217865.70 -17217865.51 -17217865.31 0.1843 0.0374

Moon -51853-01-21 05:01 J -17217865.48 -17217865.29 -17217865.10 0.1843 0.0733 *

Mercury -51850-01-09 00:28 J -17216781.59 -17216781.48 -17216781.37 0.1712 0.0715

Mercury -51850-11-03 04:47 J -17216483.44 -17216483.30 -17216483.16 0.1829 0.0694

Venus -51847-04-06 04:18 J -17215598.48 -17215598.32 -17215598.17 0.1587 0.0751

Mercury -51841-05-31 09:35 J -17213351.22 -17213351.10 -17213350.97 0.1705 0.0052

Mercury -51840-03-25 05:01 J -17213053.43 -17213053.29 -17213053.14 0.1837 0.0511

Mercury -51832-10-21 18:42 J -17209920.84 -17209920.72 -17209920.61 0.1698 0.0618

Mercury -51831-08-15 05:30 J -17209623.32 -17209623.27 -17209623.21 0.1846 0.1700

Moon -51828-07-26 15:06 J -17208546.99 -17208546.87 -17208546.74 0.1698 0.1223
 Earth -51828-07-26 21:06 J -17208546.77 -17208546.62 -17208546.47 0.1698 0.1047 *
 Mercury -51822-03-14 03:35 J -17206490.43 -17206490.35 -17206490.27 0.1691 0.1279
 Mercury -51820-02-16 15:21 J -17205784.92 -17205784.86 -17205784.80 0.1719 0.1470
 Venus -51816-04-30 11:59 J -17204251.17 -17204251.00 -17204250.83 0.1952 0.0213
 Venus -51815-04-04 22:18 J -17203911.70 -17203911.57 -17203911.44 0.1585 0.1046
 Mercury -51811-07-10 00:42 J -17202354.58 -17202354.47 -17202354.37 0.1712 0.0808
 Mercury -51810-05-04 05:01 J -17202056.42 -17202056.29 -17202056.15 0.1829 0.0808
 Mercury -51802-11-30 09:35 J -17198924.22 -17198924.10 -17198923.98 0.1705 0.0133
 Mercury -51801-09-23 05:30 J -17198626.41 -17198626.27 -17198626.12 0.1837 0.0378
 Mercury -51792-04-21 18:42 J -17195493.84 -17195493.72 -17195493.60 0.1698 0.0527
 Mercury -51791-02-13 05:59 J -17195196.32 -17195196.25 -17195196.17 0.1846 0.1572
 Mercury -51783-09-12 03:49 J -17192063.43 -17192063.34 -17192063.25 0.1692 0.1188
 Venus -51781-02-01 16:04 J -17191555.97 -17191555.83 -17191555.69 0.1588 0.0969
 Mercury -51781-08-17 15:35 J -17191357.90 -17191357.85 -17191357.80 0.1720 0.1561
 Mercury -51771-01-08 00:42 J -17187927.58 -17187927.47 -17187927.37 0.1712 0.0893
 Mercury -51771-11-02 05:30 J -17187629.40 -17187629.27 -17187629.14 0.1829 0.0941
 Mercury -51762-05-31 09:49 J -17184497.22 -17184497.09 -17184496.97 0.1705 0.0230
 Mercury -51761-03-24 05:59 J -17184199.40 -17184199.25 -17184199.10 0.1837 0.0259
 Mercury -51753-10-20 18:42 J -17181066.84 -17181066.72 -17181066.60 0.1698 0.0440
 Mercury -51752-08-14 06:28 J -17180769.32 -17180769.23 -17180769.14 0.1846 0.1453
 Venus -51750-02-25 14:52 J -17180209.02 -17180208.88 -17180208.73 0.1950 0.0988
 Venus -51749-01-31 10:18 J -17179869.22 -17179869.07 -17179868.91 0.1586 0.0839
 Mercury -51743-03-13 03:49 J -17177636.44 -17177636.34 -17177636.25 0.1692 0.1102
 Mercury -51741-02-16 15:21 J -17176930.89 -17176930.86 -17176930.82 0.1719 0.1640
 Mercury -51732-07-09 00:42 J -17173500.57 -17173500.47 -17173500.37 0.1713 0.0979
 Mercury -51731-05-03 06:13 J -17173202.36 -17173202.24 -17173202.12 0.1828 0.1080
 Mercury -51723-11-29 09:49 J -17170070.21 -17170070.09 -17170069.97 0.1705 0.0317
 Mercury -51722-09-23 06:13 J -17169772.39 -17169772.24 -17169772.09 0.1837 0.0134
 Venus -51716-11-29 04:04 J -17167513.45 -17167513.33 -17167513.21 0.1589 0.1177

Mercury -51713-04-20 18:57 J -17166639.84 -17166639.71 -17166639.59 0.1698 0.0354

Mercury -51712-02-12 06:42 J -17166342.32 -17166342.22 -17166342.11 0.1846 0.1324

Mercury -51704-09-11 03:49 J -17163209.44 -17163209.34 -17163209.23 0.1692 0.1010

Moon -51702-07-22 22:04 J -17162529.66 -17162529.58 -17162529.49 0.1681 0.1515

Mercury -51694-02-01 12:57 J -17159778.98 -17159778.96 -17159778.95 0.1685 0.1671

Mercury -51692-01-07 00:42 J -17159073.56 -17159073.47 -17159073.37 0.1712 0.1068

Mercury -51692-11-01 06:13 J -17158775.35 -17158775.24 -17158775.12 0.1828 0.1190

Venus -51685-12-22 18:28 J -17156166.81 -17156166.73 -17156166.66 0.1949 0.1732

Venus -51684-11-27 22:18 J -17155826.73 -17155826.57 -17155826.40 0.1587 0.0626

Mercury -51683-05-30 09:49 J -17155643.21 -17155643.09 -17155642.97 0.1705 0.0398

Mercury -51682-03-24 06:57 J -17155345.36 -17155345.21 -17155345.06 0.1837 0.0013

Mercury -51674-10-20 18:57 J -17152212.83 -17152212.71 -17152212.58 0.1699 0.0259

Mercury -51673-08-13 07:11 J -17151915.31 -17151915.20 -17151915.09 0.1845 0.1198

Mercury -51664-03-12 04:04 J -17148782.44 -17148782.33 -17148782.23 0.1692 0.0919

Mercury -51655-08-02 12:57 J -17145352.00 -17145351.96 -17145351.91 0.1685 0.1576

Mercury -51653-07-08 00:42 J -17144646.55 -17144646.47 -17144646.37 0.1713 0.1156

Mercury -51652-05-02 06:57 J -17144348.31 -17144348.21 -17144348.11 0.1828 0.1329

Venus -51650-09-26 15:49 J -17143470.92 -17143470.84 -17143470.75 0.1590 0.1396

Mercury -51644-11-28 10:04 J -17141216.20 -17141216.08 -17141215.96 0.1706 0.0493

Mercury -51643-09-22 06:57 J -17140918.36 -17140918.21 -17140918.06 0.1837 0.0128

Mercury -51634-04-20 18:57 J -17137785.83 -17137785.71 -17137785.58 0.1698 0.0176

Mercury -51633-02-12 07:25 J -17137488.31 -17137488.19 -17137488.06 0.1846 0.1076

Mercury -51625-09-10 04:04 J -17134355.44 -17134355.33 -17134355.22 0.1692 0.0831

Earth -51623-07-25 08:09 J -17133672.34 -17133672.16 -17133671.97 0.1686 0.0313

Moon -51623-07-25 13:54 J -17133672.11 -17133671.92 -17133671.73 0.1687 0.0462 *

Venus -51618-09-25 10:33 J -17131784.24 -17131784.06 -17131783.89 0.1588 0.0418

Mercury -51615-01-31 13:11 J -17130925.01 -17130924.95 -17130924.89 0.1685 0.1485

Mercury -51613-01-07 00:57 J -17130219.55 -17130219.46 -17130219.38 0.1713 0.1239

Mercury -51613-10-31 07:25 J -17129921.28 -17129921.19 -17129921.10 0.1828 0.1458

Mercury -51604-05-29 10:04 J -17126789.20 -17126789.08 -17126788.96 0.1706 0.0579

Mercury -51603-03-23 07:40 J -17126491.33 -17126491.18 -17126491.04 0.1837 0.0257
 Mercury -51595-10-19 19:11 J -17123358.83 -17123358.70 -17123358.58 0.1699 0.0085
 Mercury -51594-08-13 07:54 J -17123061.29 -17123061.17 -17123061.04 0.1845 0.0946
 Venus -51587-10-19 17:59 J -17120436.87 -17120436.75 -17120436.63 0.1952 0.1371
 Mercury -51585-03-11 04:18 J -17119928.44 -17119928.32 -17119928.21 0.1692 0.0741
 Mercury -51576-08-01 13:11 J -17116498.02 -17116497.95 -17116497.88 0.1685 0.1400
 Mercury -51574-07-08 00:57 J -17115792.54 -17115792.46 -17115792.38 0.1713 0.1327
 Mercury -51573-05-01 07:40 J -17115494.25 -17115494.18 -17115494.11 0.1828 0.1576
 Moon -51569-01-20 06:57 J -17114135.40 -17114135.21 -17114135.02 0.1854 0.0340
 Earth -51569-01-20 15:06 J -17114135.06 -17114134.87 -17114134.68 0.1853 0.0468 *
 Mercury -51565-11-27 10:04 J -17112362.19 -17112362.08 -17112361.97 0.1706 0.0663
 Mercury -51564-09-21 08:09 J -17112064.31 -17112064.16 -17112064.01 0.1836 0.0390
 Mercury -51555-04-19 19:11 J -17108931.82 -17108931.70 -17108931.57 0.1699 0.0019
 Mercury -51554-02-11 08:23 J -17108634.28 -17108634.15 -17108634.02 0.1845 0.0821
 Venus -51552-07-22 22:18 J -17107741.75 -17107741.57 -17107741.39 0.1588 0.0204
 Mercury -51546-09-10 04:18 J -17105501.44 -17105501.32 -17105501.20 0.1692 0.0650
 Earth -51544-07-27 17:16 J -17104814.92 -17104814.78 -17104814.64 0.1692 0.1132
 Moon -51544-07-27 21:49 J -17104814.69 -17104814.59 -17104814.50 0.1692 0.1423 *
 Mercury -51536-01-30 13:11 J -17102071.02 -17102070.95 -17102070.87 0.1686 0.1308
 Mercury -51534-01-06 00:57 J -17101365.52 -17101365.46 -17101365.39 0.1713 0.1414
 Mercury -51534-10-31 08:09 J -17101067.21 -17101067.16 -17101067.11 0.1828 0.1710
 Mercury -51525-05-28 10:04 J -17097935.19 -17097935.08 -17097934.96 0.1706 0.0757
 Mercury -51524-03-22 08:23 J -17097637.30 -17097637.15 -17097637.01 0.1836 0.0504
 Venus -51521-08-15 21:21 J -17096394.77 -17096394.61 -17096394.45 0.1950 0.0614
 Mercury -51516-10-18 19:11 J -17094504.82 -17094504.70 -17094504.57 0.1699 0.0104
 Mercury -51515-08-12 08:52 J -17094207.27 -17094207.13 -17094207.00 0.1845 0.0696
 Mercury -51506-03-11 04:18 J -17091074.44 -17091074.32 -17091074.20 0.1692 0.0565
 Mercury -51497-07-31 13:25 J -17087644.02 -17087643.94 -17087643.85 0.1686 0.1214
 Mercury -51495-07-07 01:11 J -17086938.51 -17086938.45 -17086938.40 0.1713 0.1501
 Moon -51490-01-23 15:49 J -17085276.93 -17085276.84 -17085276.74 0.1846 0.1645

Venus -51486-05-20 10:18 J -17083699.25 -17083699.07 -17083698.89 0.1589 0.0010

Mercury -51486-11-27 10:18 J -17083508.18 -17083508.07 -17083507.96 0.1706 0.0842

Mercury -51485-09-20 08:52 J -17083210.28 -17083210.13 -17083209.99 0.1836 0.0632

Mercury -51476-04-18 19:25 J -17080077.82 -17080077.69 -17080077.57 0.1699 0.0185

Mercury -51475-02-10 09:06 J -17079780.26 -17079780.12 -17079779.98 0.1845 0.0569

Mercury -51467-09-09 04:33 J -17076647.43 -17076647.31 -17076647.19 0.1692 0.0471

Mercury -51466-07-03 09:35 J -17076350.14 -17076350.10 -17076350.06 0.1853 0.1768

Mercury -51457-01-30 13:25 J -17073217.03 -17073216.94 -17073216.85 0.1686 0.1130

Mercury -51455-01-05 01:11 J -17072511.49 -17072511.45 -17072511.41 0.1713 0.1586

Venus -51455-06-13 00:13 J -17072352.66 -17072352.49 -17072352.32 0.1948 0.0166

Mercury -51446-05-28 10:18 J -17069081.18 -17069081.07 -17069080.97 0.1706 0.0924

Mercury -51445-03-21 09:21 J -17068783.24 -17068783.11 -17068782.97 0.1836 0.0776

Mercury -51437-10-17 19:25 J -17065650.81 -17065650.69 -17065650.56 0.1699 0.0277

Mercury -51436-08-11 09:35 J -17065353.25 -17065353.10 -17065352.96 0.1845 0.0442

Mercury -51427-03-10 04:33 J -17062220.43 -17062220.31 -17062220.19 0.1692 0.0383

Mercury -51426-01-01 10:04 J -17061923.14 -17061923.08 -17061923.01 0.1853 0.1637

Venus -51420-03-16 22:33 J -17059656.74 -17059656.56 -17059656.38 0.1590 0.0214

Moon -51418-07-23 17:16 J -17058797.87 -17058797.78 -17058797.68 0.1675 0.1415

Earth -51418-07-23 23:30 J -17058797.59 -17058797.52 -17058797.45 0.1675 0.1555

Mercury -51418-07-31 13:40 J -17058790.03 -17058789.93 -17058789.83 0.1686 0.1036

Mercury -51416-07-06 01:11 J -17058084.47 -17058084.45 -17058084.42 0.1713 0.1672

Mercury -51407-11-26 10:18 J -17054654.16 -17054654.07 -17054653.97 0.1706 0.1017

Mercury -51406-09-20 09:35 J -17054356.23 -17054356.10 -17054355.97 0.1836 0.0882

Mercury -51397-04-17 19:25 J -17051223.81 -17051223.69 -17051223.56 0.1699 0.0358

Mercury -51396-02-09 10:04 J -17050926.23 -17050926.08 -17050925.93 0.1845 0.0314

Venus -51389-04-09 04:04 J -17048310.48 -17048310.33 -17048310.18 0.1946 0.0891

Venus -51388-03-15 17:01 J -17047969.81 -17047969.79 -17047969.78 0.1588 0.1582

Mercury -51388-09-08 04:33 J -17047793.43 -17047793.31 -17047793.18 0.1693 0.0302

Mercury -51387-07-02 10:33 J -17047496.14 -17047496.06 -17047495.97 0.1853 0.1502

Mercury -51378-01-29 13:40 J -17044363.03 -17044362.93 -17044362.82 0.1686 0.0946

Mercury -51369-06-20 22:47 J -17040932.59 -17040932.55 -17040932.52 0.1680 0.1597
 Mercury -51367-05-27 10:33 J -17040227.16 -17040227.06 -17040226.97 0.1706 0.1104
 Mercury -51366-03-21 10:04 J -17039929.20 -17039929.08 -17039928.95 0.1836 0.1019
 Mercury -51358-10-17 19:40 J -17036796.80 -17036796.68 -17036796.56 0.1699 0.0448
 Mercury -51357-08-10 10:18 J -17036499.22 -17036499.07 -17036498.92 0.1844 0.0194
 Venus -51354-01-12 10:04 J -17035614.25 -17035614.08 -17035613.90 0.1592 0.0435
 Mercury -51348-03-09 04:47 J -17033366.42 -17033366.30 -17033366.18 0.1693 0.0205
 Mercury -51348-12-31 10:47 J -17033069.15 -17033069.05 -17033068.96 0.1853 0.1396
 Moon -51339-07-26 00:42 J -17029940.66 -17029940.47 -17029940.28 0.1680 0.0476
 Earth -51339-07-26 06:28 J -17029940.42 -17029940.23 -17029940.04 0.1680 0.0173 *
 Mercury -51339-07-30 13:40 J -17029936.03 -17029935.93 -17029935.82 0.1686 0.0863
 Mercury -51330-12-20 22:47 J -17026505.60 -17026505.55 -17026505.49 0.1680 0.1507
 Mercury -51328-11-25 10:33 J -17025800.15 -17025800.06 -17025799.97 0.1706 0.1186
 Mercury -51327-09-19 10:47 J -17025502.17 -17025502.05 -17025501.94 0.1836 0.1156
 Venus -51323-02-04 07:25 J -17024268.28 -17024268.19 -17024268.10 0.1944 0.1637
 Venus -51322-01-11 04:47 J -17023927.38 -17023927.30 -17023927.21 0.1589 0.1375
 Mercury -51318-04-17 19:40 J -17022369.80 -17022369.68 -17022369.56 0.1700 0.0537
 Mercury -51317-02-09 10:47 J -17022072.20 -17022072.05 -17022071.90 0.1844 0.0063
 Mercury -51309-09-07 04:47 J -17018939.42 -17018939.30 -17018939.17 0.1693 0.0123
 Mercury -51308-07-01 11:16 J -17018642.14 -17018642.03 -17018641.92 0.1853 0.1258
 Mercury -51299-01-28 13:54 J -17015509.03 -17015508.92 -17015508.81 0.1686 0.0767
 Mercury -51290-06-20 23:01 J -17012078.61 -17012078.54 -17012078.48 0.1680 0.1418
 Venus -51289-11-08 22:18 J -17011571.73 -17011571.57 -17011571.41 0.1593 0.0640
 Mercury -51288-05-26 10:33 J -17011373.14 -17011373.06 -17011372.98 0.1706 0.1277
 Mercury -51287-03-20 10:47 J -17011075.15 -17011075.05 -17011074.94 0.1835 0.1270
 Earth -51285-01-20 04:33 J -17010404.43 -17010404.31 -17010404.18 0.1863 0.1402
 Moon -51285-01-20 09:35 J -17010404.25 -17010404.10 -17010403.95 0.1863 0.1054 *
 Mercury -51279-10-16 19:40 J -17007942.79 -17007942.68 -17007942.56 0.1699 0.0622
 Mercury -51278-08-10 11:16 J -17007645.18 -17007645.03 -17007644.88 0.1844 0.0071
 Mercury -51269-03-08 05:01 J -17004512.42 -17004512.29 -17004512.17 0.1693 0.0050

Mercury -51269-12-30 11:45 J -17004215.12 -17004215.01 -17004214.89 0.1852 0.1127

Earth -51260-07-28 14:52 J -17001083.00 -17001082.88 -17001082.75 0.1685 0.1255

Moon -51260-07-28 17:30 J -17001082.86 -17001082.77 -17001082.67 0.1685 0.1481 *

Mercury -51260-07-29 14:09 J -17001082.03 -17001081.91 -17001081.80 0.1686 0.0677

Venus -51257-11-07 16:47 J -16999884.92 -16999884.80 -16999884.67 0.1590 0.1165

Mercury -51251-12-19 23:01 J -16997651.61 -16997651.54 -16997651.46 0.1680 0.1328

Mercury -51249-11-24 10:47 J -16996946.13 -16996946.05 -16996945.98 0.1707 0.1364

Mercury -51248-09-18 11:16 J -16996648.12 -16996648.03 -16996647.93 0.1835 0.1400

Mercury -51239-04-16 19:54 J -16993515.78 -16993515.67 -16993515.56 0.1700 0.0709

Mercury -51238-02-08 11:45 J -16993218.16 -16993218.01 -16993217.86 0.1844 0.0199

Mercury -51230-09-07 05:01 J -16990085.41 -16990085.29 -16990085.16 0.1693 0.0068

Mercury -51229-06-30 11:59 J -16989788.12 -16989788.00 -16989787.88 0.1852 0.1015

Venus -51226-12-02 07:40 J -16988538.29 -16988538.18 -16988538.07 0.1948 0.1469

Venus -51223-09-06 10:04 J -16987529.23 -16987529.08 -16987528.93 0.1594 0.0861

Mercury -51220-01-27 14:09 J -16986655.03 -16986654.91 -16986654.79 0.1686 0.0594

Mercury -51211-06-19 23:16 J -16983224.62 -16983224.53 -16983224.45 0.1680 0.1236

Mercury -51209-05-25 10:47 J -16982519.12 -16982519.05 -16982518.99 0.1707 0.1446

Mercury -51208-03-19 11:59 J -16982221.08 -16982221.00 -16982220.92 0.1835 0.1544

Moon -51206-01-23 02:37 J -16981546.55 -16981546.39 -16981546.22 0.1857 0.0852

Earth -51206-01-23 08:23 J -16981546.30 -16981546.15 -16981546.00 0.1856 0.1160 *

Mercury -51200-10-15 20:09 J -16979088.77 -16979088.66 -16979088.56 0.1700 0.0803

Mercury -51199-08-09 11:59 J -16978791.14 -16978791.00 -16978790.85 0.1844 0.0323

Venus -51191-09-05 05:01 J -16975842.44 -16975842.29 -16975842.15 0.1591 0.0956

Mercury -51190-03-08 05:01 J -16975658.41 -16975658.29 -16975658.16 0.1693 0.0161

Mercury -51190-12-30 12:28 J -16975361.11 -16975360.98 -16975360.85 0.1852 0.0881

Mercury -51181-07-28 14:09 J -16972228.03 -16972227.91 -16972227.78 0.1687 0.0503

Mercury -51172-12-18 23:16 J -16968797.62 -16968797.53 -16968797.44 0.1680 0.1147

Mercury -51170-11-24 10:47 J -16968092.10 -16968092.05 -16968091.99 0.1707 0.1538

Mercury -51169-09-17 12:13 J -16967794.05 -16967793.99 -16967793.93 0.1835 0.1651

Mercury -51160-04-15 19:54 J -16964661.77 -16964661.67 -16964661.56 0.1700 0.0883

Venus -51160-09-28 10:33 J -16964496.22 -16964496.06 -16964495.90 0.1946 0.0696

Mercury -51159-02-07 12:42 J -16964364.12 -16964363.97 -16964363.83 0.1844 0.0458

Venus -51157-07-03 21:35 J -16963486.73 -16963486.60 -16963486.46 0.1595 0.1076

Mercury -51151-09-06 05:16 J -16961231.41 -16961231.28 -16961231.16 0.1693 0.0237

Mercury -51150-06-30 12:57 J -16960934.09 -16960933.96 -16960933.82 0.1852 0.0748

Mercury -51141-01-27 14:23 J -16957801.02 -16957800.90 -16957800.78 0.1687 0.0409

Earth -51134-07-24 23:16 J -16955065.64 -16955065.53 -16955065.43 0.1670 0.1371

Moon -51134-07-25 04:18 J -16955065.46 -16955065.32 -16955065.19 0.1670 0.1102 *

Mercury -51132-06-18 23:30 J -16954370.62 -16954370.52 -16954370.42 0.1680 0.1056

Mercury -51130-05-25 11:01 J -16953665.08 -16953665.04 -16953665.01 0.1707 0.1623

Mercury -51129-03-18 12:42 J -16953367.00 -16953366.97 -16953366.94 0.1835 0.1791

Venus -51125-07-02 16:47 J -16951799.96 -16951799.80 -16951799.64 0.1592 0.0745

Mercury -51121-10-14 20:09 J -16950234.76 -16950234.66 -16950234.56 0.1700 0.0973

Mercury -51120-08-08 12:57 J -16949937.10 -16949936.96 -16949936.82 0.1843 0.0577

Mercury -51111-03-07 05:16 J -16946804.40 -16946804.28 -16946804.15 0.1693 0.0328

Mercury -51111-12-29 13:11 J -16946507.09 -16946506.95 -16946506.81 0.1852 0.0637

Mercury -51102-07-28 14:23 J -16943374.02 -16943373.90 -16943373.77 0.1687 0.0325

Mercury -51101-05-20 14:09 J -16943076.94 -16943076.91 -16943076.88 0.1860 0.1804

Venus -51094-07-26 14:09 J -16940454.08 -16940453.91 -16940453.74 0.1944 0.0057

Mercury -51093-12-17 23:30 J -16939943.62 -16939943.52 -16939943.41 0.1681 0.0966

Venus -51091-05-01 09:35 J -16939444.21 -16939444.10 -16939444.00 0.1596 0.1295

Mercury -51091-11-23 11:01 J -16939238.04 -16939238.04 -16939238.04 0.1707 0.1705

Mercury -51083-05-10 08:37 J -16936513.17 -16936513.14 -16936513.11 0.1674 0.1611

Mercury -51081-04-14 20:09 J -16935807.75 -16935807.66 -16935807.56 0.1700 0.1063

Mercury -51080-02-06 13:25 J -16935510.08 -16935509.94 -16935509.80 0.1843 0.0703

Mercury -51072-09-05 05:30 J -16932377.39 -16932377.27 -16932377.15 0.1693 0.0415

Mercury -51071-06-29 13:54 J -16932080.07 -16932079.92 -16932079.78 0.1852 0.0499

Mercury -51062-01-26 14:37 J -16928947.02 -16928946.89 -16928946.77 0.1687 0.0233

Mercury -51062-11-19 14:09 J -16928649.96 -16928649.91 -16928649.85 0.1860 0.1700

Venus -51059-04-30 04:47 J -16927757.47 -16927757.30 -16927757.13 0.1593 0.0531

| | | | | | | |
|---------|----------------------|--------------|--------------|--------------|--------|----------|
| Moon | -51055-07-27 02:37 J | -16926208.56 | -16926208.39 | -16926208.21 | 0.1674 | 0.0255 |
| Earth | -51055-07-27 05:59 J | -16926208.44 | -16926208.25 | -16926208.06 | 0.1674 | 0.0014 * |
| Mercury | -51053-06-17 23:45 J | -16925516.62 | -16925516.51 | -16925516.41 | 0.1680 | 0.0880 |
| Mercury | -51044-11-08 08:37 J | -16922086.19 | -16922086.14 | -16922086.09 | 0.1674 | 0.1522 |
| Mercury | -51042-10-14 20:23 J | -16921380.74 | -16921380.65 | -16921380.56 | 0.1700 | 0.1145 |
| Mercury | -51041-08-07 13:54 J | -16921083.05 | -16921082.92 | -16921082.78 | 0.1843 | 0.0843 |
| Mercury | -51032-03-06 05:30 J | -16917950.39 | -16917950.27 | -16917950.15 | 0.1694 | 0.0502 |
| Mercury | -51032-12-28 14:09 J | -16917653.05 | -16917652.91 | -16917652.76 | 0.1851 | 0.0371 |
| Venus | -51028-05-22 17:30 J | -16916411.93 | -16916411.77 | -16916411.62 | 0.1942 | 0.0781 |
| Venus | -51025-02-26 21:21 J | -16915401.66 | -16915401.61 | -16915401.55 | 0.1598 | 0.1513 |
| Mercury | -51023-07-27 14:37 J | -16914520.01 | -16914519.89 | -16914519.76 | 0.1687 | 0.0148 |
| Mercury | -51022-05-20 14:37 J | -16914222.96 | -16914222.89 | -16914222.81 | 0.1860 | 0.1570 |
| Mercury | -51014-12-17 23:45 J | -16911089.62 | -16911089.51 | -16911089.40 | 0.1681 | 0.0788 |
| Mercury | -51004-05-09 08:52 J | -16907659.20 | -16907659.13 | -16907659.07 | 0.1674 | 0.1429 |
| Mercury | -51002-04-14 20:23 J | -16906953.73 | -16906953.65 | -16906953.56 | 0.1700 | 0.1234 |
| Mercury | -51001-02-06 14:09 J | -16906656.03 | -16906655.91 | -16906655.78 | 0.1843 | 0.0963 |

51ST MILLENNIUM BCE

This is a list of transits visible from Mars in the 51st millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Venus | -50993-02-25 17:01 J | -16903714.97 | -16903714.79 | -16903714.62 | 0.1594 | 0.0325 | | |
| Mercury | -50993-09-04 05:45 J | -16903523.38 | -16903523.26 | -16903523.15 | 0.1694 | 0.0593 | | |
| Mercury | -50992-06-28 14:23 J | -16903226.04 | -16903225.90 | -16903225.75 | 0.1852 | 0.0260 | | |

Mercury -50983-01-25 14:37 J -16900093.01 -16900092.89 -16900092.76 0.1687 0.0076

Mercury -50983-11-18 15:21 J -16899795.95 -16899795.86 -16899795.77 0.1860 0.1432

Moon -50976-07-29 06:57 J -16897351.29 -16897351.21 -16897351.13 0.1678 0.1527

Earth -50976-07-29 14:09 J -16897351.01 -16897350.91 -16897350.81 0.1679 0.1408

Mercury -50974-06-17 23:59 J -16896662.62 -16896662.50 -16896662.39 0.1681 0.0696

Mercury -50965-11-07 08:52 J -16893232.20 -16893232.13 -16893232.05 0.1675 0.1339

Mercury -50963-10-13 20:37 J -16892526.72 -16892526.64 -16892526.57 0.1701 0.1324

Venus -50962-03-19 21:49 J -16892369.70 -16892369.59 -16892369.48 0.1940 0.1473

Mercury -50962-08-07 14:37 J -16892229.01 -16892228.89 -16892228.77 0.1843 0.1089

Mercury -50953-03-05 05:45 J -16889096.38 -16889096.26 -16889096.15 0.1694 0.0677

Mercury -50953-12-27 15:06 J -16888799.02 -16888798.87 -16888798.72 0.1851 0.0126

Mercury -50944-07-26 14:52 J -16885666.00 -16885665.88 -16885665.75 0.1687 0.0047

Mercury -50943-05-19 15:35 J -16885368.96 -16885368.85 -16885368.75 0.1859 0.1319

Mercury -50935-12-16 23:59 J -16882235.62 -16882235.50 -16882235.38 0.1681 0.0610

Venus -50928-12-23 04:33 J -16879672.49 -16879672.31 -16879672.13 0.1595 0.0107

Mercury -50925-05-08 09:06 J -16878805.21 -16878805.12 -16878805.04 0.1675 0.1253

Mercury -50923-04-13 20:37 J -16878099.71 -16878099.64 -16878099.58 0.1700 0.1403

Earth -50922-01-22 23:16 J -16877815.73 -16877815.53 -16877815.34 0.1866 0.0287

Moon -50922-01-23 07:40 J -16877815.37 -16877815.18 -16877814.99 0.1865 0.0302 *

Mercury -50922-02-05 15:21 J -16877801.97 -16877801.86 -16877801.75 0.1843 0.1228

Mercury -50914-09-04 05:45 J -16874669.37 -16874669.26 -16874669.15 0.1694 0.0767

Mercury -50913-06-27 15:35 J -16874372.00 -16874371.85 -16874371.70 0.1851 0.0029

Mercury -50904-01-24 15:06 J -16871239.00 -16871238.87 -16871238.75 0.1687 0.0131

Mercury -50904-11-17 15:49 J -16870941.95 -16870941.84 -16870941.72 0.1859 0.1194

Mercury -50895-06-17 00:13 J -16867808.61 -16867808.49 -16867808.37 0.1681 0.0521

Mercury -50886-11-07 09:06 J -16864378.21 -16864378.12 -16864378.03 0.1675 0.1159

Mercury -50884-10-12 20:37 J -16863672.69 -16863672.64 -16863672.58 0.1701 0.1494

Mercury -50883-08-06 15:35 J -16863374.95 -16863374.85 -16863374.75 0.1842 0.1347

Mercury -50874-03-05 05:59 J -16860242.36 -16860242.25 -16860242.14 0.1694 0.0853

Mercury -50874-12-27 15:49 J -16859944.99 -16859944.84 -16859944.69 0.1851 0.0133

Mercury -50865-07-25 15:06 J -16856812.00 -16856811.87 -16856811.75 0.1687 0.0209
 Venus -50864-01-13 21:49 J -16856639.68 -16856639.59 -16856639.50 0.1944 0.1598
 Mercury -50864-05-18 16:33 J -16856514.93 -16856514.81 -16856514.69 0.1859 0.1049
 Venus -50862-10-20 16:47 J -16855629.98 -16855629.80 -16855629.62 0.1596 0.0105
 Mercury -50856-12-16 00:13 J -16853381.61 -16853381.49 -16853381.37 0.1681 0.0429
 Earth -50850-07-26 00:13 J -16851333.62 -16851333.49 -16851333.35 0.1664 0.1160
 Moon -50850-07-26 03:49 J -16851333.51 -16851333.34 -16851333.17 0.1664 0.0884 *
 Mercury -50846-05-08 09:21 J -16849951.21 -16849951.11 -16849951.02 0.1675 0.1070
 Mercury -50844-04-12 20:52 J -16849245.67 -16849245.63 -16849245.59 0.1701 0.1582
 Mercury -50843-02-04 16:04 J -16848947.92 -16848947.83 -16848947.74 0.1842 0.1474
 Mercury -50835-09-03 05:59 J -16845815.35 -16845815.25 -16845815.15 0.1694 0.0940
 Mercury -50834-06-27 16:18 J -16845517.97 -16845517.82 -16845517.67 0.1851 0.0270
 Mercury -50825-01-24 15:21 J -16842384.99 -16842384.86 -16842384.74 0.1688 0.0305
 Mercury -50825-11-16 16:47 J -16842087.93 -16842087.80 -16842087.68 0.1859 0.0946
 Mercury -50816-06-16 00:13 J -16838954.61 -16838954.49 -16838954.36 0.1681 0.0346
 Mercury -50807-11-06 09:21 J -16835524.21 -16835524.11 -16835524.00 0.1675 0.0981
 Mercury -50805-10-11 20:52 J -16834818.65 -16834818.63 -16834818.61 0.1701 0.1663
 Mercury -50804-08-05 16:47 J -16834520.87 -16834520.80 -16834520.73 0.1842 0.1618
 Venus -50799-11-11 01:11 J -16832597.60 -16832597.45 -16832597.30 0.1942 0.0847
 Mercury -50797-03-28 18:28 J -16832093.76 -16832093.73 -16832093.70 0.1669 0.1617
 Venus -50796-08-17 04:04 J -16831587.50 -16831587.33 -16831587.15 0.1598 0.0326
 Mercury -50795-03-04 06:13 J -16831388.34 -16831388.24 -16831388.15 0.1694 0.1028
 Mercury -50795-12-26 16:47 J -16831090.95 -16831090.80 -16831090.65 0.1850 0.0395
 Mercury -50786-07-25 15:21 J -16827957.98 -16827957.86 -16827957.74 0.1688 0.0389
 Mercury -50785-05-17 17:16 J -16827660.92 -16827660.78 -16827660.65 0.1859 0.0812
 Mercury -50777-12-15 00:28 J -16824527.60 -16824527.48 -16824527.35 0.1681 0.0252
 Earth -50771-07-28 06:42 J -16822476.41 -16822476.22 -16822476.03 0.1669 0.0192
 Moon -50771-07-28 13:25 J -16822476.12 -16822475.94 -16822475.75 0.1669 0.0076 *
 Mercury -50767-05-07 09:35 J -16821097.21 -16821097.10 -16821096.99 0.1675 0.0890
 Mercury -50764-02-03 17:01 J -16820093.84 -16820093.79 -16820093.75 0.1842 0.1732

Venus -50764-08-15 23:30 J -16819900.58 -16819900.52 -16819900.46 0.1594 0.1495

Mercury -50758-09-27 18:28 J -16817666.78 -16817666.73 -16817666.68 0.1669 0.1532

Mercury -50756-09-02 06:13 J -16816961.33 -16816961.24 -16816961.15 0.1694 0.1113

Mercury -50755-06-26 17:01 J -16816663.93 -16816663.79 -16816663.64 0.1851 0.0515

Mercury -50746-01-23 15:21 J -16813530.98 -16813530.86 -16813530.74 0.1688 0.0472

Mercury -50746-11-16 17:45 J -16813233.90 -16813233.76 -16813233.62 0.1859 0.0673

Mercury -50737-06-15 00:42 J -16810100.60 -16810100.47 -16810100.35 0.1682 0.0169

Venus -50733-09-07 04:33 J -16808555.48 -16808555.31 -16808555.14 0.1940 0.0108

Venus -50730-06-14 15:49 J -16807545.01 -16807544.84 -16807544.67 0.1600 0.0540

Mercury -50728-11-05 09:35 J -16806670.21 -16806670.10 -16806669.99 0.1675 0.0802

Mercury -50718-03-28 18:42 J -16803239.78 -16803239.72 -16803239.66 0.1669 0.1438

Mercury -50716-03-03 06:13 J -16802534.32 -16802534.24 -16802534.15 0.1694 0.1199

Mercury -50716-12-25 17:30 J -16802236.91 -16802236.77 -16802236.63 0.1850 0.0652

Mercury -50707-07-24 15:35 J -16799103.97 -16799103.85 -16799103.73 0.1688 0.0564

Mercury -50706-05-17 17:59 J -16798806.89 -16798806.75 -16798806.61 0.1858 0.0562

Venus -50698-06-13 11:16 J -16795858.13 -16795858.03 -16795857.92 0.1595 0.1284

Mercury -50698-12-15 00:42 J -16795673.60 -16795673.47 -16795673.35 0.1681 0.0085

Mercury -50697-10-06 18:42 J -16795376.77 -16795376.72 -16795376.67 0.1867 0.1749

Earth -50692-07-30 13:54 J -16793618.98 -16793618.92 -16793618.85 0.1673 0.1573

Mercury -50688-05-06 09:49 J -16792243.21 -16792243.09 -16792242.98 0.1675 0.0715

Mercury -50679-09-26 18:57 J -16788812.79 -16788812.71 -16788812.64 0.1669 0.1346

Mercury -50677-09-01 06:28 J -16788107.31 -16788107.23 -16788107.15 0.1695 0.1288

Mercury -50676-06-25 17:59 J -16787809.88 -16787809.75 -16787809.61 0.1850 0.0783

Mercury -50667-01-22 15:35 J -16784676.96 -16784676.85 -16784676.73 0.1688 0.0652

Venus -50667-07-05 08:23 J -16784513.31 -16784513.15 -16784512.99 0.1937 0.0598

Mercury -50667-11-15 18:28 J -16784379.88 -16784379.73 -16784379.59 0.1858 0.0435

Venus -50664-04-11 03:35 J -16783502.51 -16783502.35 -16783502.19 0.1601 0.0760

Mercury -50658-06-15 00:42 J -16781246.59 -16781246.47 -16781246.34 0.1682 0.0054

Mercury -50657-04-06 19:11 J -16780949.77 -16780949.70 -16780949.63 0.1866 0.1622

Mercury -50649-11-04 09:49 J -16777816.20 -16777816.09 -16777815.97 0.1675 0.0624

Mercury -50639-03-27 18:57 J -16774385.79 -16774385.71 -16774385.63 0.1669 0.1262

Moon -50638-01-22 09:35 J -16774085.30 -16774085.10 -16774084.90 0.1875 0.0684

Earth -50638-01-22 12:13 J -16774085.18 -16774084.99 -16774084.81 0.1875 0.0692 *

Mercury -50637-03-02 06:28 J -16773680.30 -16773680.23 -16773680.16 0.1694 0.1371

Mercury -50637-12-24 18:28 J -16773382.86 -16773382.73 -16773382.60 0.1850 0.0899

Venus -50632-04-09 23:16 J -16771815.66 -16771815.53 -16771815.40 0.1597 0.1072

Mercury -50628-07-23 15:35 J -16770249.96 -16770249.85 -16770249.73 0.1688 0.0737

Mercury -50627-05-16 18:57 J -16769952.85 -16769952.71 -16769952.56 0.1858 0.0297

Mercury -50619-12-14 00:57 J -16766819.59 -16766819.46 -16766819.33 0.1682 0.0103

Mercury -50618-10-06 19:25 J -16766522.77 -16766522.69 -16766522.60 0.1866 0.1504

Mercury -50609-05-05 10:04 J -16763389.20 -16763389.08 -16763388.96 0.1676 0.0534

Venus -50601-05-01 11:59 J -16760471.12 -16760471.00 -16760470.88 0.1934 0.1315

Mercury -50600-09-25 19:11 J -16759958.79 -16759958.70 -16759958.61 0.1670 0.1168

Venus -50598-02-06 15:21 J -16759460.00 -16759459.86 -16759459.72 0.1603 0.0982

Mercury -50598-09-01 06:28 J -16759253.29 -16759253.23 -16759253.16 0.1695 0.1459

Mercury -50597-06-24 18:57 J -16758955.83 -16758955.71 -16758955.59 0.1850 0.1035

Mercury -50588-01-21 15:49 J -16755822.95 -16755822.84 -16755822.73 0.1688 0.0824

Mercury -50588-11-14 19:11 J -16755525.85 -16755525.70 -16755525.55 0.1858 0.0190

Mercury -50579-06-14 00:57 J -16752392.58 -16752392.46 -16752392.33 0.1682 0.0187

Mercury -50578-04-06 19:54 J -16752095.76 -16752095.67 -16752095.57 0.1866 0.1368

Mercury -50570-11-04 10:04 J -16748962.20 -16748962.08 -16748961.95 0.1676 0.0448

Venus -50566-02-05 11:16 J -16747773.18 -16747773.03 -16747772.88 0.1598 0.0861

Moon -50566-07-26 19:40 J -16747601.85 -16747601.68 -16747601.51 0.1658 0.0801

Earth -50566-07-27 02:09 J -16747601.57 -16747601.41 -16747601.26 0.1659 0.0940 *

Mercury -50560-03-26 19:11 J -16745531.79 -16745531.70 -16745531.60 0.1670 0.1079

Mercury -50558-03-02 06:42 J -16744826.27 -16744826.22 -16744826.17 0.1695 0.1544

Mercury -50558-12-24 19:25 J -16744528.81 -16744528.69 -16744528.58 0.1850 0.1160

Mercury -50549-07-22 16:04 J -16741395.94 -16741395.83 -16741395.73 0.1688 0.0913

Mercury -50548-05-15 19:40 J -16741098.83 -16741098.68 -16741098.53 0.1858 0.0058

Mercury -50540-12-13 01:11 J -16737965.58 -16737965.45 -16737965.33 0.1682 0.0279

Mercury -50539-10-05 20:09 J -16737668.76 -16737668.66 -16737668.55 0.1866 0.1252
 Venus -50533-12-04 02:37 J -16735417.50 -16735417.39 -16735417.27 0.1604 0.1206
 Mercury -50530-05-05 10:18 J -16734535.20 -16734535.07 -16734534.95 0.1676 0.0358
 Mercury -50521-09-24 19:11 J -16731104.80 -16731104.70 -16731104.59 0.1670 0.0995
 Mercury -50519-08-31 06:42 J -16730399.25 -16730399.22 -16730399.19 0.1695 0.1628
 Mercury -50518-06-24 19:40 J -16730101.78 -16730101.68 -16730101.57 0.1850 0.1286
 Mercury -50511-02-15 04:18 J -16727674.34 -16727674.32 -16727674.29 0.1664 0.1621
 Mercury -50509-01-21 16:04 J -16726968.93 -16726968.83 -16726968.73 0.1688 0.0995
 Mercury -50509-11-13 20:09 J -16726671.80 -16726671.66 -16726671.51 0.1858 0.0100
 Venus -50503-02-26 12:13 J -16724741.07 -16724740.99 -16724740.92 0.1939 0.1723
 Venus -50501-12-02 22:47 J -16723730.72 -16723730.55 -16723730.39 0.1600 0.0640
 Mercury -50500-06-13 01:11 J -16723538.57 -16723538.45 -16723538.32 0.1682 0.0367
 Mercury -50499-04-05 20:37 J -16723241.75 -16723241.64 -16723241.52 0.1866 0.1126
 Mercury -50491-11-03 10:18 J -16720108.19 -16720108.07 -16720107.94 0.1676 0.0271
 Moon -50487-07-29 08:09 J -16718744.36 -16718744.16 -16718743.95 0.1663 0.0205
 Earth -50487-07-29 08:09 J -16718744.34 -16718744.16 -16718743.97 0.1663 0.0398 *
 Mercury -50481-03-25 19:25 J -16716677.79 -16716677.69 -16716677.58 0.1670 0.0901
 Mercury -50479-12-23 20:09 J -16715674.75 -16715674.66 -16715674.56 0.1849 0.1416
 Mercury -50472-08-16 04:33 J -16713247.36 -16713247.31 -16713247.27 0.1664 0.1534
 Mercury -50470-07-22 16:04 J -16712541.92 -16712541.83 -16712541.73 0.1689 0.1085
 Mercury -50469-05-14 20:23 J -16712244.80 -16712244.65 -16712244.50 0.1858 0.0197
 Venus -50467-10-01 14:23 J -16711374.98 -16711374.90 -16711374.82 0.1606 0.1430
 Mercury -50461-12-12 01:11 J -16709111.57 -16709111.45 -16709111.33 0.1682 0.0449
 Mercury -50460-10-04 21:06 J -16708814.74 -16708814.62 -16708814.50 0.1866 0.0997
 Mercury -50451-05-04 10:33 J -16705681.19 -16705681.06 -16705680.94 0.1676 0.0187
 Mercury -50442-09-24 19:40 J -16702250.79 -16702250.68 -16702250.57 0.1670 0.0811
 Mercury -50439-06-23 20:37 J -16701247.72 -16701247.64 -16701247.56 0.1849 0.1545
 Venus -50438-12-24 16:04 J -16700698.97 -16700698.83 -16700698.69 0.1937 0.1015
 Venus -50435-09-30 10:47 J -16699688.22 -16699688.05 -16699687.88 0.1601 0.0431
 Mercury -50432-02-14 04:33 J -16698820.37 -16698820.31 -16698820.25 0.1664 0.1444

Mercury -50430-01-20 16:18 J -16698114.91 -16698114.82 -16698114.73 0.1689 0.1169

Mercury -50430-11-13 20:52 J -16697817.78 -16697817.63 -16697817.48 0.1858 0.0325

Mercury -50421-06-12 01:25 J -16694684.56 -16694684.44 -16694684.32 0.1682 0.0537

Mercury -50420-04-04 21:21 J -16694387.73 -16694387.61 -16694387.48 0.1865 0.0876

Mercury -50412-11-02 10:33 J -16691254.18 -16691254.06 -16691253.93 0.1676 0.0099

Mercury -50402-03-25 19:40 J -16687823.79 -16687823.68 -16687823.57 0.1670 0.0728

Mercury -50400-12-22 21:06 J -16686820.69 -16686820.62 -16686820.56 0.1849 0.1666

Mercury -50393-08-15 04:47 J -16684393.37 -16684393.30 -16684393.23 0.1664 0.1353

Mercury -50391-07-21 16:18 J -16683687.90 -16683687.82 -16683687.74 0.1689 0.1252

Mercury -50390-05-14 21:35 J -16683390.75 -16683390.60 -16683390.46 0.1857 0.0468

Mercury -50382-12-12 01:40 J -16680257.55 -16680257.43 -16680257.32 0.1682 0.0628

Mercury -50381-10-03 21:49 J -16679960.73 -16679960.59 -16679960.46 0.1865 0.0756

Mercury -50372-05-03 10:47 J -16676827.18 -16676827.05 -16676826.93 0.1676 0.0053

Venus -50372-10-20 19:25 J -16676656.86 -16676656.69 -16676656.53 0.1935 0.0283

Venus -50369-07-27 21:49 J -16675645.77 -16675645.59 -16675645.41 0.1603 0.0198

Mercury -50363-09-23 19:54 J -16673396.79 -16673396.67 -16673396.55 0.1670 0.0636

Mercury -50360-06-22 21:35 J -16672393.63 -16672393.60 -16672393.57 0.1849 0.1799

Moon -50354-01-21 16:04 J -16670354.90 -16670354.83 -16670354.76 0.1884 0.1739

Earth -50354-01-21 21:49 J -16670354.64 -16670354.59 -16670354.54 0.1884 0.1821

Mercury -50353-02-14 04:47 J -16669966.38 -16669966.30 -16669966.22 0.1664 0.1267

Mercury -50351-01-19 16:18 J -16669260.89 -16669260.82 -16669260.74 0.1689 0.1341

Mercury -50351-11-12 21:35 J -16668963.74 -16668963.60 -16668963.46 0.1857 0.0571

Mercury -50342-06-12 01:40 J -16665830.55 -16665830.43 -16665830.32 0.1682 0.0709

Mercury -50341-04-03 22:18 J -16665533.71 -16665533.57 -16665533.43 0.1865 0.0617

Mercury -50333-11-01 10:47 J -16662400.18 -16662400.05 -16662399.92 0.1676 0.0081

Mercury -50332-08-24 23:01 J -16662103.57 -16662103.54 -16662103.51 0.1873 0.1820

Mercury -50323-03-24 19:54 J -16658969.79 -16658969.67 -16658969.55 0.1670 0.0548

Mercury -50314-08-15 05:01 J -16655539.38 -16655539.29 -16655539.20 0.1664 0.1175

Mercury -50312-07-20 16:33 J -16654833.88 -16654833.81 -16654833.75 0.1689 0.1425

Mercury -50311-05-13 22:04 J -16654536.71 -16654536.58 -16654536.44 0.1857 0.0710

Venus -50306-08-17 23:01 J -16652614.70 -16652614.54 -16652614.37 0.1932 0.0434

Venus -50303-05-25 09:35 J -16651603.28 -16651603.10 -16651602.92 0.1604 0.0033

Mercury -50303-12-11 01:40 J -16651403.54 -16651403.43 -16651403.32 0.1683 0.0795

Mercury -50302-10-03 22:33 J -16651106.70 -16651106.56 -16651106.42 0.1865 0.0505

Mercury -50293-05-02 10:47 J -16647973.17 -16647973.05 -16647972.92 0.1676 0.0175

Mercury -50292-02-22 23:01 J -16647676.59 -16647676.54 -16647676.48 0.1873 0.1709

Mercury -50284-09-22 19:54 J -16644542.79 -16644542.67 -16644542.54 0.1670 0.0467

Earth -50282-07-28 03:21 J -16643869.53 -16643869.36 -16643869.18 0.1654 0.0726

Moon -50282-07-28 04:04 J -16643869.50 -16643869.33 -16643869.17 0.1654 0.0540 *

Moon -50275-01-24 19:40 J -16641496.88 -16641496.68 -16641496.48 0.1878 0.0507

Earth -50275-01-25 03:35 J -16641496.52 -16641496.35 -16641496.18 0.1877 0.0925 *

Mercury -50274-02-13 05:01 J -16641112.38 -16641112.29 -16641112.19 0.1665 0.1089

Mercury -50272-01-18 16:33 J -16640406.86 -16640406.81 -16640406.76 0.1689 0.1506

Mercury -50272-11-11 22:47 J -16640109.69 -16640109.55 -16640109.42 0.1857 0.0842

Mercury -50263-06-11 01:54 J -16636976.53 -16636976.42 -16636976.32 0.1683 0.0883

Mercury -50262-04-03 23:01 J -16636679.69 -16636679.54 -16636679.40 0.1865 0.0380

Mercury -50254-11-01 11:01 J -16633546.17 -16633546.04 -16633545.92 0.1676 0.0254

Mercury -50253-08-23 23:30 J -16633249.59 -16633249.52 -16633249.44 0.1873 0.1578

Mercury -50244-03-23 20:09 J -16630115.78 -16630115.66 -16630115.53 0.1670 0.0373

Venus -50240-06-14 03:06 J -16628572.51 -16628572.37 -16628572.23 0.1929 0.1116

Venus -50237-03-21 21:06 J -16627560.80 -16627560.62 -16627560.45 0.1606 0.0250

Mercury -50235-08-14 05:16 J -16626685.38 -16626685.28 -16626685.18 0.1665 0.1003

Mercury -50233-07-19 16:47 J -16625979.84 -16625979.80 -16625979.77 0.1689 0.1595

Mercury -50232-05-12 22:47 J -16625682.67 -16625682.55 -16625682.42 0.1857 0.0950

Mercury -50225-01-04 14:09 J -16623254.93 -16623254.91 -16623254.88 0.1659 0.1628

Mercury -50224-12-10 01:54 J -16622549.53 -16622549.42 -16622549.32 0.1683 0.0963

Mercury -50223-10-02 23:30 J -16622252.67 -16622252.52 -16622252.38 0.1865 0.0247

Mercury -50214-05-02 11:01 J -16619119.16 -16619119.04 -16619118.91 0.1677 0.0342

Mercury -50213-02-22 23:59 J -16618822.59 -16618822.50 -16618822.41 0.1873 0.1450

Venus -50205-03-20 17:01 J -16615873.81 -16615873.79 -16615873.77 0.1601 0.1588

Mercury -50205-09-21 20:23 J -16615688.78 -16615688.65 -16615688.53 0.1671 0.0290

Moon -50203-07-30 03:21 J -16615012.54 -16615012.36 -16615012.17 0.1658 0.0372

Earth -50203-07-30 09:35 J -16615012.27 -16615012.10 -16615011.92 0.1658 0.0601 *

Mercury -50195-02-12 05:16 J -16612258.38 -16612258.28 -16612258.17 0.1665 0.0913

Mercury -50193-01-18 16:47 J -16611552.81 -16611552.80 -16611552.79 0.1689 0.1677

Mercury -50193-11-10 23:16 J -16611255.65 -16611255.53 -16611255.41 0.1857 0.1081

Mercury -50186-07-05 14:23 J -16608827.94 -16608827.90 -16608827.85 0.1659 0.1536

Mercury -50184-06-10 01:54 J -16608122.51 -16608122.42 -16608122.32 0.1683 0.1053

Mercury -50183-04-02 23:45 J -16607825.66 -16607825.51 -16607825.36 0.1865 0.0128

Mercury -50175-10-31 11:16 J -16604692.15 -16604692.03 -16604691.91 0.1677 0.0427

Venus -50174-04-11 06:57 J -16604530.26 -16604530.21 -16604530.15 0.1926 0.1809

Mercury -50174-08-24 00:13 J -16604395.59 -16604395.49 -16604395.39 0.1873 0.1340

Venus -50171-01-17 08:09 J -16603518.33 -16603518.16 -16603517.98 0.1608 0.0478

Mercury -50165-03-22 20:23 J -16601261.78 -16601261.65 -16601261.53 0.1671 0.0205

Mercury -50156-08-13 05:30 J -16597831.38 -16597831.27 -16597831.16 0.1665 0.0823

Mercury -50153-05-11 23:59 J -16596828.61 -16596828.50 -16596828.39 0.1856 0.1220

Mercury -50146-01-03 14:37 J -16594400.95 -16594400.89 -16594400.83 0.1659 0.1449

Mercury -50145-12-09 02:09 J -16593695.50 -16593695.41 -16593695.32 0.1683 0.1138

Mercury -50144-10-01 23:59 J -16593398.65 -16593398.50 -16593398.35 0.1865 0.0035

Venus -50142-04-11 02:52 J -16592842.43 -16592842.38 -16592842.34 0.1934 0.1863

Venus -50139-01-16 04:33 J -16591831.40 -16591831.31 -16591831.22 0.1603 0.1372

Mercury -50135-05-01 11:16 J -16590265.15 -16590265.03 -16590264.91 0.1677 0.0510

Mercury -50134-02-22 00:42 J -16589968.58 -16589968.47 -16589968.36 0.1872 0.1209

Mercury -50126-09-21 20:23 J -16586834.77 -16586834.65 -16586834.52 0.1671 0.0124

Mercury -50116-02-11 05:30 J -16583404.38 -16583404.27 -16583404.15 0.1665 0.0739

Mercury -50114-11-10 23:59 J -16582401.60 -16582401.50 -16582401.40 0.1856 0.1323

Mercury -50107-07-04 14:37 J -16579973.96 -16579973.89 -16579973.82 0.1660 0.1362

Venus -50106-11-14 19:40 J -16579475.84 -16579475.68 -16579475.52 0.1609 0.0705

Mercury -50105-06-09 02:09 J -16579268.50 -16579268.41 -16579268.33 0.1683 0.1217

Mercury -50104-04-02 00:42 J -16578971.62 -16578971.47 -16578971.32 0.1864 0.0132

Mercury -50096-10-30 11:30 J -16575838.14 -16575838.02 -16575837.91 0.1677 0.0600

Mercury -50095-08-23 00:57 J -16575541.57 -16575541.46 -16575541.34 0.1872 0.1087

Mercury -50086-03-22 20:37 J -16572407.77 -16572407.64 -16572407.51 0.1671 0.0030

Mercury -50077-08-12 05:45 J -16568977.38 -16568977.26 -16568977.14 0.1665 0.0649

Venus -50076-02-05 06:13 J -16568800.38 -16568800.24 -16568800.11 0.1932 0.1142

Mercury -50074-05-12 00:42 J -16567974.56 -16567974.47 -16567974.38 0.1856 0.1461

Venus -50074-11-13 16:04 J -16567788.96 -16567788.83 -16567788.71 0.1604 0.1146

Mercury -50067-01-02 14:52 J -16565546.96 -16565546.88 -16565546.80 0.1659 0.1273

Mercury -50066-12-09 02:09 J -16564841.48 -16564841.41 -16564841.33 0.1683 0.1305

Mercury -50065-10-01 00:42 J -16564544.61 -16564544.47 -16564544.32 0.1864 0.0241

Mercury -50056-04-30 11:30 J -16561411.14 -16561411.02 -16561410.91 0.1677 0.0681

Mercury -50055-02-21 01:25 J -16561114.57 -16561114.44 -16561114.32 0.1872 0.0970

Mercury -50047-09-20 20:37 J -16557980.77 -16557980.64 -16557980.51 0.1671 0.0059

Venus -50040-09-11 07:11 J -16555433.35 -16555433.20 -16555433.06 0.1611 0.0936

Mercury -50037-02-11 05:45 J -16554550.38 -16554550.26 -16554550.14 0.1665 0.0563

Mercury -50035-11-10 00:57 J -16553547.53 -16553547.46 -16553547.38 0.1856 0.1590

Mercury -50028-07-03 14:52 J -16551119.97 -16551119.88 -16551119.79 0.1660 0.1184

Mercury -50026-06-09 02:23 J -16550414.47 -16550414.40 -16550414.33 0.1683 0.1390

Mercury -50025-04-01 01:11 J -16550117.59 -16550117.45 -16550117.30 0.1864 0.0368

Mercury -50017-10-29 11:30 J -16546984.13 -16546984.02 -16546983.90 0.1677 0.0769

Mercury -50016-08-22 01:40 J -16546687.56 -16546687.43 -16546687.30 0.1872 0.0843

Venus -50011-12-03 10:18 J -16544758.23 -16544758.07 -16544757.90 0.1929 0.0460

Venus -50008-09-10 03:49 J -16543746.48 -16543746.34 -16543746.19 0.1606 0.0933

Mercury -50007-03-21 20:52 J -16543553.76 -16543553.63 -16543553.51 0.1671 0.0153

50TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 50th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Earth | -49998-07-29 04:47 J | -16540137.48 | -16540137.30 | -16540137.12 | 0.1649 | 0.0517 | | |
| Moon | -49998-07-29 11:59 J | -16540137.19 | -16540137.00 | -16540136.81 | 0.1649 | 0.0232 | * | |
| Mercury | -49998-08-12 05:59 J | -16540123.38 | -16540123.25 | -16540123.13 | 0.1665 | 0.0482 | | |
| Mercury | -49995-05-11 01:11 J | -16539120.50 | -16539120.45 | -16539120.39 | 0.1856 | 0.1702 | | |
| Earth | -49991-01-24 11:16 J | -16537766.23 | -16537766.03 | -16537765.83 | 0.1887 | 0.0249 | | |
| Moon | -49991-01-24 11:01 J | -16537766.22 | -16537766.04 | -16537765.87 | 0.1887 | 0.0566 | * | |
| Mercury | -49988-01-01 15:06 J | -16536692.97 | -16536692.87 | -16536692.78 | 0.1660 | 0.1099 | | |
| Mercury | -49987-12-08 02:23 J | -16535987.46 | -16535987.40 | -16535987.34 | 0.1683 | 0.1469 | | |
| Mercury | -49986-10-01 01:40 J | -16535690.57 | -16535690.43 | -16535690.28 | 0.1864 | 0.0502 | | |
| Mercury | -49977-04-29 11:45 J | -16532557.12 | -16532557.01 | -16532556.91 | 0.1677 | 0.0853 | | |
| Mercury | -49976-02-20 02:09 J | -16532260.55 | -16532260.41 | -16532260.27 | 0.1872 | 0.0717 | | |
| Venus | -49974-07-09 18:13 J | -16531390.86 | -16531390.74 | -16531390.62 | 0.1613 | 0.1170 | | |
| Mercury | -49968-09-19 20:52 J | -16529126.75 | -16529126.63 | -16529126.50 | 0.1671 | 0.0233 | | |
| Mercury | -49958-02-10 05:59 J | -16525696.37 | -16525696.25 | -16525696.12 | 0.1665 | 0.0390 | | |
| Mercury | -49956-11-09 01:40 J | -16524693.45 | -16524693.43 | -16524693.41 | 0.1856 | 0.1834 | | |
| Mercury | -49949-07-02 15:06 J | -16522265.97 | -16522265.87 | -16522265.77 | 0.1660 | 0.1009 | | |
| Mercury | -49947-06-08 02:23 J | -16521560.44 | -16521560.40 | -16521560.35 | 0.1683 | 0.1557 | | |
| Mercury | -49946-04-01 01:54 J | -16521263.56 | -16521263.42 | -16521263.28 | 0.1864 | 0.0615 | | |
| Venus | -49945-09-29 13:54 J | -16520716.09 | -16520715.92 | -16520715.76 | 0.1926 | 0.0261 | | |
| Venus | -49942-07-08 14:37 J | -16519704.05 | -16519703.89 | -16519703.73 | 0.1608 | 0.0694 | | |
| Mercury | -49940-11-22 23:59 J | -16518835.51 | -16518835.50 | -16518835.48 | 0.1654 | 0.1635 | | |
| Mercury | -49938-10-29 11:45 J | -16518130.11 | -16518130.01 | -16518129.91 | 0.1677 | 0.0935 | | |
| Mercury | -49937-08-21 02:23 J | -16517833.54 | -16517833.40 | -16517833.26 | 0.1872 | 0.0602 | | |
| Mercury | -49928-03-20 20:52 J | -16514699.75 | -16514699.63 | -16514699.50 | 0.1671 | 0.0316 | | |
| Mercury | -49927-01-11 03:21 J | -16514403.40 | -16514403.36 | -16514403.32 | 0.1879 | 0.1783 | | |

Earth -49919-07-31 10:47 J -16511280.22 -16511280.05 -16511279.89 0.1653 0.0799
 Moon -49919-07-31 14:37 J -16511280.05 -16511279.89 -16511279.73 0.1653 0.0717 *
 Mercury -49919-08-11 06:13 J -16511269.37 -16511269.24 -16511269.12 0.1666 0.0302
 Mercury -49909-01-01 15:21 J -16507838.97 -16507838.86 -16507838.76 0.1660 0.0924
 Venus -49908-05-06 05:16 J -16507348.37 -16507348.28 -16507348.20 0.1615 0.1410
 Mercury -49908-12-07 02:37 J -16507133.42 -16507133.39 -16507133.37 0.1684 0.1640
 Mercury -49907-09-30 02:23 J -16506836.54 -16506836.40 -16506836.27 0.1864 0.0734
 Mercury -49900-05-24 00:13 J -16504408.53 -16504408.49 -16504408.44 0.1655 0.1543
 Mercury -49898-04-29 11:45 J -16503703.11 -16503703.01 -16503702.91 0.1677 0.1020
 Mercury -49897-02-20 02:52 J -16503406.52 -16503406.38 -16503406.24 0.1872 0.0474
 Mercury -49889-09-18 21:06 J -16500272.74 -16500272.62 -16500272.50 0.1671 0.0404
 Mercury -49888-07-12 03:21 J -16499976.42 -16499976.36 -16499976.29 0.1879 0.1679
 Mercury -49879-02-09 06:13 J -16496842.37 -16496842.24 -16496842.12 0.1665 0.0220
 Venus -49879-07-27 17:45 J -16496673.90 -16496673.76 -16496673.61 0.1923 0.0938
 Venus -49876-05-05 02:09 J -16495661.58 -16495661.41 -16495661.24 0.1609 0.0471
 Mercury -49870-07-02 15:21 J -16493411.97 -16493411.86 -16493411.75 0.1660 0.0836
 Mercury -49867-03-31 02:52 J -16492409.51 -16492409.38 -16492409.25 0.1864 0.0877
 Mercury -49861-11-22 00:28 J -16489981.54 -16489981.48 -16489981.42 0.1655 0.1455
 Mercury -49859-10-28 11:59 J -16489276.09 -16489276.00 -16489275.91 0.1678 0.1107
 Mercury -49858-08-21 03:06 J -16488979.51 -16488979.37 -16488979.22 0.1871 0.0355
 Mercury -49849-03-19 21:06 J -16485845.74 -16485845.62 -16485845.50 0.1671 0.0489
 Mercury -49848-01-10 03:49 J -16485549.42 -16485549.34 -16485549.26 0.1879 0.1553
 Mercury -49840-08-10 06:28 J -16482415.36 -16482415.23 -16482415.11 0.1666 0.0140
 Mercury -49831-12-31 15:21 J -16478984.97 -16478984.86 -16478984.74 0.1660 0.0751
 Mercury -49828-09-29 03:06 J -16477982.50 -16477982.37 -16477982.25 0.1863 0.0981
 Mercury -49821-05-23 00:28 J -16475554.55 -16475554.48 -16475554.41 0.1655 0.1370
 Mercury -49819-04-28 11:59 J -16474849.09 -16474849.00 -16474848.91 0.1677 0.1187
 Mercury -49818-02-19 03:35 J -16474552.50 -16474552.35 -16474552.21 0.1872 0.0233
 Venus -49813-05-23 22:04 J -16472631.67 -16472631.58 -16472631.48 0.1920 0.1594
 Venus -49810-03-02 13:25 J -16471619.12 -16471618.94 -16471618.76 0.1611 0.0237

Mercury -49810-09-18 21:21 J -16471418.73 -16471418.61 -16471418.50 0.1672 0.0574
 Mercury -49809-07-11 04:18 J -16471122.41 -16471122.32 -16471122.22 0.1879 0.1420
 Mercury -49800-02-08 06:28 J -16467988.36 -16467988.23 -16467988.10 0.1666 0.0043
 Earth -49793-07-27 03:06 J -16465262.43 -16465262.37 -16465262.30 0.1641 0.1534
 Mercury -49791-07-01 15:35 J -16464557.97 -16464557.85 -16464557.73 0.1660 0.0661
 Mercury -49788-03-30 03:35 J -16463555.47 -16463555.35 -16463555.23 0.1863 0.1111
 Mercury -49782-11-22 00:42 J -16461127.55 -16461127.47 -16461127.39 0.1655 0.1280
 Mercury -49780-10-27 11:59 J -16460422.08 -16460422.00 -16460421.91 0.1678 0.1275
 Mercury -49779-08-20 03:49 J -16460125.48 -16460125.34 -16460125.19 0.1871 0.0117
 Mercury -49770-03-19 21:21 J -16456991.73 -16456991.61 -16456991.49 0.1672 0.0658
 Mercury -49769-01-10 04:18 J -16456695.42 -16456695.32 -16456695.21 0.1879 0.1320
 Mercury -49761-08-09 06:28 J -16453561.35 -16453561.23 -16453561.10 0.1666 0.0049
 Mercury -49752-12-30 15:35 J -16450130.97 -16450130.85 -16450130.73 0.1660 0.0578
 Mercury -49749-09-28 04:04 J -16449128.44 -16449128.33 -16449128.22 0.1863 0.1245
 Venus -49745-12-28 00:28 J -16447576.66 -16447576.48 -16447576.30 0.1613 0.0023
 Mercury -49742-05-23 00:42 J -16446700.56 -16446700.47 -16446700.38 0.1655 0.1193
 Mercury -49740-04-27 12:13 J -16445995.06 -16445994.99 -16445994.92 0.1678 0.1356
 Mercury -49739-02-18 04:18 J -16445698.47 -16445698.32 -16445698.17 0.1871 0.0024
 Mercury -49731-09-17 21:21 J -16442564.72 -16442564.61 -16442564.49 0.1672 0.0745
 Mercury -49730-07-11 04:47 J -16442268.41 -16442268.30 -16442268.18 0.1879 0.1188
 Mercury -49721-02-08 06:42 J -16439134.35 -16439134.22 -16439134.09 0.1666 0.0128
 Venus -49715-03-20 21:06 J -16436901.74 -16436901.62 -16436901.50 0.1926 0.1301
 Moon -49714-07-30 03:49 J -16436405.54 -16436405.34 -16436405.14 0.1644 0.0192
 Earth -49714-07-30 07:11 J -16436405.39 -16436405.20 -16436405.01 0.1644 0.0292 *
 Mercury -49712-06-30 15:49 J -16435703.96 -16435703.84 -16435703.72 0.1660 0.0489
 Mercury -49709-03-29 04:18 J -16434701.42 -16434701.32 -16434701.22 0.1863 0.1356
 Earth -49707-01-23 16:47 J -16434035.92 -16434035.80 -16434035.69 0.1895 0.1554
 Moon -49707-01-24 00:13 J -16434035.58 -16434035.49 -16434035.40 0.1895 0.1686
 Mercury -49703-11-21 00:42 J -16432273.56 -16432273.47 -16432273.37 0.1655 0.1110
 Mercury -49701-10-26 12:13 J -16431568.05 -16431567.99 -16431567.93 0.1678 0.1438

Mercury -49700-08-19 04:33 J -16431271.45 -16431271.31 -16431271.16 0.1871 0.0149
 Mercury -49691-03-18 21:35 J -16428137.71 -16428137.60 -16428137.49 0.1672 0.0826
 Mercury -49690-01-09 05:16 J -16427841.40 -16427841.28 -16427841.16 0.1878 0.1058
 Mercury -49682-08-09 06:42 J -16424707.34 -16424707.22 -16424707.09 0.1666 0.0220
 Venus -49679-10-25 11:45 J -16423534.19 -16423534.01 -16423533.83 0.1615 0.0229
 Mercury -49673-12-29 15:49 J -16421276.96 -16421276.84 -16421276.71 0.1660 0.0406
 Mercury -49670-09-28 04:33 J -16420274.40 -16420274.31 -16420274.22 0.1863 0.1479
 Mercury -49663-05-22 00:57 J -16417846.56 -16417846.46 -16417846.36 0.1655 0.1018
 Mercury -49661-04-26 12:13 J -16417141.03 -16417140.99 -16417140.93 0.1678 0.1524
 Mercury -49660-02-17 05:01 J -16416844.44 -16416844.29 -16416844.14 0.1871 0.0265
 Mercury -49654-10-12 10:04 J -16414416.10 -16414416.08 -16414416.07 0.1650 0.1637
 Mercury -49652-09-16 21:35 J -16413710.70 -16413710.60 -16413710.49 0.1672 0.0913
 Mercury -49651-07-10 05:30 J -16413414.40 -16413414.27 -16413414.15 0.1878 0.0952
 Venus -49649-01-16 00:42 J -16412859.62 -16412859.47 -16412859.30 0.1923 0.0613
 Mercury -49642-02-07 06:42 J -16410280.34 -16410280.22 -16410280.09 0.1666 0.0301
 Earth -49635-08-01 12:28 J -16407548.13 -16407547.98 -16407547.83 0.1648 0.1008
 Moon -49635-08-01 17:59 J -16407547.91 -16407547.75 -16407547.58 0.1648 0.0918 *
 Mercury -49633-06-29 16:04 J -16406849.96 -16406849.83 -16406849.70 0.1661 0.0315
 Mercury -49630-03-29 05:16 J -16405847.35 -16405847.28 -16405847.21 0.1863 0.1623
 Earth -49628-01-27 00:28 J -16405177.61 -16405177.48 -16405177.33 0.1889 0.1330
 Moon -49628-01-27 05:45 J -16405177.32 -16405177.26 -16405177.20 0.1889 0.1769
 Mercury -49624-11-20 01:11 J -16403419.56 -16403419.45 -16403419.35 0.1655 0.0930
 Mercury -49622-10-26 12:28 J -16402714.01 -16402713.98 -16402713.95 0.1678 0.1608
 Mercury -49621-08-18 05:30 J -16402417.42 -16402417.27 -16402417.13 0.1870 0.0391
 Mercury -49614-04-12 10:04 J -16399989.12 -16399989.08 -16399989.03 0.1650 0.1548
 Venus -49613-08-21 22:47 J -16399491.72 -16399491.55 -16399491.38 0.1617 0.0466
 Mercury -49612-03-17 21:49 J -16399283.69 -16399283.59 -16399283.49 0.1672 0.0996
 Mercury -49611-01-08 05:59 J -16398987.38 -16398987.25 -16398987.12 0.1878 0.0825
 Mercury -49603-08-08 06:57 J -16395853.33 -16395853.21 -16395853.08 0.1666 0.0385
 Mercury -49594-12-29 16:04 J -16392422.95 -16392422.83 -16392422.70 0.1661 0.0235

Mercury -49591-09-27 05:16 J -16391420.33 -16391420.28 -16391420.22 0.1862 0.1726

Mercury -49584-05-21 01:11 J -16388992.56 -16388992.45 -16388992.34 0.1655 0.0847

Venus -49584-11-12 05:30 J -16388817.44 -16388817.27 -16388817.11 0.1920 0.0064

Mercury -49581-02-17 05:45 J -16387990.40 -16387990.26 -16387990.12 0.1871 0.0512

Venus -49581-08-20 20:09 J -16387804.74 -16387804.66 -16387804.58 0.1611 0.1412

Mercury -49575-10-11 10:18 J -16385562.13 -16385562.07 -16385562.01 0.1650 0.1458

Mercury -49573-09-15 21:49 J -16384856.69 -16384856.59 -16384856.50 0.1672 0.1078

Mercury -49572-07-09 06:28 J -16384560.37 -16384560.23 -16384560.10 0.1878 0.0691

Mercury -49563-02-06 07:11 J -16381426.32 -16381426.20 -16381426.08 0.1666 0.0471

Mercury -49554-06-29 16:18 J -16377995.95 -16377995.82 -16377995.69 0.1661 0.0144

Mercury -49551-03-28 05:59 J -16376993.26 -16376993.25 -16376993.25 0.1862 0.1858

Venus -49547-06-19 09:49 J -16375449.25 -16375449.09 -16375448.93 0.1619 0.0704

Mercury -49545-11-19 01:25 J -16374565.56 -16374565.44 -16374565.33 0.1655 0.0757

Mercury -49542-08-18 06:13 J -16373563.38 -16373563.24 -16373563.10 0.1870 0.0636

Mercury -49535-04-11 10:18 J -16371135.14 -16371135.07 -16371135.00 0.1650 0.1375

Mercury -49533-03-16 21:49 J -16370429.67 -16370429.59 -16370429.50 0.1672 0.1166

Mercury -49532-01-07 06:28 J -16370133.37 -16370133.23 -16370133.09 0.1878 0.0588

Mercury -49524-08-07 07:11 J -16366999.32 -16366999.20 -16366999.08 0.1666 0.0551

Mercury -49523-05-30 07:40 J -16366703.23 -16366703.18 -16366703.13 0.1885 0.1758

Venus -49518-09-09 09:21 J -16364775.27 -16364775.11 -16364774.95 0.1917 0.0726

Venus -49515-06-18 06:57 J -16363762.33 -16363762.21 -16363762.09 0.1613 0.1173

Mercury -49515-12-28 16:18 J -16363568.94 -16363568.82 -16363568.69 0.1661 0.0071

Earth -49509-07-28 06:13 J -16361530.35 -16361530.24 -16361530.12 0.1636 0.1289

Moon -49509-07-28 08:23 J -16361530.23 -16361530.15 -16361530.07 0.1636 0.1465 *

Mercury -49505-05-20 01:25 J -16360138.55 -16360138.44 -16360138.32 0.1656 0.0671

Mercury -49502-02-16 06:28 J -16359136.36 -16359136.23 -16359136.09 0.1870 0.0757

Mercury -49496-10-10 10:33 J -16356708.14 -16356708.06 -16356707.98 0.1650 0.1282

Mercury -49494-09-15 22:04 J -16356002.66 -16356002.58 -16356002.50 0.1672 0.1248

Mercury -49493-07-08 06:57 J -16355706.35 -16355706.21 -16355706.06 0.1878 0.0456

Mercury -49484-02-05 07:11 J -16352572.31 -16352572.20 -16352572.08 0.1667 0.0642

Mercury -49484-11-28 07:40 J -16352276.24 -16352276.18 -16352276.11 0.1885 0.1654

Venus -49481-04-15 20:52 J -16351406.78 -16351406.63 -16351406.49 0.1621 0.0944

Mercury -49475-06-28 16:33 J -16349141.94 -16349141.81 -16349141.68 0.1661 0.0041

Mercury -49466-11-19 01:40 J -16345711.55 -16345711.43 -16345711.31 0.1656 0.0586

Mercury -49463-08-17 06:57 J -16344709.34 -16344709.21 -16344709.08 0.1870 0.0887

Mercury -49456-04-10 10:47 J -16342281.14 -16342281.05 -16342280.97 0.1650 0.1196

Mercury -49454-03-16 22:04 J -16341575.65 -16341575.58 -16341575.50 0.1673 0.1330

Mercury -49453-01-07 07:25 J -16341279.33 -16341279.19 -16341279.04 0.1877 0.0326

Venus -49452-07-06 13:40 J -16340733.04 -16340732.93 -16340732.81 0.1914 0.1371

Venus -49449-04-14 18:28 J -16339719.88 -16339719.73 -16339719.59 0.1615 0.0951

Mercury -49445-08-06 07:25 J -16338145.30 -16338145.19 -16338145.08 0.1667 0.0724

Mercury -49444-05-29 08:09 J -16337849.24 -16337849.16 -16337849.08 0.1885 0.1530

Mercury -49436-12-27 16:33 J -16334714.93 -16334714.81 -16334714.68 0.1661 0.0118

Moon -49430-07-31 05:45 J -16332673.44 -16332673.26 -16332673.08 0.1640 0.0042

Earth -49430-07-31 10:33 J -16332673.25 -16332673.06 -16332672.87 0.1640 0.0060 *

Mercury -49426-05-20 01:40 J -16331284.55 -16331284.43 -16331284.30 0.1656 0.0499

Mercury -49423-02-15 07:11 J -16330282.32 -16330282.20 -16330282.07 0.1870 0.1010

Mercury -49417-10-09 10:47 J -16327854.14 -16327854.05 -16327853.96 0.1650 0.1111

Venus -49415-02-11 08:09 J -16327364.28 -16327364.16 -16327364.04 0.1623 0.1177

Mercury -49415-09-14 22:18 J -16327148.64 -16327148.57 -16327148.51 0.1673 0.1416

Mercury -49414-07-08 07:40 J -16326852.33 -16326852.18 -16326852.04 0.1878 0.0219

Mercury -49405-02-05 07:25 J -16323718.30 -16323718.19 -16323718.08 0.1667 0.0805

Mercury -49405-11-27 08:37 J -16323422.23 -16323422.14 -16323422.04 0.1885 0.1397

Mercury -49396-06-27 16:47 J -16320287.93 -16320287.80 -16320287.67 0.1661 0.0201

Mercury -49387-11-18 01:54 J -16316857.55 -16316857.42 -16316857.30 0.1656 0.0409

Mercury -49384-08-16 07:40 J -16315855.30 -16315855.18 -16315855.06 0.1870 0.1130

Venus -49383-02-10 05:30 J -16315677.43 -16315677.27 -16315677.11 0.1617 0.0714

Mercury -49377-04-09 11:01 J -16313427.14 -16313427.04 -16313426.94 0.1651 0.1022

Mercury -49375-03-15 22:18 J -16312721.62 -16312721.57 -16312721.52 0.1673 0.1498

Mercury -49374-01-06 08:09 J -16312425.31 -16312425.16 -16312425.02 0.1877 0.0090

Mercury -49368-08-30 19:54 J -16309996.68 -16309996.67 -16309996.65 0.1646 0.1631

Mercury -49366-08-06 07:40 J -16309291.29 -16309291.18 -16309291.07 0.1667 0.0894

Mercury -49365-05-28 08:52 J -16308995.24 -16308995.13 -16308995.03 0.1884 0.1285

Mercury -49357-12-26 16:47 J -16305860.92 -16305860.80 -16305860.67 0.1661 0.0284

Venus -49354-05-03 11:59 J -16305003.11 -16305003.00 -16305002.89 0.1920 0.1464

Moon -49351-08-02 09:21 J -16303816.25 -16303816.11 -16303815.96 0.1643 0.1119

Earth -49351-08-02 15:21 J -16303815.98 -16303815.86 -16303815.73 0.1643 0.1237 *

Venus -49350-12-09 18:28 J -16303321.81 -16303321.73 -16303321.64 0.1626 0.1432

Mercury -49347-05-19 01:54 J -16302430.54 -16302430.42 -16302430.29 0.1656 0.0329

Earth -49344-01-26 07:11 J -16301447.40 -16301447.20 -16301447.00 0.1898 0.0086

Moon -49344-01-26 08:52 J -16301447.35 -16301447.13 -16301446.91 0.1898 0.0303 *

Mercury -49344-02-14 08:09 J -16301428.27 -16301428.16 -16301428.05 0.1870 0.1261

Mercury -49338-10-09 11:01 J -16299000.14 -16299000.04 -16298999.93 0.1651 0.0933

Mercury -49336-09-13 22:18 J -16298294.60 -16298294.57 -16298294.53 0.1673 0.1582

Mercury -49335-07-07 08:37 J -16297998.29 -16297998.14 -16297997.99 0.1877 0.0048

Mercury -49328-02-28 20:09 J -16295569.70 -16295569.66 -16295569.62 0.1646 0.1542

Mercury -49326-02-04 07:40 J -16294864.28 -16294864.18 -16294864.07 0.1667 0.0980

Mercury -49326-11-27 09:06 J -16294568.23 -16294568.12 -16294568.00 0.1884 0.1167

Venus -49318-12-08 16:18 J -16291634.99 -16291634.82 -16291634.65 0.1619 0.0478

Mercury -49317-06-26 17:01 J -16291433.92 -16291433.79 -16291433.67 0.1661 0.0372

Mercury -49308-11-17 02:09 J -16288003.54 -16288003.41 -16288003.28 0.1656 0.0236

Mercury -49305-08-15 08:23 J -16287001.24 -16287001.15 -16287001.05 0.1869 0.1384

Mercury -49298-04-09 11:16 J -16284573.14 -16284573.03 -16284572.92 0.1651 0.0850

Mercury -49296-03-14 22:33 J -16283867.57 -16283867.56 -16283867.55 0.1673 0.1665

Mercury -49295-01-05 08:37 J -16283571.28 -16283571.14 -16283570.99 0.1877 0.0159

Mercury -49289-08-29 20:09 J -16281142.71 -16281142.66 -16281142.60 0.1646 0.1457

Venus -49288-02-27 16:47 J -16280960.95 -16280960.80 -16280960.65 0.1917 0.0822

Mercury -49287-08-05 07:40 J -16280437.27 -16280437.18 -16280437.08 0.1667 0.1060

Mercury -49286-05-28 09:49 J -16280141.21 -16280141.09 -16280140.97 0.1884 0.1028

Mercury -49278-12-26 17:01 J -16277006.91 -16277006.79 -16277006.67 0.1662 0.0457

Mercury -49268-05-18 02:23 J -16273576.53 -16273576.40 -16273576.28 0.1656 0.0159

Mercury -49265-02-14 08:52 J -16272574.22 -16272574.13 -16272574.04 0.1869 0.1504

Mercury -49259-10-08 11:30 J -16270146.14 -16270146.02 -16270145.91 0.1651 0.0760

Mercury -49256-07-06 09:21 J -16269144.26 -16269144.11 -16269143.97 0.1877 0.0289

Venus -49252-10-05 03:35 J -16267592.52 -16267592.35 -16267592.17 0.1621 0.0244

Mercury -49249-02-28 20:23 J -16266715.72 -16266715.65 -16266715.58 0.1646 0.1368

Mercury -49247-02-03 07:54 J -16266010.26 -16266010.17 -16266010.08 0.1667 0.1146

Mercury -49247-11-26 09:49 J -16265714.22 -16265714.09 -16265713.96 0.1884 0.0924

Mercury -49238-06-26 17:16 J -16262579.90 -16262579.78 -16262579.66 0.1662 0.0542

Mercury -49229-11-16 02:23 J -16259149.53 -16259149.40 -16259149.27 0.1656 0.0066

Mercury -49226-08-15 09:21 J -16258147.18 -16258147.11 -16258147.04 0.1869 0.1639

Earth -49225-07-29 10:33 J -16257798.21 -16257798.06 -16257797.92 0.1632 0.1019

Moon -49225-07-29 15:49 J -16257797.98 -16257797.84 -16257797.69 0.1633 0.1125 *

Venus -49223-12-25 21:06 J -16256918.78 -16256918.62 -16256918.45 0.1914 0.0179

Mercury -49219-04-08 11:30 J -16255719.14 -16255719.02 -16255718.90 0.1651 0.0672

Mercury -49216-01-04 09:49 J -16254717.24 -16254717.09 -16254716.95 0.1876 0.0418

Mercury -49210-08-29 20:37 J -16252288.72 -16252288.64 -16252288.56 0.1646 0.1279

Mercury -49208-08-04 08:09 J -16251583.25 -16251583.16 -16251583.08 0.1667 0.1231

Mercury -49207-05-27 10:18 J -16251287.20 -16251287.07 -16251286.94 0.1884 0.0797

Mercury -49199-12-25 17:16 J -16248152.90 -16248152.78 -16248152.66 0.1662 0.0627

Mercury -49189-05-17 02:37 J -16244722.52 -16244722.39 -16244722.27 0.1656 0.0049

Mercury -49186-02-13 09:35 J -16243720.14 -16243720.10 -16243720.05 0.1869 0.1757

Venus -49186-08-02 14:23 J -16243550.08 -16243549.90 -16243549.72 0.1623 0.0007

Mercury -49180-10-07 11:30 J -16241292.14 -16241292.02 -16241291.90 0.1651 0.0590

Mercury -49177-07-05 09:49 J -16240290.23 -16240290.09 -16240289.95 0.1877 0.0527

Mercury -49170-02-27 20:37 J -16237861.72 -16237861.64 -16237861.55 0.1646 0.1192

Mercury -49168-02-02 08:09 J -16237156.24 -16237156.16 -16237156.08 0.1667 0.1310

Mercury -49168-11-25 10:47 J -16236860.18 -16236860.05 -16236859.91 0.1884 0.0663

Mercury -49159-06-25 17:30 J -16233725.89 -16233725.77 -16233725.66 0.1662 0.0713

Mercury -49158-04-17 11:30 J -16233430.04 -16233430.02 -16233429.99 0.1891 0.1860

Venus -49157-10-22 02:09 J -16232876.58 -16232876.41 -16232876.25 0.1910 0.0458

Mercury -49150-11-16 02:37 J -16230295.52 -16230295.39 -16230295.26 0.1656 0.0110

Earth -49146-08-01 14:23 J -16228941.08 -16228940.90 -16228940.71 0.1636 0.0217

Moon -49146-08-01 19:25 J -16228940.87 -16228940.69 -16228940.52 0.1636 0.0410 *

Mercury -49140-04-07 11:45 J -16226865.13 -16226865.01 -16226864.89 0.1651 0.0499

Mercury -49137-01-04 10:33 J -16225863.20 -16225863.06 -16225862.93 0.1876 0.0660

Mercury -49131-08-28 20:52 J -16223434.72 -16223434.63 -16223434.53 0.1646 0.1103

Mercury -49129-08-03 08:23 J -16222729.22 -16222729.15 -16222729.09 0.1668 0.1399

Mercury -49128-05-26 11:01 J -16222433.18 -16222433.04 -16222432.90 0.1883 0.0552

Venus -49120-05-30 01:25 J -16219507.61 -16219507.44 -16219507.26 0.1626 0.0239

Mercury -49120-12-24 17:30 J -16219298.88 -16219298.77 -16219298.66 0.1662 0.0793

Mercury -49119-10-16 11:59 J -16219003.06 -16219003.00 -16219002.95 0.1891 0.1745

Mercury -49110-05-17 02:52 J -16215868.51 -16215868.38 -16215868.26 0.1657 0.0200

Mercury -49101-10-06 11:59 J -16212438.13 -16212438.00 -16212437.88 0.1651 0.0409

Mercury -49098-07-05 11:01 J -16211436.18 -16211436.04 -16211435.91 0.1876 0.0791

Mercury -49091-02-26 21:06 J -16209007.73 -16209007.62 -16209007.52 0.1646 0.1017

Venus -49091-08-19 06:28 J -16208834.36 -16208834.23 -16208834.09 0.1907 0.1096

Mercury -49089-02-02 08:23 J -16208302.21 -16208302.15 -16208302.09 0.1668 0.1481

Mercury -49089-11-24 11:16 J -16208006.17 -16208006.03 -16208005.88 0.1884 0.0435

Mercury -49082-07-20 05:59 J -16205577.26 -16205577.25 -16205577.23 0.1642 0.1622

Mercury -49080-06-24 17:45 J -16204871.87 -16204871.76 -16204871.66 0.1662 0.0881

Mercury -49079-04-16 12:13 J -16204576.06 -16204575.99 -16204575.91 0.1890 0.1617

Mercury -49071-11-15 02:52 J -16201441.50 -16201441.38 -16201441.25 0.1657 0.0283

Moon -49067-08-03 17:16 J -16200083.87 -16200083.78 -16200083.70 0.1639 0.1419

Earth -49067-08-03 19:11 J -16200083.78 -16200083.70 -16200083.63 0.1639 0.1487 *

Mercury -49061-04-06 11:59 J -16198011.13 -16198011.00 -16198010.87 0.1651 0.0328

Moon -49060-01-25 03:35 J -16197717.47 -16197717.35 -16197717.22 0.1906 0.1415

Earth -49060-01-25 12:28 J -16197717.13 -16197716.98 -16197716.82 0.1905 0.1244

Mercury -49058-01-03 11:01 J -16197009.17 -16197009.04 -16197008.91 0.1876 0.0898

Venus -49054-03-27 12:28 J -16195465.16 -16195464.98 -16195464.81 0.1628 0.0481

Mercury -49052-08-27 21:06 J -16194580.72 -16194580.62 -16194580.51 0.1647 0.0930

Mercury -49050-08-03 08:23 J -16193875.19 -16193875.15 -16193875.11 0.1668 0.1561

Mercury -49049-05-25 11:59 J -16193579.14 -16193579.00 -16193578.86 0.1883 0.0291

Mercury -49042-01-18 06:13 J -16191150.28 -16191150.24 -16191150.20 0.1642 0.1533

Mercury -49041-12-23 17:45 J -16190444.86 -16190444.76 -16190444.65 0.1662 0.0966

Mercury -49040-10-15 12:42 J -16190149.06 -16190148.97 -16190148.89 0.1890 0.1500

Mercury -49031-05-16 03:06 J -16187014.50 -16187014.37 -16187014.25 0.1657 0.0366

Venus -49025-06-15 11:16 J -16184792.10 -16184792.03 -16184791.95 0.1903 0.1706

Venus -49022-03-26 10:33 J -16183778.14 -16183778.06 -16183777.98 0.1621 0.1429

Mercury -49022-10-06 12:13 J -16183584.12 -16183583.99 -16183583.86 0.1652 0.0238

Mercury -49019-07-04 11:45 J -16182582.14 -16182582.01 -16182581.89 0.1876 0.1035

Mercury -49012-02-25 21:21 J -16180153.72 -16180153.61 -16180153.50 0.1646 0.0843

Mercury -49010-02-01 08:37 J -16179448.16 -16179448.14 -16179448.13 0.1668 0.1647

Mercury -49010-11-24 11:59 J -16179152.14 -16179152.00 -16179151.85 0.1883 0.0192

Mercury -49003-07-19 06:13 J -16176723.29 -16176723.24 -16176723.18 0.1642 0.1448

Mercury -49001-06-23 17:59 J -16176017.85 -16176017.75 -16176017.66 0.1662 0.1049

49TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 49th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -49000-04-15 12:57 J | -16175722.05 | -16175721.96 | -16175721.86 | 0.1891 | 0.1374 | | |
| Venus | -48993-06-15 04:18 J | -16173104.40 | -16173104.32 | -16173104.25 | 0.1913 | 0.1681 | | |
| Mercury | -48992-11-14 03:06 J | -16172587.49 | -16172587.37 | -16172587.25 | 0.1657 | 0.0449 | | |

Venus -48988-01-21 23:30 J -16171422.68 -16171422.52 -16171422.36 0.1630 0.0718

Mercury -48982-04-06 12:13 J -16169157.11 -16169156.99 -16169156.86 0.1652 0.0164

Moon -48981-01-29 17:01 J -16168858.89 -16168858.79 -16168858.69 0.1899 0.1661

Earth -48981-01-29 22:18 J -16168858.64 -16168858.57 -16168858.50 0.1899 0.1764

Mercury -48979-01-02 11:59 J -16168155.11 -16168155.00 -16168154.88 0.1876 0.1160

Mercury -48973-08-26 21:35 J -16165726.72 -16165726.60 -16165726.49 0.1647 0.0756

Mercury -48970-05-25 12:28 J -16164725.12 -16164724.98 -16164724.83 0.1883 0.0078

Mercury -48963-01-17 06:28 J -16162296.30 -16162296.23 -16162296.16 0.1642 0.1357

Mercury -48962-12-23 17:59 J -16161590.84 -16161590.75 -16161590.66 0.1662 0.1133

Mercury -48961-10-14 13:25 J -16161295.05 -16161294.94 -16161294.84 0.1890 0.1257

Venus -48956-01-20 21:21 J -16159735.73 -16159735.61 -16159735.49 0.1623 0.1188

Mercury -48952-05-15 03:21 J -16158160.48 -16158160.36 -16158160.24 0.1657 0.0535

Mercury -48943-10-05 12:28 J -16154730.11 -16154729.98 -16154729.85 0.1652 0.0072

Moon -48941-07-30 10:04 J -16154066.24 -16154066.08 -16154065.91 0.1629 0.0918

Earth -48941-07-30 15:49 J -16154066.01 -16154065.84 -16154065.67 0.1629 0.0732 *

Mercury -48940-07-03 12:28 J -16153728.09 -16153727.98 -16153727.88 0.1876 0.1277

Mercury -48933-02-25 21:35 J -16151299.72 -16151299.60 -16151299.48 0.1647 0.0667

Mercury -48931-11-23 13:11 J -16150298.10 -16150297.95 -16150297.81 0.1883 0.0095

Venus -48927-04-12 09:06 J -16149062.26 -16149062.12 -16149061.98 0.1910 0.1047

Mercury -48924-07-18 06:42 J -16147869.30 -16147869.22 -16147869.14 0.1642 0.1270

Venus -48923-11-19 09:49 J -16147380.23 -16147380.09 -16147379.95 0.1633 0.0973

Mercury -48922-06-23 18:13 J -16147163.83 -16147163.74 -16147163.66 0.1663 0.1218

Mercury -48921-04-14 13:40 J -16146868.04 -16146867.93 -16146867.81 0.1890 0.1132

Mercury -48913-11-13 03:21 J -16143733.47 -16143733.36 -16143733.24 0.1657 0.0621

Mercury -48903-04-05 12:42 J -16140303.10 -16140302.97 -16140302.84 0.1652 0.0045

Mercury -48900-01-01 12:57 J -16139301.06 -16139300.96 -16139300.87 0.1875 0.1407

Mercury -48894-08-26 21:49 J -16136872.71 -16136872.59 -16136872.47 0.1647 0.0584

Mercury -48891-05-24 13:11 J -16135871.09 -16135870.95 -16135870.80 0.1883 0.0187

Venus -48891-11-18 08:09 J -16135693.30 -16135693.16 -16135693.01 0.1626 0.0951

Mercury -48884-01-16 06:42 J -16133442.31 -16133442.22 -16133442.13 0.1642 0.1185

Mercury -48883-12-22 18:13 J -16132736.82 -16132736.74 -16132736.66 0.1662 0.1298
 Mercury -48882-10-14 14:09 J -16132441.03 -16132440.91 -16132440.79 0.1890 0.1012
 Mercury -48873-05-14 03:35 J -16129306.47 -16129306.35 -16129306.24 0.1657 0.0704
 Mercury -48864-10-04 12:42 J -16125876.10 -16125875.97 -16125875.84 0.1652 0.0110
 Earth -48862-08-02 19:25 J -16125208.87 -16125208.69 -16125208.51 0.1632 0.0494
 Moon -48862-08-02 21:49 J -16125208.78 -16125208.59 -16125208.40 0.1632 0.0605 *
 Venus -48861-02-07 14:09 J -16125020.07 -16125019.91 -16125019.75 0.1907 0.0435
 Mercury -48861-07-02 13:25 J -16124874.03 -16124873.94 -16124873.86 0.1875 0.1537
 Venus -48857-09-15 20:52 J -16123337.74 -16123337.63 -16123337.51 0.1635 0.1212
 Mercury -48854-02-24 21:49 J -16122445.71 -16122445.59 -16122445.46 0.1647 0.0496
 Mercury -48852-11-22 13:40 J -16121444.08 -16121443.93 -16121443.79 0.1883 0.0309
 Mercury -48845-07-17 06:57 J -16119015.30 -16119015.21 -16119015.11 0.1642 0.1094
 Mercury -48843-06-22 18:28 J -16118309.80 -16118309.73 -16118309.66 0.1663 0.1385
 Mercury -48842-04-14 14:23 J -16118014.02 -16118013.90 -16118013.77 0.1889 0.0887
 Mercury -48834-11-13 03:35 J -16114879.46 -16114879.35 -16114879.23 0.1657 0.0791
 Venus -48825-09-14 19:25 J -16111650.85 -16111650.69 -16111650.53 0.1628 0.0714
 Mercury -48824-04-04 12:42 J -16111449.09 -16111448.97 -16111448.84 0.1652 0.0195
 Mercury -48821-01-01 13:25 J -16110447.00 -16110446.94 -16110446.87 0.1875 0.1649
 Mercury -48815-08-25 22:04 J -16108018.71 -16108018.58 -16108018.46 0.1647 0.0407
 Mercury -48812-05-23 14:23 J -16107017.05 -16107016.90 -16107016.76 0.1882 0.0454
 Mercury -48805-01-16 07:11 J -16104588.30 -16104588.20 -16104588.10 0.1642 0.1007
 Mercury -48804-12-21 18:28 J -16103882.78 -16103882.73 -16103882.67 0.1663 0.1469
 Mercury -48803-10-13 14:37 J -16103587.02 -16103586.89 -16103586.75 0.1889 0.0772
 Mercury -48796-06-07 16:04 J -16101157.85 -16101157.83 -16101157.81 0.1638 0.1609
 Venus -48796-12-04 19:11 J -16100977.87 -16100977.70 -16100977.53 0.1903 0.0183
 Mercury -48794-05-14 03:49 J -16100452.45 -16100452.34 -16100452.23 0.1657 0.0873
 Venus -48791-07-14 06:57 J -16099295.28 -16099295.21 -16099295.13 0.1638 0.1480
 Mercury -48785-10-03 12:57 J -16097022.08 -16097021.96 -16097021.83 0.1652 0.0280
 Mercury -48782-07-02 14:09 J -16096019.95 -16096019.91 -16096019.87 0.1875 0.1783
 Mercury -48775-02-23 22:04 J -16093591.70 -16093591.58 -16093591.45 0.1647 0.0326

Mercury -48773-11-21 14:23 J -16092590.04 -16092589.90 -16092589.76 0.1882 0.0553

Mercury -48766-07-17 07:11 J -16090161.30 -16090161.20 -16090161.09 0.1642 0.0923

Mercury -48764-06-21 18:28 J -16089455.77 -16089455.73 -16089455.68 0.1663 0.1548

Mercury -48763-04-13 15:21 J -16089160.00 -16089159.86 -16089159.73 0.1890 0.0640

Venus -48759-07-13 05:45 J -16087608.43 -16087608.26 -16087608.08 0.1630 0.0465

Mercury -48757-12-06 16:18 J -16086730.87 -16086730.82 -16086730.78 0.1638 0.1522

Mercury -48755-11-12 03:49 J -16086025.44 -16086025.34 -16086025.23 0.1658 0.0957

Mercury -48754-09-03 16:04 J -16085729.86 -16085729.83 -16085729.79 0.1896 0.1830

Mercury -48745-04-03 13:11 J -16082595.08 -16082594.95 -16082594.83 0.1652 0.0363

Moon -48736-07-29 21:35 J -16079190.68 -16079190.60 -16079190.53 0.1623 0.1468

Mercury -48736-08-24 22:18 J -16079164.70 -16079164.57 -16079164.44 0.1647 0.0235

Mercury -48733-05-22 14:52 J -16078163.02 -16078162.88 -16078162.74 0.1882 0.0684

Venus -48730-10-02 00:13 J -16076935.64 -16076935.49 -16076935.34 0.1900 0.0781

Mercury -48726-01-15 07:25 J -16075734.30 -16075734.19 -16075734.08 0.1642 0.0833

Mercury -48725-12-20 18:42 J -16075028.74 -16075028.72 -16075028.70 0.1663 0.1632

Mercury -48724-10-12 15:21 J -16074732.99 -16074732.86 -16074732.72 0.1889 0.0530

Mercury -48717-06-06 16:18 J -16072303.88 -16072303.82 -16072303.76 0.1638 0.1437

Mercury -48715-05-13 04:04 J -16071598.43 -16071598.33 -16071598.23 0.1658 0.1040

Mercury -48714-03-04 16:18 J -16071302.88 -16071302.82 -16071302.76 0.1896 0.1722

Mercury -48706-10-03 13:11 J -16068168.07 -16068167.95 -16068167.82 0.1652 0.0445

Moon -48697-01-28 21:49 J -16065128.77 -16065128.59 -16065128.41 0.1907 0.0438

Earth -48697-01-29 02:23 J -16065128.59 -16065128.40 -16065128.20 0.1907 0.0404 *

Mercury -48696-02-22 22:33 J -16064737.69 -16064737.56 -16064737.43 0.1648 0.0155

Mercury -48694-11-21 15:21 J -16063735.99 -16063735.86 -16063735.73 0.1882 0.0816

Venus -48693-05-09 16:47 J -16063565.98 -16063565.80 -16063565.62 0.1633 0.0221

Mercury -48687-07-16 07:40 J -16061307.30 -16061307.18 -16061307.07 0.1643 0.0748

Mercury -48684-04-12 15:49 J -16060305.98 -16060305.84 -16060305.70 0.1889 0.0402

Mercury -48678-12-06 16:33 J -16057876.88 -16057876.81 -16057876.74 0.1638 0.1346

Mercury -48676-11-11 04:04 J -16057171.42 -16057171.33 -16057171.23 0.1658 0.1126

Mercury -48675-09-02 16:47 J -16056875.88 -16056875.80 -16056875.72 0.1896 0.1595

Mercury -48666-04-03 13:25 J -16053741.06 -16053740.94 -16053740.82 0.1652 0.0531

Venus -48664-07-29 05:01 J -16052893.40 -16052893.29 -16052893.17 0.1896 0.1385

Moon -48657-07-31 17:16 J -16050333.95 -16050333.78 -16050333.62 0.1625 0.0631

Earth -48657-07-31 20:52 J -16050333.81 -16050333.63 -16050333.45 0.1625 0.0450 *

Mercury -48657-08-23 22:33 J -16050310.69 -16050310.56 -16050310.43 0.1647 0.0068

Mercury -48654-05-22 15:35 J -16049308.98 -16049308.85 -16049308.73 0.1882 0.0925

Mercury -48647-01-14 07:40 J -16046880.30 -16046880.18 -16046880.06 0.1643 0.0662

Mercury -48645-10-11 16:18 J -16045878.96 -16045878.82 -16045878.68 0.1889 0.0275

Mercury -48638-06-06 16:47 J -16043449.88 -16043449.80 -16043449.72 0.1638 0.1258

Mercury -48636-05-12 04:18 J -16042744.41 -16042744.32 -16042744.24 0.1658 0.1207

Mercury -48635-03-03 17:16 J -16042448.87 -16042448.78 -16042448.69 0.1895 0.1468

Venus -48632-07-28 20:23 J -16041205.66 -16041205.65 -16041205.63 0.1907 0.1892

Venus -48627-03-07 03:21 J -16039523.54 -16039523.36 -16039523.18 0.1635 0.0036

Mercury -48627-10-02 13:25 J -16039314.05 -16039313.94 -16039313.82 0.1653 0.0618

Mercury -48617-02-22 22:47 J -16035883.68 -16035883.55 -16035883.42 0.1648 0.0037

Mercury -48615-11-20 15:49 J -16034881.96 -16034881.84 -16034881.71 0.1882 0.1052

Mercury -48608-07-15 07:54 J -16032453.29 -16032453.17 -16032453.05 0.1643 0.0573

Mercury -48605-04-11 16:33 J -16031451.95 -16031451.81 -16031451.66 0.1889 0.0160

Mercury -48599-12-05 16:47 J -16029022.89 -16029022.80 -16029022.71 0.1638 0.1176

Mercury -48597-11-10 04:18 J -16028317.40 -16028317.32 -16028317.24 0.1658 0.1290

Mercury -48596-09-01 17:16 J -16028021.88 -16028021.78 -16028021.68 0.1896 0.1365

Mercury -48587-04-02 13:40 J -16024887.05 -16024886.93 -16024886.82 0.1653 0.0697

Moon -48578-08-03 17:59 J -16021476.92 -16021476.75 -16021476.58 0.1628 0.0765

Earth -48578-08-04 00:57 J -16021476.63 -16021476.46 -16021476.30 0.1628 0.0781 *

Mercury -48578-08-23 22:47 J -16021456.67 -16021456.55 -16021456.42 0.1648 0.0120

Mercury -48575-05-21 16:33 J -16020454.92 -16020454.81 -16020454.70 0.1881 0.1189

Mercury -48568-01-13 07:54 J -16018026.29 -16018026.17 -16018026.04 0.1643 0.0490

Venus -48566-05-26 01:54 J -16017163.54 -16017163.42 -16017163.29 0.1903 0.1302

Mercury -48566-10-11 16:47 J -16017024.94 -16017024.80 -16017024.65 0.1888 0.0068

Venus -48561-01-02 14:09 J -16015481.09 -16015480.91 -16015480.74 0.1637 0.0276

Mercury -48559-06-05 17:01 J -16014595.89 -16014595.79 -16014595.69 0.1638 0.1086

Mercury -48557-05-11 04:33 J -16013890.38 -16013890.31 -16013890.24 0.1658 0.1372

Mercury -48556-03-02 17:45 J -16013594.87 -16013594.76 -16013594.65 0.1895 0.1234

Mercury -48548-10-01 13:40 J -16010460.04 -16010459.93 -16010459.81 0.1653 0.0786

Mercury -48538-02-21 23:01 J -16007029.67 -16007029.54 -16007029.41 0.1648 0.0192

Mercury -48536-11-19 16:33 J -16006027.91 -16006027.81 -16006027.70 0.1881 0.1289

Mercury -48529-07-14 08:09 J -16003599.29 -16003599.16 -16003599.04 0.1643 0.0405

Mercury -48526-04-11 17:30 J -16002597.92 -16002597.77 -16002597.63 0.1889 0.0099

Mercury -48520-12-04 17:16 J -16000168.89 -16000168.78 -16000168.68 0.1639 0.0999

Mercury -48518-11-10 04:33 J -15999463.37 -15999463.31 -15999463.25 0.1658 0.1455

Mercury -48517-08-31 18:13 J -15999167.86 -15999167.74 -15999167.63 0.1895 0.1111

Mercury -48510-04-27 02:09 J -15996738.43 -15996738.41 -15996738.38 0.1634 0.1598

Mercury -48508-04-01 13:54 J -15996033.03 -15996032.92 -15996032.81 0.1653 0.0867

Venus -48500-03-22 06:57 J -15993121.36 -15993121.21 -15993121.05 0.1900 0.0693

Mercury -48499-08-22 23:01 J -15992602.66 -15992602.54 -15992602.41 0.1648 0.0280

Mercury -48496-05-20 17:01 J -15991600.88 -15991600.79 -15991600.69 0.1881 0.1424

Venus -48496-10-30 00:28 J -15991438.65 -15991438.48 -15991438.31 0.1640 0.0538

Mercury -48489-01-13 08:23 J -15989172.28 -15989172.15 -15989172.03 0.1643 0.0322

Mercury -48487-10-10 17:30 J -15988170.91 -15988170.77 -15988170.62 0.1888 0.0208

Mercury -48480-06-04 17:16 J -15985741.89 -15985741.78 -15985741.67 0.1638 0.0916

Mercury -48478-05-11 04:47 J -15985036.35 -15985036.30 -15985036.26 0.1658 0.1537

Mercury -48477-03-01 18:28 J -15984740.86 -15984740.73 -15984740.61 0.1895 0.1003

Mercury -48471-10-26 02:23 J -15982311.45 -15982311.40 -15982311.35 0.1634 0.1510

Mercury -48469-09-30 13:54 J -15981606.02 -15981605.92 -15981605.81 0.1653 0.0947

Venus -48464-10-28 23:30 J -15979751.61 -15979751.52 -15979751.43 0.1633 0.1402

Mercury -48459-02-20 23:16 J -15978175.66 -15978175.53 -15978175.40 0.1648 0.0360

Mercury -48457-11-18 17:30 J -15977173.85 -15977173.77 -15977173.69 0.1881 0.1552

Earth -48452-07-30 23:01 J -15975458.64 -15975458.54 -15975458.44 0.1619 0.1364

Moon -48452-07-31 03:06 J -15975458.51 -15975458.37 -15975458.23 0.1620 0.1154 *

Mercury -48450-07-14 08:23 J -15974745.28 -15974745.15 -15974745.02 0.1643 0.0232

Mercury -48447-04-10 17:59 J -15973743.89 -15973743.75 -15973743.60 0.1888 0.0330

Mercury -48441-12-03 17:30 J -15971314.88 -15971314.77 -15971314.66 0.1639 0.0826

Mercury -48439-11-09 04:47 J -15970609.32 -15970609.30 -15970609.28 0.1658 0.1619

Mercury -48438-08-31 18:42 J -15970313.84 -15970313.72 -15970313.59 0.1895 0.0876

Venus -48434-01-17 12:28 J -15969079.15 -15969078.98 -15969078.81 0.1896 0.0110

Mercury -48431-04-26 02:23 J -15967884.46 -15967884.40 -15967884.34 0.1634 0.1426

Venus -48430-08-27 11:01 J -15967396.19 -15967396.04 -15967395.88 0.1643 0.0784

Mercury -48429-03-31 14:09 J -15967179.01 -15967178.91 -15967178.81 0.1653 0.1032

Mercury -48420-08-21 23:16 J -15963748.65 -15963748.53 -15963748.40 0.1648 0.0442

Mercury -48417-05-19 17:45 J -15962746.83 -15962746.76 -15962746.69 0.1881 0.1661

Earth -48413-01-28 04:18 J -15961398.49 -15961398.32 -15961398.16 0.1914 0.1082

Moon -48413-01-28 13:11 J -15961398.14 -15961397.95 -15961397.75 0.1914 0.0574

Mercury -48410-01-12 08:37 J -15960318.27 -15960318.14 -15960318.02 0.1643 0.0156

Mercury -48408-10-09 18:28 J -15959316.87 -15959316.73 -15959316.59 0.1888 0.0456

Mercury -48401-06-03 17:45 J -15956887.88 -15956887.76 -15956887.65 0.1639 0.0743

Mercury -48398-03-01 19:11 J -15955886.83 -15955886.70 -15955886.57 0.1895 0.0752

Venus -48398-08-26 10:04 J -15955709.20 -15955709.08 -15955708.95 0.1635 0.1155

Mercury -48392-10-25 02:37 J -15953457.46 -15953457.39 -15953457.32 0.1634 0.1337

Mercury -48390-09-30 14:09 J -15952752.00 -15952751.91 -15952751.81 0.1653 0.1116

Mercury -48380-02-19 23:30 J -15949321.64 -15949321.52 -15949321.40 0.1648 0.0528

Mercury -48378-11-18 18:13 J -15948319.78 -15948319.74 -15948319.70 0.1881 0.1787

Earth -48373-08-02 01:40 J -15946601.62 -15946601.43 -15946601.24 0.1622 0.0170

Moon -48373-08-02 07:54 J -15946601.36 -15946601.17 -15946600.99 0.1622 0.0199 *

Mercury -48371-07-13 08:37 J -15945891.27 -15945891.14 -15945891.01 0.1643 0.0067

Venus -48369-11-13 17:45 J -15945036.93 -15945036.76 -15945036.60 0.1892 0.0486

Mercury -48368-04-09 18:42 J -15944889.86 -15944889.72 -15944889.58 0.1888 0.0570

Venus -48364-06-23 20:52 J -15943353.77 -15943353.63 -15943353.50 0.1646 0.1063

Mercury -48362-12-03 17:45 J -15942460.88 -15942460.76 -15942460.64 0.1639 0.0660

Mercury -48359-08-30 19:25 J -15941459.83 -15941459.69 -15941459.56 0.1895 0.0648

Mercury -48352-04-25 02:52 J -15939030.47 -15939030.38 -15939030.30 0.1635 0.1252

Mercury -48350-03-31 14:23 J -15938324.99 -15938324.90 -15938324.82 0.1653 0.1195
 Mercury -48349-01-20 20:37 J -15938029.68 -15938029.64 -15938029.60 0.1901 0.1812
 Mercury -48341-08-20 23:45 J -15934894.63 -15934894.51 -15934894.40 0.1648 0.0615
 Moon -48334-01-31 16:18 J -15932539.87 -15932539.82 -15932539.77 0.1909 0.1811
 Venus -48332-06-22 20:23 J -15931666.80 -15931666.65 -15931666.50 0.1638 0.0898
 Mercury -48331-01-11 08:52 J -15931464.26 -15931464.13 -15931464.00 0.1644 0.0047
 Mercury -48329-10-08 18:57 J -15930462.84 -15930462.71 -15930462.57 0.1888 0.0686
 Mercury -48322-06-03 17:59 J -15928033.87 -15928033.75 -15928033.63 0.1639 0.0571
 Mercury -48319-02-28 19:40 J -15927032.81 -15927032.68 -15927032.54 0.1894 0.0519
 Mercury -48313-10-24 02:52 J -15924603.47 -15924603.38 -15924603.29 0.1634 0.1165
 Mercury -48311-09-29 14:23 J -15923897.98 -15923897.90 -15923897.82 0.1653 0.1281
 Mercury -48310-07-21 20:37 J -15923602.70 -15923602.64 -15923602.58 0.1901 0.1711
 Venus -48303-09-10 23:01 J -15920994.68 -15920994.54 -15920994.40 0.1889 0.1060
 Mercury -48301-02-19 23:45 J -15920467.63 -15920467.51 -15920467.40 0.1648 0.0691
 Venus -48298-04-21 06:57 J -15919311.31 -15919311.21 -15919311.10 0.1648 0.1328
 Moon -48294-08-05 05:01 J -15917744.42 -15917744.29 -15917744.16 0.1625 0.1110
 Earth -48294-08-05 05:30 J -15917744.41 -15917744.27 -15917744.13 0.1625 0.1049 *
 Mercury -48292-07-12 08:52 J -15917037.26 -15917037.13 -15917037.00 0.1644 0.0107
 Mercury -48289-04-08 19:40 J -15916035.81 -15916035.68 -15916035.55 0.1888 0.0825
 Mercury -48283-12-02 17:59 J -15913606.87 -15913606.75 -15913606.62 0.1639 0.0486
 Mercury -48280-08-29 20:09 J -15912605.80 -15912605.66 -15912605.52 0.1894 0.0396
 Mercury -48273-04-24 03:06 J -15910176.47 -15910176.37 -15910176.27 0.1635 0.1079
 Mercury -48271-03-30 14:37 J -15909470.96 -15909470.89 -15909470.82 0.1654 0.1361
 Mercury -48270-01-19 21:06 J -15909175.70 -15909175.62 -15909175.55 0.1901 0.1592
 Venus -48266-04-20 06:57 J -15907624.37 -15907624.21 -15907624.04 0.1640 0.0650
 Mercury -48262-08-20 23:45 J -15906040.62 -15906040.51 -15906040.39 0.1649 0.0779
 Mercury -48252-01-10 09:06 J -15902610.25 -15902610.12 -15902609.99 0.1644 0.0192
 Mercury -48250-10-08 19:40 J -15901608.81 -15901608.68 -15901608.55 0.1887 0.0928
 Mercury -48243-06-02 18:13 J -15899179.87 -15899179.74 -15899179.62 0.1639 0.0406
 Mercury -48240-02-27 20:23 J -15898178.79 -15898178.65 -15898178.51 0.1894 0.0285

Venus -48237-07-08 04:04 J -15896952.41 -15896952.33 -15896952.24 0.1885 0.1636

Mercury -48234-10-24 03:06 J -15895749.47 -15895749.37 -15895749.26 0.1635 0.0995

Venus -48232-02-15 17:16 J -15895268.82 -15895268.78 -15895268.74 0.1651 0.1600

Mercury -48232-09-28 14:38 J -15895043.95 -15895043.89 -15895043.83 0.1654 0.1440

Mercury -48231-07-20 21:35 J -15894748.69 -15894748.60 -15894748.51 0.1900 0.1460

Mercury -48224-03-15 12:14 J -15892319.02 -15892318.99 -15892318.97 0.1630 0.1587

Mercury -48222-02-18 23:59 J -15891613.61 -15891613.50 -15891613.39 0.1649 0.0860

Mercury -48213-07-11 09:06 J -15888183.24 -15888183.12 -15888182.99 0.1644 0.0276

Mercury -48210-04-08 20:09 J -15887181.78 -15887181.66 -15887181.54 0.1887 0.1054

Venus -48205-07-07 18:14 J -15885264.84 -15885264.74 -15885264.64 0.1896 0.1519

Mercury -48204-12-01 18:14 J -15884752.86 -15884752.74 -15884752.61 0.1639 0.0319

Mercury -48201-08-28 20:38 J -15883751.78 -15883751.64 -15883751.49 0.1894 0.0169

Venus -48200-02-14 17:16 J -15883581.96 -15883581.78 -15883581.61 0.1643 0.0389

Mercury -48194-04-24 03:21 J -15881322.47 -15881322.36 -15881322.25 0.1635 0.0910

Mercury -48192-03-29 14:52 J -15880616.93 -15880616.88 -15880616.84 0.1654 0.1525

Mercury -48191-01-18 21:35 J -15880321.70 -15880321.60 -15880321.51 0.1900 0.1363

Mercury -48185-09-13 12:14 J -15877892.03 -15877891.99 -15877891.94 0.1631 0.1503

Mercury -48183-08-19 23:59 J -15877186.60 -15877186.50 -15877186.39 0.1649 0.0939

Mercury -48173-01-10 09:21 J -15873756.24 -15873756.11 -15873755.99 0.1644 0.0357

Mercury -48171-10-07 20:38 J -15872754.75 -15872754.64 -15872754.53 0.1887 0.1182

Moon -48168-07-31 22:47 J -15871726.70 -15871726.55 -15871726.40 0.1616 0.0985

Earth -48168-08-01 04:33 J -15871726.45 -15871726.31 -15871726.17 0.1617 0.1076 *

Mercury -48164-06-01 18:28 J -15870325.86 -15870325.73 -15870325.60 0.1639 0.0231

Mercury -48161-02-27 21:06 J -15869324.77 -15869324.62 -15869324.48 0.1894 0.0044

Mercury -48155-10-23 03:35 J -15866895.47 -15866895.35 -15866895.24 0.1635 0.0822

Mercury -48153-09-27 14:52 J -15866189.91 -15866189.88 -15866189.85 0.1654 0.1605

Mercury -48152-07-19 22:04 J -15865894.69 -15865894.58 -15865894.48 0.1900 0.1236

Mercury -48145-03-14 12:28 J -15863465.04 -15863464.98 -15863464.92 0.1631 0.1413

Mercury -48143-02-18 00:14 J -15862759.59 -15862759.49 -15862759.39 0.1649 0.1024

Venus -48139-05-05 00:14 J -15861222.63 -15861222.49 -15861222.34 0.1892 0.0957

Venus -48135-12-13 03:35 J -15859539.53 -15859539.35 -15859539.17 0.1645 0.0134
 Mercury -48134-07-11 09:21 J -15859329.23 -15859329.11 -15859328.98 0.1644 0.0441
 Mercury -48131-04-07 20:52 J -15858327.74 -15858327.63 -15858327.53 0.1887 0.1293
 Mercury -48125-11-30 18:28 J -15855898.86 -15855898.73 -15855898.60 0.1639 0.0153
 Mercury -48122-08-28 21:21 J -15854897.76 -15854897.61 -15854897.47 0.1894 0.0075
 Mercury -48115-04-23 03:35 J -15852468.46 -15852468.35 -15852468.23 0.1635 0.0738
 Mercury -48112-01-17 22:18 J -15851467.68 -15851467.57 -15851467.45 0.1900 0.1109
 Mercury -48106-09-13 12:42 J -15849038.05 -15849037.97 -15849037.90 0.1631 0.1329
 Mercury -48104-08-19 00:14 J -15848332.58 -15848332.49 -15848332.39 0.1649 0.1107
 Mercury -48094-01-09 09:35 J -15844902.22 -15844902.10 -15844901.98 0.1644 0.0523
 Mercury -48092-10-06 21:06 J -15843900.72 -15843900.62 -15843900.53 0.1887 0.1410
 Earth -48089-08-03 06:57 J -15842869.40 -15842869.21 -15842869.02 0.1619 0.0112
 Moon -48089-08-03 07:40 J -15842869.39 -15842869.18 -15842868.98 0.1619 0.0035 *
 Mercury -48085-05-31 18:42 J -15841471.85 -15841471.72 -15841471.59 0.1640 0.0065
 Mercury -48082-02-26 21:50 J -15840470.74 -15840470.59 -15840470.45 0.1894 0.0207
 Mercury -48076-10-22 03:50 J -15838041.46 -15838041.34 -15838041.22 0.1635 0.0655
 Venus -48073-03-01 05:30 J -15837180.44 -15837180.27 -15837180.11 0.1888 0.0376
 Mercury -48073-07-18 22:33 J -15837040.68 -15837040.56 -15837040.44 0.1900 0.1010
 Venus -48069-10-09 13:40 J -15835497.11 -15835496.93 -15835496.75 0.1648 0.0135
 Mercury -48066-03-14 12:42 J -15834611.05 -15834610.97 -15834610.89 0.1631 0.1246
 Mercury -48064-02-17 00:14 J -15833905.57 -15833905.49 -15833905.40 0.1649 0.1185
 Mercury -48055-07-10 09:35 J -15830475.22 -15830475.10 -15830474.98 0.1644 0.0606
 Mercury -48052-04-06 21:35 J -15829473.68 -15829473.60 -15829473.51 0.1887 0.1551
 Earth -48050-01-30 15:06 J -15828810.06 -15828809.87 -15828809.67 0.1916 0.0502
 Moon -48050-01-30 20:38 J -15828809.85 -15828809.64 -15828809.43 0.1915 0.0298 *
 Mercury -48046-11-30 18:57 J -15827044.84 -15827044.71 -15827044.58 0.1640 0.0055
 Mercury -48043-08-27 22:04 J -15826043.72 -15826043.58 -15826043.44 0.1893 0.0318
 Mercury -48036-04-22 03:50 J -15823614.46 -15823614.34 -15823614.21 0.1635 0.0570
 Mercury -48033-01-17 22:47 J -15822613.67 -15822613.55 -15822613.42 0.1900 0.0886
 Mercury -48027-09-12 12:57 J -15820184.05 -15820183.96 -15820183.87 0.1631 0.1156

Mercury -48025-08-18 00:28 J -15819478.56 -15819478.48 -15819478.40 0.1649 0.1269

Mercury -48015-01-08 09:50 J -15816048.21 -15816048.09 -15816047.98 0.1644 0.0689

Mercury -48013-10-05 21:50 J -15815046.66 -15815046.59 -15815046.52 0.1886 0.1650

Earth -48010-08-06 10:04 J -15814012.19 -15814012.08 -15814011.97 0.1622 0.1317

Moon -48010-08-06 16:18 J -15814011.91 -15814011.82 -15814011.72 0.1622 0.1396

Venus -48008-12-27 11:16 J -15813138.20 -15813138.03 -15813137.86 0.1885 0.0180

Mercury -48006-05-31 18:57 J -15812617.84 -15812617.71 -15812617.58 0.1640 0.0102

Mercury -48003-02-25 22:18 J -15811616.71 -15811616.57 -15811616.43 0.1894 0.0434

Venus -48003-08-06 23:59 J -15811454.68 -15811454.50 -15811454.33 0.1651 0.0397

48TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 48th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -47997-10-21 04:04 J | -15809187.45 | -15809187.33 | -15809187.21 | 0.1635 | 0.0482 | | |
| Mercury | -47994-07-18 23:16 J | -15808186.66 | -15808186.53 | -15808186.40 | 0.1899 | 0.0755 | | |
| Mercury | -47987-03-13 13:11 J | -15805757.05 | -15805756.95 | -15805756.86 | 0.1631 | 0.1073 | | |
| Mercury | -47985-02-17 00:42 J | -15805051.54 | -15805051.47 | -15805051.40 | 0.1649 | 0.1352 | | |
| Mercury | -47976-07-09 09:50 J | -15801621.20 | -15801621.09 | -15801620.97 | 0.1644 | 0.0771 | | |
| Mercury | -47973-04-05 22:18 J | -15800619.62 | -15800619.57 | -15800619.53 | 0.1886 | 0.1777 | | |
| Venus | -47971-08-05 23:30 J | -15799767.57 | -15799767.52 | -15799767.46 | 0.1643 | 0.1563 | | |
| Mercury | -47967-11-29 19:11 J | -15798190.83 | -15798190.70 | -15798190.57 | 0.1640 | 0.0192 | | |
| Mercury | -47964-08-26 22:47 J | -15797189.69 | -15797189.55 | -15797189.42 | 0.1893 | 0.0559 | | |
| Mercury | -47957-04-21 04:04 J | -15794760.45 | -15794760.33 | -15794760.20 | 0.1635 | 0.0403 | | |

Mercury -47954-01-16 23:16 J -15793759.66 -15793759.53 -15793759.39 0.1900 0.0659

Mercury -47948-09-11 13:11 J -15791330.05 -15791329.95 -15791329.85 0.1631 0.0988

Mercury -47946-08-18 00:42 J -15790624.53 -15790624.47 -15790624.41 0.1649 0.1428

Mercury -47945-06-08 00:42 J -15790329.51 -15790329.47 -15790329.43 0.1906 0.1817

Venus -47942-10-24 16:33 J -15789095.96 -15789095.81 -15789095.65 0.1881 0.0747

Mercury -47938-02-01 22:04 J -15787899.60 -15787899.58 -15787899.55 0.1627 0.1578

Venus -47937-06-03 09:21 J -15787412.27 -15787412.11 -15787411.94 0.1654 0.0682

Mercury -47936-01-07 10:04 J -15787194.19 -15787194.08 -15787193.97 0.1645 0.0852

Mercury -47927-05-30 19:11 J -15783763.83 -15783763.70 -15783763.57 0.1640 0.0272

Mercury -47924-02-24 23:02 J -15782762.68 -15782762.54 -15782762.40 0.1893 0.0676

Mercury -47918-10-21 04:18 J -15780333.45 -15780333.32 -15780333.19 0.1635 0.0314

Mercury -47915-07-17 23:45 J -15779332.64 -15779332.51 -15779332.37 0.1899 0.0530

Mercury -47908-03-12 13:26 J -15776903.05 -15776902.94 -15776902.83 0.1631 0.0901

Mercury -47906-02-16 00:42 J -15776197.51 -15776197.47 -15776197.42 0.1649 0.1513

Mercury -47906-12-08 00:57 J -15775902.52 -15775902.46 -15775902.40 0.1905 0.1713

Venus -47905-06-02 09:35 J -15775725.20 -15775725.10 -15775724.99 0.1645 0.1299

Mercury -47899-08-02 22:18 J -15773472.62 -15773472.57 -15773472.52 0.1627 0.1494

Mercury -47897-07-08 10:04 J -15772767.18 -15772767.08 -15772766.97 0.1645 0.0935

Mercury -47888-11-28 19:11 J -15769336.82 -15769336.70 -15769336.57 0.1640 0.0357

Mercury -47885-08-25 23:16 J -15768335.66 -15768335.53 -15768335.40 0.1893 0.0796

Moon -47884-08-02 09:06 J -15767994.28 -15767994.12 -15767993.96 0.1614 0.0696

Earth -47884-08-02 10:04 J -15767994.24 -15767994.08 -15767993.91 0.1614 0.0784 *

Mercury -47878-04-21 04:33 J -15765906.44 -15765906.31 -15765906.18 0.1636 0.0234

Venus -47876-08-20 22:33 J -15765053.68 -15765053.56 -15765053.44 0.1877 0.1291

Mercury -47875-01-16 00:14 J -15764905.63 -15764905.49 -15764905.35 0.1899 0.0403

Venus -47871-03-31 19:26 J -15763369.84 -15763369.69 -15763369.54 0.1657 0.0952

Mercury -47869-09-10 13:26 J -15762476.05 -15762475.94 -15762475.82 0.1631 0.0818

Mercury -47867-08-17 00:57 J -15761770.49 -15761770.46 -15761770.43 0.1650 0.1594

Mercury -47866-06-08 01:11 J -15761475.52 -15761475.45 -15761475.37 0.1905 0.1595

Mercury -47859-01-31 22:33 J -15759045.63 -15759045.56 -15759045.50 0.1627 0.1404

Mercury -47857-01-07 10:18 J -15758340.17 -15758340.07 -15758339.97 0.1645 0.1017
 Mercury -47848-05-29 19:26 J -15754909.81 -15754909.69 -15754909.56 0.1640 0.0439
 Mercury -47845-02-24 23:45 J -15753908.64 -15753908.51 -15753908.39 0.1893 0.0916
 Venus -47844-08-20 11:45 J -15753366.06 -15753366.01 -15753365.95 0.1889 0.1788
 Venus -47839-03-30 20:09 J -15751682.80 -15751682.66 -15751682.52 0.1648 0.1045
 Mercury -47839-10-20 04:33 J -15751479.44 -15751479.31 -15751479.18 0.1636 0.0149
 Mercury -47836-07-17 00:14 J -15750478.63 -15750478.49 -15750478.35 0.1899 0.0305
 Mercury -47829-03-11 13:40 J -15748049.05 -15748048.93 -15748048.81 0.1632 0.0733
 Mercury -47827-12-07 01:40 J -15747048.52 -15747048.43 -15747048.34 0.1905 0.1470
 Mercury -47820-08-01 22:47 J -15744618.63 -15744618.55 -15744618.48 0.1628 0.1319
 Mercury -47818-07-08 10:18 J -15743913.16 -15743913.07 -15743912.97 0.1645 0.1099
 Venus -47810-06-18 04:04 J -15741011.36 -15741011.33 -15741011.30 0.1873 0.1835
 Mercury -47809-11-27 19:40 J -15740482.81 -15740482.68 -15740482.56 0.1640 0.0521
 Mercury -47806-08-25 23:59 J -15739481.62 -15739481.50 -15739481.38 0.1892 0.1033
 Venus -47805-01-27 05:16 J -15739327.40 -15739327.28 -15739327.17 0.1660 0.1234
 Moon -47805-08-04 05:59 J -15739137.44 -15739137.25 -15739137.07 0.1616 0.0254
 Earth -47805-08-04 12:14 J -15739137.17 -15739136.99 -15739136.80 0.1616 0.0395 *
 Mercury -47799-04-20 04:47 J -15737052.43 -15737052.30 -15737052.17 0.1636 0.0070
 Mercury -47796-01-15 00:42 J -15736051.61 -15736051.47 -15736051.33 0.1899 0.0177
 Mercury -47790-09-10 13:54 J -15733622.04 -15733621.92 -15733621.80 0.1632 0.0646
 Mercury -47787-06-07 01:54 J -15732621.52 -15732621.42 -15732621.33 0.1905 0.1360
 Mercury -47780-01-30 22:47 J -15730191.64 -15730191.55 -15730191.47 0.1627 0.1236
 Mercury -47778-01-06 10:33 J -15729486.15 -15729486.06 -15729485.98 0.1645 0.1180
 Venus -47778-06-17 17:02 J -15729323.92 -15729323.79 -15729323.67 0.1885 0.1205
 Venus -47773-01-26 05:59 J -15727640.41 -15727640.25 -15727640.09 0.1651 0.0778
 Mercury -47769-05-28 19:40 J -15726055.80 -15726055.68 -15726055.56 0.1640 0.0600
 Moon -47766-01-29 04:47 J -15725080.41 -15725080.30 -15725080.19 0.1922 0.1599
 Earth -47766-01-29 14:38 J -15725080.05 -15725079.89 -15725079.73 0.1922 0.1108
 Mercury -47766-02-24 00:28 J -15725054.60 -15725054.48 -15725054.37 0.1893 0.1156
 Mercury -47760-10-19 04:47 J -15722625.43 -15722625.30 -15722625.17 0.1636 0.0055

Mercury -47757-07-16 01:11 J -15721624.59 -15721624.45 -15721624.30 0.1899 0.0051

Mercury -47750-03-11 13:54 J -15719195.04 -15719194.92 -15719194.79 0.1632 0.0562

Mercury -47748-12-06 02:09 J -15718194.52 -15718194.41 -15718194.31 0.1905 0.1249

Mercury -47741-07-31 23:02 J -15715764.63 -15715764.54 -15715764.45 0.1628 0.1147

Venus -47740-11-23 14:38 J -15715284.96 -15715284.89 -15715284.82 0.1663 0.1521

Mercury -47739-07-07 10:33 J -15715059.14 -15715059.06 -15715058.98 0.1645 0.1261

Mercury -47730-11-27 19:54 J -15711628.79 -15711628.67 -15711628.56 0.1640 0.0686

Mercury -47727-08-25 00:42 J -15710627.57 -15710627.47 -15710627.36 0.1892 0.1276

Moon -47726-08-07 12:28 J -15710280.03 -15710279.98 -15710279.93 0.1619 0.1560

Earth -47726-08-07 15:21 J -15710279.88 -15710279.86 -15710279.83 0.1619 0.1599

Mercury -47720-04-19 05:02 J -15708198.42 -15708198.29 -15708198.16 0.1636 0.0107

Mercury -47717-01-15 01:11 J -15707197.59 -15707197.45 -15707197.30 0.1899 0.0055

Venus -47712-04-13 23:16 J -15705281.68 -15705281.53 -15705281.37 0.1881 0.0671

Mercury -47711-09-09 14:09 J -15704768.04 -15704767.91 -15704767.79 0.1632 0.0479

Mercury -47708-06-06 02:38 J -15703767.51 -15703767.39 -15703767.28 0.1905 0.1116

Venus -47708-11-22 16:18 J -15703597.99 -15703597.82 -15703597.65 0.1653 0.0519

Mercury -47701-01-30 23:02 J -15701337.63 -15701337.54 -15701337.44 0.1628 0.1063

Mercury -47699-01-05 10:47 J -15700632.13 -15700632.05 -15700631.98 0.1645 0.1343

Mercury -47690-05-28 19:54 J -15697201.78 -15697201.67 -15697201.55 0.1641 0.0769

Mercury -47687-02-23 00:57 J -15696200.55 -15696200.46 -15696200.36 0.1892 0.1395

Mercury -47681-10-18 05:02 J -15693771.41 -15693771.29 -15693771.16 0.1636 0.0198

Mercury -47678-07-16 01:40 J -15692770.57 -15692770.43 -15692770.28 0.1899 0.0187

Mercury -47671-03-10 14:09 J -15690341.03 -15690340.91 -15690340.78 0.1632 0.0397

Mercury -47669-12-05 02:38 J -15689340.51 -15689340.39 -15689340.27 0.1904 0.1014

Mercury -47662-07-31 23:16 J -15686910.64 -15686910.53 -15686910.43 0.1628 0.0979

Mercury -47660-07-06 10:47 J -15686205.11 -15686205.05 -15686204.99 0.1645 0.1423

Mercury -47653-12-21 08:09 J -15683480.19 -15683480.16 -15683480.13 0.1624 0.1564

Mercury -47651-11-26 20:09 J -15682774.77 -15682774.66 -15682774.55 0.1641 0.0849

Mercury -47648-08-24 01:26 J -15681773.52 -15681773.44 -15681773.35 0.1892 0.1518

Venus -47646-02-09 04:47 J -15681239.47 -15681239.30 -15681239.13 0.1877 0.0122

Venus -47642-09-20 02:09 J -15679555.59 -15679555.41 -15679555.23 0.1656 0.0245
 Mercury -47641-04-18 05:16 J -15679344.41 -15679344.28 -15679344.15 0.1636 0.0272
 Mercury -47638-01-14 02:09 J -15678343.55 -15678343.41 -15678343.27 0.1898 0.0307
 Mercury -47632-09-08 14:23 J -15675914.03 -15675913.90 -15675913.77 0.1632 0.0308
 Mercury -47629-06-05 03:06 J -15674913.50 -15674913.37 -15674913.25 0.1904 0.0893
 Mercury -47622-01-29 23:30 J -15672483.63 -15672483.52 -15672483.41 0.1628 0.0890
 Mercury -47620-01-04 11:02 J -15671778.09 -15671778.04 -15671777.99 0.1645 0.1505
 Mercury -47613-06-21 08:23 J -15669053.20 -15669053.15 -15669053.10 0.1624 0.1479
 Mercury -47611-05-27 20:09 J -15668347.76 -15668347.66 -15668347.55 0.1641 0.0933
 Mercury -47608-02-22 01:40 J -15667346.50 -15667346.43 -15667346.35 0.1892 0.1637
 Mercury -47602-10-18 05:16 J -15664917.40 -15664917.28 -15664917.15 0.1636 0.0356
 Earth -47600-08-03 15:50 J -15664262.02 -15664261.84 -15664261.65 0.1611 0.0489
 Moon -47600-08-03 22:47 J -15664261.73 -15664261.55 -15664261.36 0.1612 0.0298 *
 Mercury -47599-07-15 02:09 J -15663916.55 -15663916.41 -15663916.26 0.1898 0.0416
 Mercury -47592-03-09 14:38 J -15661487.02 -15661486.89 -15661486.76 0.1632 0.0227
 Mercury -47590-12-05 03:35 J -15660486.48 -15660486.35 -15660486.22 0.1904 0.0767
 Mercury -47583-07-30 23:30 J -15658056.63 -15658056.52 -15658056.40 0.1628 0.0806
 Mercury -47581-07-05 11:02 J -15657351.07 -15657351.04 -15657351.01 0.1646 0.1586
 Venus -47581-12-06 11:16 J -15657197.19 -15657197.03 -15657196.86 0.1873 0.0402
 Venus -47576-07-17 11:59 J -15655513.18 -15655513.00 -15655512.82 0.1660 0.0035
 Mercury -47574-12-21 08:38 J -15654626.21 -15654626.14 -15654626.08 0.1624 0.1392
 Mercury -47572-11-25 20:23 J -15653920.75 -15653920.65 -15653920.55 0.1641 0.1014
 Mercury -47569-08-23 02:09 J -15652919.46 -15652919.41 -15652919.36 0.1892 0.1755
 Mercury -47562-04-18 05:30 J -15650490.39 -15650490.27 -15650490.14 0.1636 0.0439
 Mercury -47559-01-13 02:38 J -15649489.52 -15649489.39 -15649489.25 0.1898 0.0542
 Mercury -47553-09-07 14:38 J -15647060.02 -15647059.89 -15647059.76 0.1632 0.0146
 Mercury -47550-06-05 03:35 J -15646059.48 -15646059.35 -15646059.21 0.1904 0.0657
 Mercury -47543-01-28 23:45 J -15643629.63 -15643629.51 -15643629.39 0.1628 0.0724
 Mercury -47541-10-25 04:47 J -15642629.33 -15642629.30 -15642629.26 0.1910 0.1835
 Mercury -47534-06-21 08:38 J -15640199.21 -15640199.14 -15640199.06 0.1624 0.1305

Mercury -47532-05-26 20:23 J -15639493.74 -15639493.65 -15639493.55 0.1641 0.1094

Mercury -47529-02-22 02:38 J -15638492.40 -15638492.39 -15638492.38 0.1892 0.1883

Mercury -47523-10-17 05:45 J -15636063.38 -15636063.26 -15636063.14 0.1637 0.0523

Earth -47521-08-05 18:14 J -15635404.91 -15635404.74 -15635404.57 0.1614 0.0693

Moon -47521-08-05 20:52 J -15635404.79 -15635404.63 -15635404.47 0.1614 0.0704 *

Mercury -47520-07-14 03:06 J -15635062.50 -15635062.37 -15635062.23 0.1898 0.0670

Venus -47515-10-03 17:16 J -15633154.93 -15633154.78 -15633154.64 0.1869 0.0934

Mercury -47513-03-08 14:52 J -15632633.01 -15632632.88 -15632632.75 0.1632 0.0056

Mercury -47511-12-04 03:50 J -15631632.47 -15631632.34 -15631632.20 0.1904 0.0545

Venus -47510-05-14 21:35 J -15631470.78 -15631470.60 -15631470.43 0.1663 0.0314

Mercury -47504-07-29 23:59 J -15629202.62 -15629202.50 -15629202.38 0.1628 0.0635

Mercury -47501-04-25 05:16 J -15628202.34 -15628202.28 -15628202.22 0.1910 0.1708

Mercury -47495-12-20 08:52 J -15625772.22 -15625772.13 -15625772.05 0.1624 0.1220

Mercury -47493-11-24 20:38 J -15625066.73 -15625066.64 -15625066.55 0.1641 0.1179

Mercury -47483-04-17 05:45 J -15621636.38 -15621636.26 -15621636.14 0.1636 0.0601

Mercury -47480-01-12 03:21 J -15620635.50 -15620635.36 -15620635.23 0.1898 0.0770

Mercury -47474-09-07 15:06 J -15618206.00 -15618205.87 -15618205.74 0.1632 0.0061

Mercury -47471-06-04 04:33 J -15617205.45 -15617205.31 -15617205.17 0.1904 0.0409

Mercury -47464-01-27 23:59 J -15614775.62 -15614775.50 -15614775.37 0.1628 0.0551

Mercury -47462-10-25 05:30 J -15613775.34 -15613775.27 -15613775.19 0.1909 0.1595

Mercury -47455-06-20 09:06 J -15611345.22 -15611345.12 -15611345.03 0.1625 0.1132

Mercury -47453-05-25 20:38 J -15610639.72 -15610639.64 -15610639.55 0.1641 0.1260

Venus -47449-07-30 23:30 J -15609112.62 -15609112.52 -15609112.41 0.1865 0.1442

Venus -47444-03-11 07:26 J -15607428.36 -15607428.19 -15607428.03 0.1666 0.0590

Mercury -47444-10-16 05:59 J -15607209.37 -15607209.25 -15607209.13 0.1637 0.0687

Mercury -47441-07-13 03:50 J -15606208.47 -15606208.34 -15606208.22 0.1898 0.0901

Mercury -47434-03-08 15:06 J -15603779.00 -15603778.87 -15603778.74 0.1632 0.0114

Mercury -47432-12-03 04:33 J -15602778.45 -15602778.31 -15602778.17 0.1904 0.0305

Mercury -47425-07-29 00:14 J -15600348.62 -15600348.49 -15600348.37 0.1628 0.0467

Mercury -47422-04-25 05:45 J -15599348.34 -15599348.26 -15599348.17 0.1910 0.1480

Venus -47417-07-30 11:45 J -15597425.11 -15597425.01 -15597424.92 0.1877 0.1523

Mercury -47416-12-19 09:06 J -15596918.22 -15596918.12 -15596918.02 0.1625 0.1049

Mercury -47414-11-24 20:52 J -15596212.70 -15596212.63 -15596212.56 0.1641 0.1339

Venus -47412-03-10 08:52 J -15595741.22 -15595741.13 -15595741.04 0.1656 0.1431

Mercury -47404-04-16 05:59 J -15592782.36 -15592782.25 -15592782.13 0.1637 0.0772

Moon -47403-01-31 19:54 J -15592491.86 -15592491.67 -15592491.49 0.1923 0.0453

Earth -47403-02-01 02:52 J -15592491.57 -15592491.38 -15592491.18 0.1922 0.0546 *

Mercury -47401-01-12 04:04 J -15591781.45 -15591781.33 -15591781.20 0.1897 0.1027

Moon -47395-08-02 13:54 J -15589386.98 -15589386.92 -15589386.85 0.1607 0.1506

Earth -47395-08-02 20:23 J -15589386.75 -15589386.65 -15589386.54 0.1607 0.1331

Mercury -47395-09-06 15:21 J -15589351.99 -15589351.86 -15589351.73 0.1633 0.0198

Mercury -47392-06-03 05:02 J -15588351.44 -15588351.29 -15588351.15 0.1903 0.0186

Mercury -47385-01-28 00:28 J -15585921.61 -15585921.48 -15585921.36 0.1629 0.0382

Mercury -47383-10-24 06:14 J -15584921.34 -15584921.24 -15584921.15 0.1909 0.1364

Venus -47378-01-06 16:47 J -15583385.95 -15583385.80 -15583385.65 0.1669 0.0878

Mercury -47376-06-19 09:21 J -15582491.21 -15582491.11 -15582491.00 0.1625 0.0964

Mercury -47374-05-25 21:06 J -15581785.69 -15581785.62 -15581785.56 0.1641 0.1424

Mercury -47367-11-09 18:14 J -15579060.77 -15579060.74 -15579060.70 0.1621 0.1547

Mercury -47365-10-15 06:14 J -15578355.35 -15578355.24 -15578355.13 0.1637 0.0850

Mercury -47362-07-13 04:18 J -15577354.43 -15577354.32 -15577354.20 0.1898 0.1134

Mercury -47355-03-07 15:21 J -15574924.98 -15574924.86 -15574924.73 0.1633 0.0284

Mercury -47353-12-02 05:30 J -15573924.42 -15573924.27 -15573924.13 0.1903 0.0069

Venus -47351-05-27 17:16 J -15573382.92 -15573382.78 -15573382.63 0.1873 0.0976

Venus -47346-01-05 18:28 J -15571698.86 -15571698.73 -15571698.60 0.1659 0.1159

Mercury -47346-07-29 00:28 J -15571494.61 -15571494.48 -15571494.35 0.1629 0.0299

Mercury -47343-04-24 06:28 J -15570494.34 -15570494.23 -15570494.12 0.1909 0.1242

Mercury -47337-12-18 09:35 J -15568064.21 -15568064.10 -15568063.99 0.1625 0.0875

Mercury -47335-11-23 21:06 J -15567358.67 -15567358.62 -15567358.57 0.1641 0.1504

Mercury -47327-05-10 18:28 J -15564633.78 -15564633.73 -15564633.67 0.1621 0.1458

Mercury -47325-04-15 06:28 J -15563928.34 -15563928.23 -15563928.13 0.1637 0.0936

Mercury -47322-01-11 04:47 J -15562927.41 -15562927.30 -15562927.19 0.1897 0.1260

Moon -47316-08-04 21:50 J -15560529.79 -15560529.59 -15560529.38 0.1609 0.0097

Earth -47316-08-04 22:33 J -15560529.74 -15560529.56 -15560529.37 0.1609 0.0178 *

Mercury -47316-09-05 15:35 J -15560497.98 -15560497.85 -15560497.72 0.1633 0.0363

Mercury -47313-06-02 05:30 J -15559497.41 -15559497.27 -15559497.12 0.1903 0.0065

Venus -47313-11-03 02:09 J -15559343.53 -15559343.41 -15559343.28 0.1672 0.1170

Mercury -47306-01-27 00:42 J -15557067.60 -15557067.47 -15557067.34 0.1629 0.0215

Mercury -47304-10-23 06:42 J -15556067.33 -15556067.22 -15556067.10 0.1909 0.1129

Mercury -47297-06-18 09:50 J -15553637.21 -15553637.09 -15553636.98 0.1625 0.0790

Mercury -47295-05-24 21:06 J -15552931.64 -15552931.62 -15552931.58 0.1642 0.1585

Mercury -47288-11-08 18:42 J -15550206.79 -15550206.72 -15550206.65 0.1621 0.1373

Mercury -47286-10-15 06:28 J -15549501.33 -15549501.23 -15549501.13 0.1637 0.1018

Venus -47285-03-24 00:14 J -15549340.66 -15549340.49 -15549340.33 0.1869 0.0473

Mercury -47283-07-12 05:16 J -15548500.38 -15548500.28 -15548500.18 0.1897 0.1388

Venus -47281-11-02 04:47 J -15547656.45 -15547656.30 -15547656.15 0.1662 0.0897

Mercury -47276-03-06 15:50 J -15546070.97 -15546070.84 -15546070.72 0.1633 0.0448

Mercury -47274-12-02 05:59 J -15545070.40 -15545070.25 -15545070.11 0.1903 0.0177

Mercury -47267-07-28 00:57 J -15542640.59 -15542640.46 -15542640.33 0.1629 0.0129

Mercury -47264-04-23 07:11 J -15541640.32 -15541640.20 -15541640.08 0.1909 0.1005

Mercury -47258-12-18 09:50 J -15539210.21 -15539210.09 -15539209.97 0.1625 0.0707

Mercury -47248-05-09 18:42 J -15535779.79 -15535779.72 -15535779.64 0.1622 0.1289

Venus -47247-08-31 11:59 J -15535301.09 -15535301.00 -15535300.91 0.1675 0.1453

Mercury -47246-04-15 06:42 J -15535074.32 -15535074.22 -15535074.13 0.1637 0.1096

Mercury -47243-01-10 05:16 J -15534073.36 -15534073.28 -15534073.19 0.1897 0.1494

Earth -47237-08-07 01:11 J -15531672.60 -15531672.45 -15531672.30 0.1611 0.1009

Moon -47237-08-07 07:26 J -15531672.34 -15531672.19 -15531672.04 0.1612 0.1025 *

Mercury -47237-09-04 15:50 J -15531643.96 -15531643.84 -15531643.71 0.1633 0.0532

Mercury -47234-06-02 06:28 J -15530643.37 -15530643.23 -15530643.09 0.1903 0.0311

Mercury -47227-01-26 00:57 J -15528213.59 -15528213.46 -15528213.32 0.1629 0.0064

Mercury -47225-10-22 07:26 J -15527213.32 -15527213.19 -15527213.07 0.1908 0.0893

Venus -47219-01-19 06:14 J -15525298.41 -15525298.24 -15525298.07 0.1865 0.0046

Mercury -47218-06-18 10:04 J -15524783.20 -15524783.08 -15524782.96 0.1625 0.0619

Venus -47215-08-30 14:23 J -15523614.07 -15523613.90 -15523613.74 0.1665 0.0620

Mercury -47209-11-07 18:57 J -15521352.79 -15521352.71 -15521352.62 0.1622 0.1200

Mercury -47207-10-14 06:42 J -15520647.30 -15520647.22 -15520647.13 0.1637 0.1184

Mercury -47204-07-11 05:59 J -15519646.32 -15519646.25 -15519646.18 0.1897 0.1626

Mercury -47197-03-05 16:04 J -15517216.95 -15517216.83 -15517216.71 0.1633 0.0613

Mercury -47195-12-01 06:28 J -15516216.37 -15516216.23 -15516216.09 0.1903 0.0409

Mercury -47188-07-27 01:11 J -15513786.58 -15513786.45 -15513786.32 0.1629 0.0044

Mercury -47185-04-22 07:54 J -15512786.30 -15512786.17 -15512786.05 0.1909 0.0773

Mercury -47179-12-17 10:18 J -15510356.20 -15510356.07 -15510355.95 0.1625 0.0535

Mercury -47169-05-08 19:11 J -15506925.79 -15506925.70 -15506925.60 0.1622 0.1114

Mercury -47167-04-14 06:57 J -15506220.29 -15506220.21 -15506220.13 0.1637 0.1263

Mercury -47164-01-09 06:14 J -15505219.29 -15505219.24 -15505219.18 0.1896 0.1749

Mercury -47158-09-04 16:18 J -15502789.94 -15502789.82 -15502789.71 0.1633 0.0699

Mercury -47155-06-01 06:57 J -15501789.35 -15501789.21 -15501789.07 0.1903 0.0535

Venus -47154-11-16 13:11 J -15501256.11 -15501255.95 -15501255.79 0.1861 0.0535

Venus -47149-06-26 23:59 J -15499571.67 -15499571.50 -15499571.32 0.1668 0.0346

Mercury -47148-01-25 01:26 J -15499359.57 -15499359.44 -15499359.31 0.1629 0.0130

Mercury -47146-10-22 07:54 J -15498359.30 -15498359.17 -15498359.03 0.1908 0.0661

Mercury -47139-06-17 10:18 J -15495929.19 -15495929.07 -15495928.94 0.1625 0.0453

Mercury -47136-03-13 09:21 J -15494929.15 -15494929.11 -15494929.08 0.1914 0.1831

Mercury -47130-11-07 19:26 J -15492498.79 -15492498.69 -15492498.59 0.1622 0.1029

Mercury -47128-10-13 06:57 J -15491793.28 -15491793.21 -15491793.13 0.1637 0.1343

Mercury -47125-07-10 06:28 J -15490792.25 -15490792.23 -15490792.20 0.1897 0.1861

Mercury -47120-03-30 04:18 J -15489068.33 -15489068.32 -15489068.32 0.1618 0.1612

Earth -47119-01-31 01:11 J -15488761.61 -15488761.45 -15488761.29 0.1927 0.1118

Moon -47119-01-31 11:02 J -15488761.21 -15488761.04 -15488760.88 0.1927 0.1062

Mercury -47118-03-05 16:18 J -15488362.93 -15488362.82 -15488362.71 0.1633 0.0778

Mercury -47116-11-30 07:26 J -15487362.32 -15487362.19 -15487362.05 0.1902 0.0663

Earth -47111-08-04 03:50 J -15485654.49 -15485654.34 -15485654.19 0.1605 0.1004
 Moon -47111-08-04 04:04 J -15485654.46 -15485654.33 -15485654.21 0.1605 0.1132 *
 Mercury -47109-07-26 01:26 J -15484932.57 -15484932.44 -15484932.31 0.1629 0.0213
 Mercury -47106-04-22 08:23 J -15483932.29 -15483932.15 -15483932.01 0.1908 0.0535
 Mercury -47100-12-16 10:33 J -15481502.19 -15481502.06 -15481501.93 0.1625 0.0365
 Mercury -47097-09-11 09:35 J -15480502.16 -15480502.10 -15480502.04 0.1913 0.1709
 Mercury -47090-05-08 19:26 J -15478071.79 -15478071.69 -15478071.58 0.1622 0.0945
 Mercury -47088-04-13 07:11 J -15477366.26 -15477366.20 -15477366.14 0.1638 0.1425
 Venus -47088-09-12 19:26 J -15477213.83 -15477213.69 -15477213.55 0.1857 0.1039
 Venus -47083-04-24 09:21 J -15475529.29 -15475529.11 -15475528.93 0.1672 0.0052
 Mercury -47081-09-28 04:18 J -15474641.36 -15474641.32 -15474641.28 0.1618 0.1527
 Mercury -47079-09-03 16:33 J -15473935.92 -15473935.81 -15473935.70 0.1633 0.0861
 Mercury -47076-05-31 07:40 J -15472935.31 -15472935.18 -15472935.05 0.1902 0.0769
 Mercury -47069-01-25 01:40 J -15470505.56 -15470505.43 -15470505.30 0.1629 0.0291
 Mercury -47067-10-21 08:52 J -15469505.27 -15469505.13 -15469505.00 0.1908 0.0422
 Mercury -47060-06-16 10:47 J -15467075.18 -15467075.05 -15467074.92 0.1626 0.0280
 Mercury -47057-03-12 10:04 J -15466075.15 -15466075.08 -15466075.00 0.1913 0.1582
 Venus -47056-09-12 06:57 J -15465526.23 -15465526.21 -15465526.19 0.1870 0.1852
 Mercury -47051-11-06 19:40 J -15463644.79 -15463644.68 -15463644.57 0.1622 0.0858
 Mercury -47049-10-12 07:26 J -15462939.24 -15462939.19 -15462939.14 0.1638 0.1507
 Mercury -47041-03-29 04:33 J -15460214.37 -15460214.31 -15460214.25 0.1618 0.1437
 Mercury -47039-03-04 16:33 J -15459508.91 -15459508.81 -15459508.70 0.1633 0.0945
 Mercury -47037-11-29 07:54 J -15458508.29 -15458508.17 -15458508.04 0.1902 0.0893
 Moon -47032-08-06 00:28 J -15456797.67 -15456797.48 -15456797.30 0.1607 0.0139
 Earth -47032-08-06 05:59 J -15456797.44 -15456797.25 -15456797.06 0.1607 0.0159 *
 Mercury -47030-07-26 01:54 J -15456078.55 -15456078.42 -15456078.30 0.1630 0.0378
 Mercury -47027-04-21 09:06 J -15455078.26 -15455078.12 -15455077.98 0.1908 0.0298
 Venus -47022-07-11 02:09 J -15453171.50 -15453171.41 -15453171.31 0.1853 0.1515
 Mercury -47021-12-15 10:47 J -15452648.18 -15452648.05 -15452647.92 0.1626 0.0203
 Mercury -47018-09-11 10:04 J -15451648.16 -15451648.08 -15451647.99 0.1913 0.1487

Venus -47017-02-19 18:57 J -15451486.89 -15451486.71 -15451486.54 0.1675 0.0234

Mercury -47011-05-07 19:54 J -15449217.79 -15449217.67 -15449217.55 0.1622 0.0773

Mercury -47009-04-12 07:26 J -15448512.22 -15448512.19 -15448512.16 0.1638 0.1584

Mercury -47002-09-28 04:47 J -15445787.37 -15445787.30 -15445787.23 0.1619 0.1351

47TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 47th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -47000-09-02 16:47 J | -15445081.90 | -15445081.80 | -15445081.70 | 0.1634 | 0.1026 | | |
| Mercury | -46997-05-30 08:38 J | -15444081.26 | -15444081.14 | -15444081.02 | 0.1902 | 0.1027 | | |
| Mercury | -46990-01-24 01:54 J | -15441651.54 | -15441651.42 | -15441651.29 | 0.1630 | 0.0460 | | |
| Venus | -46990-07-10 13:11 J | -15441484.06 | -15441483.95 | -15441483.83 | 0.1865 | 0.1340 | | |
| Mercury | -46988-10-20 09:21 J | -15440651.25 | -15440651.11 | -15440650.97 | 0.1908 | 0.0187 | | |
| Mercury | -46981-06-15 11:02 J | -15438221.17 | -15438221.04 | -15438220.91 | 0.1626 | 0.0119 | | |
| Mercury | -46978-03-12 10:33 J | -15437221.15 | -15437221.06 | -15437220.96 | 0.1913 | 0.1358 | | |
| Mercury | -46972-11-05 20:09 J | -15434790.78 | -15434790.66 | -15434790.54 | 0.1622 | 0.0687 | | |
| Mercury | -46962-03-29 05:02 J | -15431360.37 | -15431360.29 | -15431360.21 | 0.1619 | 0.1268 | | |
| Mercury | -46960-03-03 16:47 J | -15430654.89 | -15430654.80 | -15430654.70 | 0.1634 | 0.1107 | | |
| Mercury | -46958-11-29 08:38 J | -15429654.26 | -15429654.14 | -15429654.03 | 0.1902 | 0.1124 | | |
| Moon | -46953-08-08 04:18 J | -15427940.43 | -15427940.32 | -15427940.20 | 0.1609 | 0.1295 | | |
| Earth | -46953-08-08 08:38 J | -15427940.25 | -15427940.14 | -15427940.04 | 0.1609 | 0.1332 | * | |
| Venus | -46952-12-17 04:04 J | -15427444.50 | -15427444.33 | -15427444.16 | 0.1678 | 0.0532 | | |
| Mercury | -46951-07-25 02:09 J | -15427224.53 | -15427224.41 | -15427224.29 | 0.1630 | 0.0540 | | |

Mercury -46948-04-20 09:50 J -15426224.23 -15426224.09 -15426223.95 0.1908 0.0060

Mercury -46942-12-15 11:16 J -15423794.16 -15423794.03 -15423793.90 0.1626 0.0028

Mercury -46939-09-10 11:02 J -15422794.15 -15422794.04 -15422793.93 0.1913 0.1236

Mercury -46932-05-06 20:09 J -15420363.78 -15420363.66 -15420363.53 0.1622 0.0604

Venus -46924-05-06 19:26 J -15417441.84 -15417441.69 -15417441.54 0.1861 0.0825

Mercury -46923-09-27 05:16 J -15416933.37 -15416933.28 -15416933.19 0.1619 0.1179

Mercury -46921-09-01 17:02 J -15416227.88 -15416227.79 -15416227.70 0.1634 0.1189

Venus -46920-12-16 06:28 J -15415757.29 -15415757.23 -15415757.16 0.1668 0.1532

Mercury -46918-05-30 09:06 J -15415227.23 -15415227.12 -15415227.01 0.1902 0.1253

Mercury -46911-01-23 02:23 J -15412797.52 -15412797.40 -15412797.28 0.1630 0.0627

Mercury -46909-10-19 10:04 J -15411797.23 -15411797.08 -15411796.94 0.1907 0.0067

Mercury -46902-06-15 11:16 J -15409367.16 -15409367.03 -15409366.89 0.1626 0.0081

Mercury -46899-03-11 11:02 J -15408367.15 -15408367.04 -15408366.92 0.1913 0.1135

Mercury -46893-11-04 20:23 J -15405936.77 -15405936.65 -15405936.52 0.1623 0.0517

Venus -46886-10-14 13:26 J -15403402.10 -15403401.94 -15403401.79 0.1681 0.0831

Mercury -46883-03-28 05:16 J -15402506.37 -15402506.28 -15402506.18 0.1619 0.1095

Mercury -46881-03-02 17:16 J -15401800.86 -15401800.78 -15401800.70 0.1634 0.1271

Mercury -46879-11-28 09:35 J -15400800.20 -15400800.10 -15400800.00 0.1901 0.1381

Mercury -46872-07-24 02:23 J -15398370.51 -15398370.40 -15398370.28 0.1630 0.0709

Mercury -46869-04-19 10:18 J -15397370.21 -15397370.07 -15397369.93 0.1907 0.0177

Mercury -46863-12-14 11:30 J -15394940.15 -15394940.02 -15394939.89 0.1626 0.0146

Mercury -46860-09-09 11:30 J -15393940.14 -15393940.02 -15393939.90 0.1913 0.1011

Venus -46858-03-04 02:23 J -15393399.56 -15393399.40 -15393399.23 0.1857 0.0348

Venus -46854-10-13 16:33 J -15391714.92 -15391714.81 -15391714.69 0.1671 0.1264

Mercury -46853-05-05 20:38 J -15391509.77 -15391509.64 -15391509.51 0.1622 0.0433

Mercury -46844-09-26 05:30 J -15388079.37 -15388079.27 -15388079.17 0.1619 0.1010

Mercury -46842-09-01 17:16 J -15387373.85 -15387373.78 -15387373.71 0.1634 0.1350

Mercury -46839-05-29 09:50 J -15386373.18 -15386373.09 -15386373.01 0.1901 0.1488

Mercury -46834-02-16 14:23 J -15384648.92 -15384648.90 -15384648.88 0.1616 0.1586

Mercury -46832-01-22 02:38 J -15383943.51 -15383943.39 -15383943.28 0.1630 0.0789

Mercury -46830-10-19 10:47 J -15382943.19 -15382943.05 -15382942.91 0.1907 0.0296
 Earth -46827-08-05 11:16 J -15381922.20 -15381922.03 -15381921.86 0.1604 0.0672
 Moon -46827-08-05 17:45 J -15381921.93 -15381921.76 -15381921.59 0.1604 0.0742 *
 Mercury -46823-06-14 11:45 J -15380513.14 -15380513.01 -15380512.88 0.1626 0.0223
 Mercury -46820-03-10 11:59 J -15379513.13 -15379513.00 -15379512.88 0.1912 0.0888
 Venus -46820-08-10 22:33 J -15379359.69 -15379359.56 -15379359.43 0.1685 0.1126
 Mercury -46814-11-04 20:52 J -15377082.76 -15377082.63 -15377082.51 0.1623 0.0351
 Mercury -46804-03-27 05:45 J -15373652.37 -15373652.26 -15373652.15 0.1619 0.0922
 Mercury -46802-03-02 17:30 J -15372946.83 -15372946.77 -15372946.71 0.1634 0.1433
 Mercury -46800-11-27 10:04 J -15371946.15 -15371946.08 -15371946.00 0.1901 0.1610
 Mercury -46795-08-17 14:38 J -15370221.94 -15370221.89 -15370221.85 0.1616 0.1504
 Mercury -46793-07-23 02:38 J -15369516.49 -15369516.39 -15369516.28 0.1630 0.0874
 Venus -46793-12-29 09:06 J -15369357.29 -15369357.12 -15369356.95 0.1853 0.0146
 Mercury -46790-04-19 11:02 J -15368516.18 -15368516.04 -15368515.90 0.1907 0.0409
 Venus -46788-08-10 01:40 J -15367672.57 -15367672.43 -15367672.28 0.1675 0.0972
 Mercury -46784-12-13 11:45 J -15366086.13 -15366086.01 -15366085.88 0.1626 0.0307
 Mercury -46781-09-08 11:59 J -15365086.13 -15365086.00 -15365085.87 0.1912 0.0788
 Mercury -46774-05-05 20:52 J -15362655.76 -15362655.63 -15362655.50 0.1623 0.0265
 Mercury -46765-09-25 05:59 J -15359225.37 -15359225.25 -15359225.14 0.1619 0.0838
 Mercury -46763-08-31 17:30 J -15358519.81 -15358519.77 -15358519.72 0.1634 0.1514
 Mercury -46760-05-28 10:33 J -15357519.11 -15357519.06 -15357519.00 0.1901 0.1744
 Earth -46756-02-02 13:40 J -15356173.13 -15356172.93 -15356172.74 0.1928 0.0559
 Moon -46756-02-02 21:50 J -15356172.77 -15356172.59 -15356172.41 0.1928 0.1074 *
 Mercury -46755-02-15 14:52 J -15355794.95 -15355794.88 -15355794.82 0.1616 0.1415
 Venus -46754-06-08 07:11 J -15355317.29 -15355317.20 -15355317.11 0.1688 0.1443
 Mercury -46753-01-22 02:52 J -15355089.48 -15355089.38 -15355089.27 0.1630 0.0953
 Mercury -46751-10-18 11:16 J -15354089.17 -15354089.03 -15354088.89 0.1907 0.0521
 Earth -46748-08-07 13:11 J -15353065.13 -15353064.95 -15353064.77 0.1605 0.0479
 Moon -46748-08-07 16:18 J -15353064.99 -15353064.82 -15353064.65 0.1605 0.0573 *
 Mercury -46744-06-13 11:59 J -15351659.12 -15351659.00 -15351658.87 0.1626 0.0392

Mercury -46741-03-09 12:28 J -15350659.11 -15350658.98 -15350658.85 0.1912 0.0658

Mercury -46735-11-03 21:06 J -15348228.75 -15348228.62 -15348228.49 0.1623 0.0180

Mercury -46732-07-30 13:54 J -15347228.96 -15347228.92 -15347228.88 0.1917 0.1826

Venus -46727-10-26 16:04 J -15345314.99 -15345314.83 -15345314.67 0.1849 0.0609

Mercury -46725-03-26 05:59 J -15344798.37 -15344798.25 -15344798.13 0.1619 0.0756

Mercury -46723-03-01 17:45 J -15344092.79 -15344092.76 -15344092.74 0.1634 0.1590

Venus -46722-06-07 11:16 J -15343630.19 -15343630.03 -15343629.87 0.1678 0.0690

Mercury -46721-11-26 10:33 J -15343092.09 -15343092.06 -15343092.02 0.1901 0.1840

Mercury -46716-08-16 14:52 J -15341367.95 -15341367.88 -15341367.80 0.1616 0.1330

Mercury -46714-07-23 03:06 J -15340662.47 -15340662.37 -15340662.28 0.1630 0.1035

Mercury -46711-04-18 11:45 J -15339662.14 -15339662.01 -15339661.87 0.1907 0.0656

Mercury -46705-12-12 12:14 J -15337232.12 -15337231.99 -15337231.87 0.1627 0.0473

Mercury -46702-09-08 12:42 J -15336232.10 -15336231.97 -15336231.83 0.1912 0.0542

Mercury -46695-05-04 21:21 J -15333801.75 -15333801.61 -15333801.48 0.1623 0.0108

Mercury -46692-01-28 14:09 J -15332801.97 -15332801.91 -15332801.85 0.1917 0.1711

Mercury -46686-09-25 06:14 J -15330371.36 -15330371.24 -15330371.12 0.1619 0.0668

Mercury -46676-02-14 15:06 J -15326940.95 -15326940.87 -15326940.79 0.1616 0.1245

Mercury -46674-01-21 03:06 J -15326235.46 -15326235.37 -15326235.27 0.1630 0.1117

Mercury -46672-10-17 11:59 J -15325235.13 -15325235.00 -15325234.87 0.1906 0.0760

Mercury -46665-06-12 12:14 J -15322805.11 -15322804.99 -15322804.86 0.1627 0.0552

Mercury -46662-03-09 12:57 J -15321805.10 -15321804.96 -15321804.82 0.1912 0.0436

Venus -46661-08-22 22:47 J -15321272.68 -15321272.55 -15321272.41 0.1844 0.1086

Venus -46656-04-03 20:09 J -15319587.83 -15319587.66 -15319587.48 0.1681 0.0390

Mercury -46656-11-02 21:21 J -15319374.74 -15319374.61 -15319374.48 0.1623 0.0034

Mercury -46653-07-29 14:38 J -15318374.97 -15318374.89 -15318374.81 0.1917 0.1582

Mercury -46646-03-26 06:28 J -15315944.36 -15315944.23 -15315944.11 0.1620 0.0584

Mercury -46637-08-15 15:21 J -15312513.95 -15312513.86 -15312513.77 0.1616 0.1157

Mercury -46635-07-22 03:21 J -15311808.45 -15311808.36 -15311808.27 0.1631 0.1197

Mercury -46632-04-17 12:14 J -15310808.11 -15310807.99 -15310807.86 0.1906 0.0880

Venus -46629-08-22 09:06 J -15309585.19 -15309585.12 -15309585.05 0.1858 0.1696

Mercury -46626-12-12 12:28 J -15308378.10 -15308377.98 -15308377.86 0.1627 0.0636
 Mercury -46623-09-07 13:26 J -15307378.08 -15307377.94 -15307377.80 0.1912 0.0316
 Moon -46622-08-04 10:04 J -15307047.16 -15307047.08 -15307046.99 0.1601 0.1428
 Earth -46622-08-04 17:02 J -15307046.86 -15307046.79 -15307046.73 0.1601 0.1502
 Mercury -46616-05-03 21:35 J -15304947.73 -15304947.60 -15304947.47 0.1623 0.0071
 Mercury -46613-01-28 14:38 J -15303947.98 -15303947.89 -15303947.80 0.1916 0.1486
 Mercury -46607-09-24 06:28 J -15301517.35 -15301517.23 -15301517.10 0.1620 0.0503
 Mercury -46597-02-14 15:21 J -15298086.95 -15298086.86 -15298086.76 0.1617 0.1075
 Mercury -46595-01-20 03:21 J -15297381.44 -15297381.36 -15297381.28 0.1631 0.1276
 Venus -46595-06-20 05:59 J -15297230.34 -15297230.25 -15297230.16 0.1840 0.1539
 Mercury -46593-10-16 12:42 J -15296381.09 -15296380.97 -15296380.85 0.1906 0.1003
 Venus -46590-01-30 05:16 J -15295545.46 -15295545.28 -15295545.10 0.1685 0.0098
 Mercury -46586-06-12 12:42 J -15293951.09 -15293950.97 -15293950.86 0.1627 0.0719
 Mercury -46583-03-08 13:40 J -15292951.07 -15292950.93 -15292950.79 0.1911 0.0193
 Mercury -46577-11-01 21:50 J -15290520.72 -15290520.59 -15290520.46 0.1623 0.0159
 Mercury -46574-07-29 15:06 J -15289520.97 -15289520.87 -15289520.78 0.1916 0.1367
 Mercury -46567-03-25 06:42 J -15287090.35 -15287090.22 -15287090.09 0.1620 0.0416
 Venus -46563-06-19 15:35 J -15285542.97 -15285542.85 -15285542.72 0.1853 0.1207
 Mercury -46558-08-15 15:35 J -15283659.95 -15283659.85 -15283659.74 0.1616 0.0991
 Mercury -46556-07-21 03:35 J -15282954.42 -15282954.35 -15282954.28 0.1631 0.1358
 Mercury -46553-04-16 12:57 J -15281954.08 -15281953.96 -15281953.85 0.1906 0.1114
 Mercury -46548-01-05 00:28 J -15280229.51 -15280229.48 -15280229.45 0.1614 0.1567
 Mercury -46547-12-11 12:42 J -15279524.08 -15279523.97 -15279523.86 0.1627 0.0796
 Mercury -46544-09-06 13:54 J -15278524.06 -15278523.92 -15278523.78 0.1912 0.0096
 Moon -46543-08-06 15:35 J -15278190.04 -15278189.85 -15278189.66 0.1602 0.0431
 Earth -46543-08-06 18:57 J -15278189.90 -15278189.71 -15278189.52 0.1602 0.0342 *
 Mercury -46537-05-02 21:50 J -15276093.72 -15276093.59 -15276093.46 0.1623 0.0238
 Mercury -46534-01-27 15:21 J -15275093.96 -15275093.86 -15275093.75 0.1916 0.1242
 Mercury -46528-09-23 06:57 J -15272663.34 -15272663.21 -15272663.08 0.1620 0.0333
 Venus -46525-11-26 14:09 J -15271503.09 -15271502.91 -15271502.73 0.1688 0.0217

Mercury -46518-02-13 15:50 J -15269232.95 -15269232.84 -15269232.73 0.1617 0.0903

Mercury -46516-01-19 03:35 J -15268527.40 -15268527.35 -15268527.29 0.1631 0.1439

Mercury -46514-10-16 13:11 J -15267527.06 -15267526.95 -15267526.84 0.1906 0.1227

Mercury -46509-07-06 00:42 J -15265802.52 -15265802.47 -15265802.42 0.1614 0.1480

Mercury -46507-06-11 12:57 J -15265097.07 -15265096.96 -15265096.85 0.1627 0.0881

Mercury -46504-03-07 14:23 J -15264097.05 -15264096.90 -15264096.76 0.1911 0.0073

Mercury -46498-11-01 22:04 J -15261666.71 -15261666.58 -15261666.45 0.1623 0.0318

Venus -46497-04-15 22:18 J -15261500.73 -15261500.57 -15261500.42 0.1849 0.0713

Mercury -46495-07-28 15:21 J -15260666.97 -15260666.86 -15260666.74 0.1916 0.1146

Mercury -46488-03-24 06:57 J -15258236.34 -15258236.21 -15258236.08 0.1620 0.0255

Mercury -46479-08-14 16:04 J -15254805.95 -15254805.83 -15254805.72 0.1617 0.0820

Mercury -46477-07-20 03:50 J -15254100.38 -15254100.34 -15254100.30 0.1631 0.1517

Mercury -46474-04-16 13:40 J -15253100.03 -15253099.93 -15253099.83 0.1906 0.1362

Moon -46472-02-01 01:11 J -15252443.62 -15252443.45 -15252443.28 0.1932 0.1079

Earth -46472-02-01 10:18 J -15252443.22 -15252443.07 -15252442.91 0.1932 0.1193

Mercury -46469-01-05 00:42 J -15251375.53 -15251375.47 -15251375.40 0.1614 0.1396

Mercury -46468-12-10 12:57 J -15250670.06 -15250669.96 -15250669.85 0.1627 0.0963

Mercury -46465-09-05 14:38 J -15249670.03 -15249669.89 -15249669.75 0.1911 0.0158

Earth -46464-08-08 19:54 J -15249332.83 -15249332.67 -15249332.50 0.1604 0.0797

Moon -46464-08-09 00:57 J -15249332.62 -15249332.46 -15249332.30 0.1604 0.0898 *

Venus -46459-09-23 23:02 J -15247460.71 -15247460.54 -15247460.37 0.1691 0.0527

Mercury -46458-05-02 22:18 J -15247239.70 -15247239.57 -15247239.45 0.1623 0.0404

Mercury -46455-01-26 15:50 J -15246239.96 -15246239.84 -15246239.72 0.1916 0.1028

Mercury -46449-09-22 07:11 J -15243809.33 -15243809.20 -15243809.07 0.1620 0.0167

Mercury -46439-02-12 16:04 J -15240378.94 -15240378.83 -15240378.71 0.1617 0.0738

Mercury -46437-01-19 04:04 J -15239673.36 -15239673.33 -15239673.31 0.1631 0.1598

Mercury -46435-10-15 13:54 J -15238673.02 -15238672.92 -15238672.83 0.1905 0.1462

Venus -46431-02-11 05:30 J -15237458.44 -15237458.27 -15237458.11 0.1845 0.0259

Mercury -46430-07-06 00:57 J -15236948.53 -15236948.46 -15236948.38 0.1614 0.1311

Mercury -46428-06-10 13:11 J -15236243.05 -15236242.95 -15236242.85 0.1627 0.1039

Venus -46427-09-23 03:06 J -15235773.42 -15235773.37 -15235773.31 0.1681 0.1593
 Mercury -46425-03-06 14:38 J -15235243.03 -15235242.89 -15235242.74 0.1911 0.0268
 Mercury -46419-10-31 22:18 J -15232812.69 -15232812.57 -15232812.44 0.1624 0.0482
 Mercury -46416-07-27 16:18 J -15231812.94 -15231812.82 -15231812.70 0.1916 0.0897
 Mercury -46409-03-23 07:26 J -15229382.32 -15229382.19 -15229382.06 0.1620 0.0083
 Mercury -46400-08-13 16:18 J -15225951.94 -15225951.82 -15225951.70 0.1617 0.0651
 Mercury -46395-04-15 14:09 J -15224245.99 -15224245.91 -15224245.83 0.1905 0.1581
 Venus -46393-07-21 07:40 J -15223418.33 -15223418.18 -15223418.02 0.1695 0.0841
 Mercury -46390-01-04 01:11 J -15222521.54 -15222521.45 -15222521.36 0.1614 0.1226
 Mercury -46389-12-09 13:26 J -15221816.04 -15221815.94 -15221815.85 0.1627 0.1123
 Mercury -46386-09-05 15:06 J -15220816.01 -15220815.87 -15220815.73 0.1911 0.0383
 Mercury -46379-05-01 22:33 J -15218385.69 -15218385.56 -15218385.44 0.1624 0.0563
 Mercury -46376-01-25 16:18 J -15217385.95 -15217385.82 -15217385.70 0.1916 0.0805
 Mercury -46370-09-22 07:26 J -15214955.32 -15214955.19 -15214955.05 0.1620 0.0047
 Venus -46366-12-09 12:28 J -15213416.15 -15213415.98 -15213415.82 0.1840 0.0211
 Venus -46361-07-20 11:45 J -15211731.12 -15211731.01 -15211730.89 0.1684 0.1287
 Mercury -46360-02-11 16:33 J -15211524.94 -15211524.81 -15211524.69 0.1617 0.0568
 Mercury -46356-10-14 14:38 J -15209818.95 -15209818.89 -15209818.83 0.1905 0.1708
 Mercury -46351-07-05 01:26 J -15208094.54 -15208094.44 -15208094.35 0.1614 0.1140
 Mercury -46349-06-09 13:26 J -15207389.02 -15207388.94 -15207388.85 0.1627 0.1203
 Mercury -46346-03-06 15:35 J -15206388.99 -15206388.85 -15206388.72 0.1910 0.0505
 Mercury -46340-10-30 22:33 J -15203958.68 -15203958.56 -15203958.44 0.1624 0.0647
 Earth -46338-08-05 23:45 J -15203314.63 -15203314.51 -15203314.38 0.1600 0.1181
 Moon -46338-08-06 00:57 J -15203314.59 -15203314.46 -15203314.32 0.1600 0.1047 *
 Mercury -46337-07-26 16:33 J -15202958.94 -15202958.81 -15202958.68 0.1916 0.0686
 Mercury -46330-03-23 07:40 J -15200528.31 -15200528.18 -15200528.05 0.1620 0.0085
 Mercury -46328-12-16 18:14 J -15199528.78 -15199528.74 -15199528.70 0.1920 0.1834
 Venus -46327-05-18 16:04 J -15199375.95 -15199375.83 -15199375.70 0.1699 0.1169
 Mercury -46321-08-12 16:33 J -15197097.93 -15197097.81 -15197097.68 0.1617 0.0488
 Mercury -46316-04-14 14:52 J -15195391.92 -15195391.88 -15195391.84 0.1905 0.1816

Mercury -46311-01-03 01:26 J -15193667.54 -15193667.44 -15193667.34 0.1614 0.1057

Mercury -46310-12-09 13:26 J -15192962.01 -15192961.94 -15192961.86 0.1627 0.1282

Mercury -46307-09-04 15:35 J -15191961.98 -15191961.85 -15191961.71 0.1911 0.0608

Mercury -46300-04-30 22:47 J -15189531.67 -15189531.55 -15189531.43 0.1624 0.0725

Venus -46300-10-05 19:40 J -15189373.83 -15189373.68 -15189373.52 0.1836 0.0653

Mercury -46297-01-25 17:02 J -15188531.92 -15188531.79 -15188531.65 0.1915 0.0560

Venus -46295-05-17 21:06 J -15187688.76 -15187688.62 -15187688.48 0.1688 0.0996

Mercury -46291-09-21 07:54 J -15186101.30 -15186101.17 -15186101.04 0.1620 0.0166

Mercury -46288-06-16 18:28 J -15185101.79 -15185101.73 -15185101.67 0.1920 0.1722

Mercury -46281-02-11 16:47 J -15182670.93 -15182670.80 -15182670.67 0.1617 0.0401

Mercury -46272-07-04 01:40 J -15179240.53 -15179240.43 -15179240.32 0.1614 0.0972

Mercury -46270-06-09 13:40 J -15178535.00 -15178534.93 -15178534.86 0.1628 0.1363

Mercury -46267-03-05 16:04 J -15177534.96 -15177534.83 -15177534.70 0.1910 0.0730

Mercury -46263-11-24 10:18 J -15175810.10 -15175810.07 -15175810.03 0.1611 0.1551

Venus -46261-03-15 00:57 J -15175333.54 -15175333.46 -15175333.37 0.1702 0.1482

Mercury -46261-10-29 22:47 J -15175104.66 -15175104.55 -15175104.43 0.1624 0.0806

Moon -46259-08-07 20:09 J -15174457.84 -15174457.66 -15174457.47 0.1601 0.0166

Earth -46259-08-08 01:54 J -15174457.61 -15174457.42 -15174457.23 0.1601 0.0046 *

Mercury -46258-07-26 17:02 J -15174104.93 -15174104.79 -15174104.65 0.1915 0.0464

Mercury -46251-03-22 07:54 J -15171674.30 -15171674.17 -15171674.04 0.1621 0.0248

Mercury -46249-12-15 18:42 J -15170674.79 -15170674.72 -15170674.64 0.1920 0.1607

Mercury -46242-08-12 17:02 J -15168243.92 -15168243.79 -15168243.66 0.1617 0.0318

Venus -46234-08-03 02:38 J -15165331.52 -15165331.39 -15165331.25 0.1832 0.1106

Mercury -46232-01-02 01:54 J -15164813.53 -15164813.42 -15164813.31 0.1614 0.0888

Mercury -46231-12-08 13:54 J -15164107.98 -15164107.92 -15164107.86 0.1628 0.1441

Venus -46229-03-14 05:30 J -15163646.43 -15163646.27 -15163646.10 0.1691 0.0682

Mercury -46228-09-03 16:18 J -15163107.95 -15163107.82 -15163107.69 0.1910 0.0843

Mercury -46223-05-25 10:47 J -15161383.11 -15161383.05 -15161383.00 0.1612 0.1462

Mercury -46221-04-29 23:02 J -15160677.65 -15160677.54 -15160677.43 0.1624 0.0888

Mercury -46218-01-24 17:30 J -15159677.91 -15159677.77 -15159677.63 0.1915 0.0346

Mercury -46212-09-20 08:09 J -15157247.29 -15157247.16 -15157247.03 0.1621 0.0330
 Mercury -46209-06-15 18:57 J -15156247.79 -15156247.71 -15156247.62 0.1919 0.1497
 Mercury -46202-02-10 17:02 J -15153816.92 -15153816.79 -15153816.66 0.1617 0.0241
 Venus -46202-08-02 11:45 J -15153644.10 -15153644.01 -15153643.93 0.1845 0.1569
 Mercury -46193-07-03 02:09 J -15150386.53 -15150386.41 -15150386.30 0.1615 0.0806
 Mercury -46191-06-08 13:54 J -15149680.96 -15149680.92 -15149680.87 0.1628 0.1518
 Mercury -46188-03-04 16:33 J -15148680.93 -15148680.81 -15148680.69 0.1910 0.0956
 Mercury -46184-11-23 10:47 J -15146956.12 -15146956.05 -15146955.98 0.1612 0.1377
 Mercury -46182-10-29 23:16 J -15146250.64 -15146250.53 -15146250.43 0.1624 0.0969
 Moon -46180-08-09 21:06 J -15145600.77 -15145600.62 -15145600.47 0.1602 0.1025
 Earth -46180-08-10 03:06 J -15145600.51 -15145600.37 -15145600.24 0.1603 0.1119 *
 Mercury -46179-07-25 17:59 J -15145250.89 -15145250.75 -15145250.61 0.1915 0.0221
 Mercury -46172-03-21 08:23 J -15142820.28 -15142820.15 -15142820.03 0.1621 0.0412
 Mercury -46170-12-15 19:11 J -15141820.79 -15141820.70 -15141820.61 0.1919 0.1391
 Venus -46168-05-30 10:04 J -15141289.17 -15141289.08 -15141288.99 0.1828 0.1534
 Venus -46163-01-09 14:23 J -15139604.08 -15139603.90 -15139603.73 0.1695 0.0375
 Mercury -46163-08-11 17:16 J -15139389.91 -15139389.78 -15139389.65 0.1618 0.0155
 Mercury -46153-01-02 02:09 J -15135959.53 -15135959.41 -15135959.29 0.1614 0.0721
 Mercury -46152-12-07 14:09 J -15135253.93 -15135253.91 -15135253.89 0.1628 0.1600
 Mercury -46149-09-02 17:02 J -15134253.91 -15134253.79 -15134253.68 0.1910 0.1077
 Mercury -46144-05-24 11:02 J -15132529.12 -15132529.04 -15132528.96 0.1612 0.1294
 Mercury -46142-04-29 23:16 J -15131823.63 -15131823.53 -15131823.43 0.1624 0.1046
 Mercury -46139-01-23 17:45 J -15130823.90 -15130823.76 -15130823.62 0.1915 0.0134
 Venus -46136-05-29 18:42 J -15129601.85 -15129601.72 -15129601.58 0.1841 0.1107
 Mercury -46133-09-19 08:23 J -15128393.27 -15128393.15 -15128393.02 0.1621 0.0490
 Mercury -46130-06-15 19:40 J -15127393.78 -15127393.68 -15127393.58 0.1920 0.1267
 Mercury -46123-02-09 17:30 J -15124962.90 -15124962.77 -15124962.64 0.1618 0.0072
 Mercury -46114-07-03 02:23 J -15121532.52 -15121532.40 -15121532.28 0.1615 0.0636
 Moon -46109-02-04 13:40 J -15119855.12 -15119854.93 -15119854.74 0.1932 0.0059
 Earth -46109-02-04 22:04 J -15119854.78 -15119854.58 -15119854.39 0.1932 0.0496 *

Mercury -46109-03-03 17:16 J -15119826.89 -15119826.78 -15119826.67 0.1910 0.1191
 Mercury -46105-11-22 11:16 J -15118102.12 -15118102.03 -15118101.95 0.1612 0.1208
 Mercury -46103-10-28 23:30 J -15117396.61 -15117396.52 -15117396.43 0.1624 0.1128
 Mercury -46100-07-24 18:14 J -15116396.88 -15116396.74 -15116396.60 0.1915 0.0029
 Venus -46098-11-06 22:47 J -15115561.73 -15115561.55 -15115561.37 0.1698 0.0054
 Mercury -46093-03-20 08:38 J -15113966.26 -15113966.14 -15113966.02 0.1621 0.0573
 Mercury -46091-12-14 19:40 J -15112966.79 -15112966.68 -15112966.57 0.1919 0.1164
 Mercury -46084-08-10 17:30 J -15110535.90 -15110535.77 -15110535.63 0.1618 0.0045
 Mercury -46074-01-01 02:38 J -15107105.52 -15107105.39 -15107105.27 0.1615 0.0554
 Venus -46070-03-27 01:40 J -15105559.59 -15105559.43 -15105559.28 0.1837 0.0638
 Mercury -46070-09-02 17:30 J -15105399.87 -15105399.77 -15105399.67 0.1910 0.1303
 Mercury -46065-05-23 11:16 J -15103675.12 -15103675.03 -15103674.93 0.1612 0.1125
 Mercury -46063-04-28 23:30 J -15102969.60 -15102969.52 -15102969.43 0.1625 0.1208
 Mercury -46060-01-22 18:42 J -15101969.86 -15101969.72 -15101969.58 0.1914 0.0124
 Earth -46054-08-07 06:42 J -15099582.38 -15099582.22 -15099582.06 0.1599 0.0862
 Moon -46054-08-07 12:14 J -15099582.16 -15099581.99 -15099581.81 0.1599 0.0695 *
 Mercury -46054-09-19 08:38 J -15099539.25 -15099539.14 -15099539.01 0.1621 0.0658
 Mercury -46051-06-14 20:09 J -15098539.78 -15098539.66 -15098539.55 0.1919 0.1051
 Mercury -46044-02-08 17:45 J -15096108.89 -15096108.76 -15096108.62 0.1618 0.0103
 Mercury -46035-07-02 02:38 J -15092678.51 -15092678.39 -15092678.26 0.1615 0.0473
 Venus -46032-09-03 07:11 J -15091519.37 -15091519.20 -15091519.02 0.1702 0.0270
 Mercury -46030-03-03 17:45 J -15090972.85 -15090972.76 -15090972.66 0.1910 0.1422
 Mercury -46026-11-22 11:30 J -15089248.12 -15089248.02 -15089247.92 0.1612 0.1041
 Mercury -46024-10-27 23:45 J -15088542.59 -15088542.51 -15088542.43 0.1624 0.1286
 Mercury -46021-07-23 18:42 J -15087542.86 -15087542.72 -15087542.58 0.1914 0.0220
 Mercury -46014-03-20 08:52 J -15085112.25 -15085112.13 -15085112.01 0.1621 0.0735
 Mercury -46012-12-13 20:23 J -15084112.77 -15084112.65 -15084112.53 0.1919 0.0931
 Mercury -46005-08-09 17:59 J -15081681.88 -15081681.75 -15081681.62 0.1618 0.0178
 Venus -46004-01-21 09:06 J -15081517.29 -15081517.12 -15081516.95 0.1832 0.0205

46TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 46th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -45996-12-31 02:52 J | -15078251.51 | -15078251.38 | -15078251.25 | 0.1615 | 0.0387 | | |
| Mercury | -45991-09-01 17:59 J | -15076545.83 | -15076545.75 | -15076545.66 | 0.1909 | 0.1538 | | |
| Mercury | -45986-05-23 11:45 J | -15074821.12 | -15074821.01 | -15074820.90 | 0.1612 | 0.0954 | | |
| Mercury | -45984-04-27 23:59 J | -15074115.57 | -15074115.50 | -15074115.44 | 0.1625 | 0.1369 | | |
| Mercury | -45981-01-22 19:11 J | -15073115.84 | -15073115.70 | -15073115.56 | 0.1914 | 0.0344 | | |
| Mercury | -45977-10-12 20:23 J | -15071390.69 | -15071390.65 | -15071390.61 | 0.1609 | 0.1531 | | |
| Earth | -45975-08-09 08:09 J | -15070725.34 | -15070725.16 | -15070724.97 | 0.1600 | 0.0286 | | |
| Moon | -45975-08-09 12:28 J | -15070725.16 | -15070724.98 | -15070724.80 | 0.1600 | 0.0274 | * | |
| Mercury | -45975-09-18 09:06 J | -15070685.24 | -15070685.12 | -15070685.01 | 0.1621 | 0.0816 | | |
| Mercury | -45972-06-13 20:38 J | -15069685.77 | -15069685.64 | -15069685.52 | 0.1919 | 0.0825 | | |
| Venus | -45966-07-01 15:35 J | -15067477.02 | -15067476.85 | -15067476.68 | 0.1705 | 0.0595 | | |
| Mercury | -45965-02-08 17:59 J | -15067254.88 | -15067254.75 | -15067254.62 | 0.1618 | 0.0259 | | |
| Mercury | -45956-07-01 03:06 J | -15063824.50 | -15063824.37 | -15063824.24 | 0.1615 | 0.0304 | | |
| Mercury | -45951-03-02 18:28 J | -15062118.80 | -15062118.73 | -15062118.66 | 0.1910 | 0.1654 | | |
| Mercury | -45947-11-21 11:59 J | -15060394.11 | -15060394.00 | -15060393.89 | 0.1612 | 0.0872 | | |
| Mercury | -45945-10-26 23:59 J | -15059688.55 | -15059688.50 | -15059688.44 | 0.1625 | 0.1447 | | |
| Mercury | -45942-07-23 19:40 J | -15058688.82 | -15058688.68 | -15058688.55 | 0.1914 | 0.0471 | | |
| Venus | -45939-11-18 16:18 J | -15057474.98 | -15057474.82 | -15057474.65 | 0.1828 | 0.0241 | | |
| Mercury | -45937-04-12 20:38 J | -15056963.70 | -15056963.64 | -15056963.58 | 0.1610 | 0.1444 | | |
| Mercury | -45935-03-19 09:06 J | -15056258.23 | -15056258.12 | -15056258.01 | 0.1621 | 0.0897 | | |

Venus -45934-06-30 20:38 J -15055789.70 -15055789.64 -15055789.57 0.1694 0.1566
 Mercury -45933-12-12 20:52 J -15055258.76 -15055258.63 -15055258.51 0.1919 0.0720
 Mercury -45926-08-09 18:14 J -15052827.87 -15052827.74 -15052827.61 0.1618 0.0343
 Mercury -45923-05-04 22:33 J -15051828.59 -15051828.56 -15051828.52 0.1923 0.1849
 Mercury -45917-12-30 03:21 J -15049397.50 -15049397.36 -15049397.23 0.1615 0.0227
 Mercury -45912-08-31 18:42 J -15047691.77 -15047691.72 -15047691.67 0.1909 0.1770
 Mercury -45907-05-22 11:59 J -15045967.11 -15045967.00 -15045966.88 0.1612 0.0790
 Mercury -45905-04-26 23:59 J -15045261.54 -15045261.50 -15045261.45 0.1625 0.1524
 Mercury -45902-01-21 19:26 J -15044261.82 -15044261.69 -15044261.55 0.1914 0.0561
 Venus -45900-04-27 23:45 J -15043434.66 -15043434.51 -15043434.36 0.1709 0.0930
 Mercury -45898-10-12 20:52 J -15042536.70 -15042536.63 -15042536.56 0.1610 0.1360
 Moon -45896-08-11 06:42 J -15041868.30 -15041868.22 -15041868.13 0.1601 0.1414
 Earth -45896-08-11 09:50 J -15041868.17 -15041868.09 -15041868.01 0.1601 0.1434 *
 Mercury -45896-09-17 09:21 J -15041831.21 -15041831.11 -15041831.01 0.1622 0.0976
 Mercury -45893-06-12 21:21 J -15040831.75 -15040831.61 -15040831.48 0.1919 0.0591
 Mercury -45886-02-07 18:28 J -15038400.86 -15038400.73 -15038400.60 0.1618 0.0423
 Mercury -45884-11-02 22:47 J -15037401.60 -15037401.55 -15037401.49 0.1922 0.1739
 Mercury -45877-06-30 03:21 J -15034970.49 -15034970.36 -15034970.22 0.1615 0.0143
 Venus -45873-09-15 00:14 J -15033432.65 -15033432.49 -15033432.33 0.1824 0.0657
 Mercury -45872-03-01 18:57 J -15033264.73 -15033264.71 -15033264.69 0.1909 0.1884
 Venus -45868-04-27 05:45 J -15031747.38 -15031747.26 -15031747.14 0.1698 0.1269
 Mercury -45868-11-20 12:14 J -15031540.11 -15031539.99 -15031539.87 0.1612 0.0704
 Mercury -45866-10-27 00:14 J -15030834.50 -15030834.49 -15030834.47 0.1625 0.1606
 Mercury -45863-07-22 19:54 J -15029834.80 -15029834.67 -15029834.53 0.1914 0.0688
 Mercury -45858-04-12 20:52 J -15028109.71 -15028109.63 -15028109.55 0.1610 0.1278
 Mercury -45856-03-18 09:35 J -15027404.20 -15027404.10 -15027404.01 0.1621 0.1059
 Mercury -45854-12-12 21:21 J -15026404.75 -15026404.61 -15026404.48 0.1918 0.0488
 Mercury -45847-08-08 18:28 J -15023973.85 -15023973.73 -15023973.60 0.1618 0.0504
 Mercury -45844-05-03 23:02 J -15022974.61 -15022974.54 -15022974.47 0.1923 0.1634
 Mercury -45838-12-30 03:35 J -15020543.48 -15020543.35 -15020543.22 0.1615 0.0056

Venus -45834-02-23 08:23 J -15019392.27 -15019392.15 -15019392.03 0.1713 0.1257

Mercury -45828-05-21 12:28 J -15017113.10 -15017112.98 -15017112.86 0.1613 0.0620

Earth -45825-02-03 16:33 J -15016124.95 -15016124.81 -15016124.67 0.1934 0.1354

Moon -45825-02-04 01:54 J -15016124.58 -15016124.42 -15016124.27 0.1934 0.1149

Mercury -45823-01-20 20:23 J -15015407.78 -15015407.65 -15015407.52 0.1914 0.0809

Mercury -45819-10-11 21:21 J -15013682.70 -15013682.61 -15013682.52 0.1610 0.1189

Mercury -45817-09-16 09:35 J -15012977.19 -15012977.10 -15012977.01 0.1622 0.1138

Mercury -45814-06-12 21:35 J -15011977.74 -15011977.60 -15011977.46 0.1918 0.0374

Mercury -45807-02-06 18:42 J -15009546.84 -15009546.72 -15009546.60 0.1618 0.0586

Venus -45807-07-13 07:40 J -15009390.32 -15009390.18 -15009390.05 0.1819 0.1079

Mercury -45805-11-01 23:16 J -15008547.61 -15008547.53 -15008547.44 0.1922 0.1520

Venus -45802-02-22 13:54 J -15007705.07 -15007704.92 -15007704.77 0.1701 0.0944

Mercury -45798-06-30 03:50 J -15006116.48 -15006116.34 -15006116.21 0.1615 0.0050

Mercury -45789-11-19 12:42 J -15002686.10 -15002685.97 -15002685.85 0.1613 0.0539

Mercury -45784-07-21 20:23 J -15000980.77 -15000980.65 -15000980.52 0.1914 0.0909

Mercury -45779-04-11 21:21 J -14999255.70 -14999255.61 -14999255.51 0.1610 0.1106

Mercury -45777-03-17 09:50 J -14998550.18 -14998550.09 -14998550.01 0.1622 0.1217

Venus -45775-07-12 15:35 J -14997702.95 -14997702.85 -14997702.76 0.1833 0.1496

Mercury -45775-12-11 22:04 J -14997550.72 -14997550.58 -14997550.44 0.1918 0.0252

Moon -45770-08-08 09:50 J -14995850.28 -14995850.09 -14995849.90 0.1598 0.0479

Earth -45770-08-08 13:54 J -14995850.10 -14995849.92 -14995849.74 0.1598 0.0539 *

Venus -45769-12-20 16:04 J -14995349.89 -14995349.83 -14995349.77 0.1717 0.1601

Mercury -45768-08-07 18:57 J -14995119.83 -14995119.71 -14995119.59 0.1619 0.0667

Mercury -45765-05-02 23:45 J -14994120.61 -14994120.51 -14994120.42 0.1922 0.1402

Mercury -45759-12-29 03:50 J -14991689.47 -14991689.34 -14991689.20 0.1616 0.0123

Mercury -45749-05-20 12:57 J -14988259.09 -14988258.96 -14988258.84 0.1613 0.0454

Mercury -45744-01-19 20:52 J -14986553.75 -14986553.63 -14986553.51 0.1914 0.1030

Venus -45741-05-09 15:35 J -14985347.94 -14985347.85 -14985347.75 0.1815 0.1479

Mercury -45740-10-10 21:35 J -14984828.70 -14984828.60 -14984828.50 0.1610 0.1023

Mercury -45738-09-16 09:50 J -14984123.16 -14984123.09 -14984123.01 0.1622 0.1298

Venus -45737-12-19 22:18 J -14983662.73 -14983662.57 -14983662.40 0.1705 0.0629

Mercury -45735-06-11 22:04 J -14983123.72 -14983123.58 -14983123.44 0.1918 0.0158

Mercury -45730-03-03 06:14 J -14981398.25 -14981398.24 -14981398.22 0.1608 0.1594

Mercury -45728-02-05 18:57 J -14980692.82 -14980692.71 -14980692.59 0.1619 0.0747

Mercury -45726-11-01 23:45 J -14979693.61 -14979693.51 -14979693.41 0.1922 0.1300

Mercury -45719-06-29 04:04 J -14977262.46 -14977262.33 -14977262.20 0.1616 0.0194

Mercury -45710-11-19 12:57 J -14973832.09 -14973831.96 -14973831.83 0.1613 0.0370

Venus -45709-05-08 23:02 J -14973660.67 -14973660.54 -14973660.40 0.1829 0.1061

Mercury -45705-07-20 21:21 J -14972126.72 -14972126.61 -14972126.50 0.1913 0.1156

Mercury -45700-04-10 21:50 J -14970401.70 -14970401.59 -14970401.48 0.1610 0.0935

Mercury -45698-03-17 10:04 J -14969696.15 -14969696.08 -14969696.01 0.1622 0.1377

Mercury -45696-12-10 22:18 J -14968696.71 -14968696.57 -14968696.42 0.1918 0.0074

Earth -45691-08-10 15:35 J -14966993.03 -14966992.85 -14966992.68 0.1599 0.0613

Moon -45691-08-10 18:57 J -14966992.90 -14966992.71 -14966992.53 0.1599 0.0617 *

Mercury -45691-09-01 06:28 J -14966971.27 -14966971.23 -14966971.19 0.1608 0.1508

Mercury -45689-08-06 19:11 J -14966265.81 -14966265.70 -14966265.58 0.1619 0.0831

Mercury -45686-05-03 00:14 J -14965266.60 -14965266.49 -14965266.38 0.1922 0.1179

Mercury -45680-12-28 04:18 J -14962835.45 -14962835.32 -14962835.19 0.1616 0.0276

Venus -45671-10-17 06:42 J -14959620.39 -14959620.22 -14959620.04 0.1709 0.0301

Mercury -45670-05-20 13:11 J -14959405.08 -14959404.95 -14959404.82 0.1613 0.0288

Mercury -45665-01-19 21:21 J -14957699.72 -14957699.61 -14957699.50 0.1913 0.1252

Mercury -45661-10-09 22:04 J -14955974.70 -14955974.58 -14955974.47 0.1610 0.0852

Mercury -45659-09-15 10:18 J -14955269.13 -14955269.07 -14955269.02 0.1622 0.1457

Mercury -45656-06-10 23:02 J -14954269.68 -14954269.54 -14954269.40 0.1918 0.0101

Mercury -45651-03-02 06:42 J -14952544.28 -14952544.22 -14952544.16 0.1608 0.1421

Mercury -45649-02-05 19:26 J -14951838.80 -14951838.69 -14951838.58 0.1619 0.0910

Mercury -45647-11-01 00:28 J -14950839.60 -14950839.48 -14950839.37 0.1921 0.1071

Venus -45643-03-06 06:14 J -14949618.40 -14949618.24 -14949618.08 0.1824 0.0619

Mercury -45640-06-28 04:33 J -14948408.44 -14948408.31 -14948408.18 0.1616 0.0361

Mercury -45631-11-18 13:26 J -14944978.07 -14944977.94 -14944977.81 0.1613 0.0204

Mercury -45626-07-20 21:50 J -14943272.69 -14943272.59 -14943272.49 0.1913 0.1382

Mercury -45621-04-09 22:04 J -14941547.69 -14941547.58 -14941547.46 0.1610 0.0771

Mercury -45619-03-16 10:18 J -14940842.11 -14940842.07 -14940842.03 0.1622 0.1537

Mercury -45617-12-09 23:02 J -14939842.68 -14939842.54 -14939842.40 0.1917 0.0195

Mercury -45612-08-31 06:57 J -14938117.29 -14938117.21 -14938117.14 0.1608 0.1338

Mercury -45610-08-06 19:26 J -14937411.79 -14937411.69 -14937411.58 0.1619 0.0989

Mercury -45607-05-02 00:42 J -14936412.59 -14936412.47 -14936412.35 0.1922 0.0959

Venus -45605-08-13 14:52 J -14935578.06 -14935577.88 -14935577.71 0.1713 0.0049

Mercury -45601-12-27 04:33 J -14933981.43 -14933981.31 -14933981.18 0.1616 0.0440

Mercury -45591-05-19 13:40 J -14930551.07 -14930550.93 -14930550.80 0.1613 0.0132

Mercury -45586-01-18 22:04 J -14928845.66 -14928845.58 -14928845.49 0.1913 0.1502

Mercury -45582-10-09 22:18 J -14927120.69 -14927120.57 -14927120.44 0.1610 0.0683

Mercury -45580-09-14 10:33 J -14926415.07 -14926415.06 -14926415.05 0.1622 0.1616

Venus -45577-01-01 14:23 J -14925576.07 -14925575.90 -14925575.73 0.1820 0.0218

Mercury -45577-06-09 23:16 J -14925415.67 -14925415.53 -14925415.39 0.1917 0.0315

Mercury -45572-03-01 06:57 J -14923690.29 -14923690.21 -14923690.12 0.1608 0.1254

Mercury -45570-02-04 19:40 J -14922984.77 -14922984.68 -14922984.58 0.1619 0.1072

Mercury -45568-10-31 00:57 J -14921985.59 -14921985.46 -14921985.34 0.1921 0.0846

Earth -45565-08-06 19:54 J -14920974.77 -14920974.67 -14920974.57 0.1597 0.1346

Moon -45565-08-06 23:30 J -14920974.60 -14920974.52 -14920974.45 0.1597 0.1432 *

Mercury -45561-06-27 04:47 J -14919554.43 -14919554.30 -14919554.18 0.1616 0.0519

Mercury -45552-11-17 13:40 J -14916124.06 -14916123.93 -14916123.79 0.1613 0.0044

Mercury -45547-07-19 22:18 J -14914418.64 -14914418.57 -14914418.49 0.1913 0.1603

Mercury -45542-04-09 22:33 J -14912693.68 -14912693.56 -14912693.44 0.1611 0.0600

Venus -45539-06-10 22:47 J -14911535.72 -14911535.55 -14911535.37 0.1716 0.0370

Mercury -45538-12-09 23:45 J -14910988.65 -14910988.51 -14910988.37 0.1917 0.0436

Mercury -45533-08-30 07:11 J -14909263.29 -14909263.20 -14909263.10 0.1608 0.1168

Mercury -45531-08-05 19:54 J -14908557.76 -14908557.67 -14908557.58 0.1619 0.1152

Mercury -45528-05-01 01:11 J -14907558.57 -14907558.45 -14907558.32 0.1921 0.0728

Mercury -45522-12-27 05:02 J -14905127.41 -14905127.29 -14905127.17 0.1616 0.0604

Mercury -45519-09-21 03:06 J -14904128.40 -14904128.37 -14904128.34 0.1925 0.1865

Mercury -45512-05-18 13:54 J -14901697.05 -14901696.92 -14901696.79 0.1613 0.0046

Venus -45512-10-28 22:04 J -14901533.75 -14901533.58 -14901533.41 0.1816 0.0198

Mercury -45507-01-17 22:47 J -14899991.61 -14899991.55 -14899991.49 0.1913 0.1726

Mercury -45503-10-08 22:47 J -14898266.68 -14898266.55 -14898266.43 0.1611 0.0518

Mercury -45498-06-09 23:59 J -14896561.64 -14896561.50 -14896561.37 0.1917 0.0542

Mercury -45493-02-29 07:26 J -14894836.29 -14894836.19 -14894836.09 0.1608 0.1082

Mercury -45491-02-03 19:54 J -14894130.75 -14894130.67 -14894130.58 0.1619 0.1232

Mercury -45489-10-30 01:26 J -14893131.57 -14893131.44 -14893131.31 0.1921 0.0621

Moon -45486-08-09 17:30 J -14892117.95 -14892117.77 -14892117.59 0.1598 0.0154

Earth -45486-08-09 21:50 J -14892117.78 -14892117.59 -14892117.41 0.1598 0.0198 *

Mercury -45482-06-27 05:02 J -14890700.41 -14890700.29 -14890700.17 0.1616 0.0685

Mercury -45479-03-22 03:35 J -14889701.41 -14889701.35 -14889701.30 0.1925 0.1742

Venus -45473-04-07 06:57 J -14887493.38 -14887493.21 -14887493.05 0.1720 0.0708

Mercury -45473-11-16 14:09 J -14887270.05 -14887269.91 -14887269.78 0.1613 0.0132

Mercury -45468-07-18 23:16 J -14885564.57 -14885564.53 -14885564.50 0.1912 0.1852

Mercury -45463-04-08 23:02 J -14883839.67 -14883839.54 -14883839.41 0.1611 0.0430

Earth -45462-02-06 04:04 J -14883536.53 -14883536.33 -14883536.13 0.1934 0.0342

Moon -45462-02-06 14:09 J -14883536.11 -14883535.91 -14883535.71 0.1933 0.0428

Mercury -45459-12-09 00:14 J -14882134.62 -14882134.49 -14882134.36 0.1917 0.0654

Mercury -45454-08-30 07:40 J -14880409.28 -14880409.18 -14880409.07 0.1608 0.0997

Mercury -45452-08-04 20:09 J -14879703.73 -14879703.66 -14879703.58 0.1619 0.1314

Mercury -45449-04-30 01:54 J -14878704.56 -14878704.42 -14878704.29 0.1921 0.0504

Venus -45446-08-26 06:14 J -14877491.40 -14877491.24 -14877491.08 0.1812 0.0593

Mercury -45444-01-19 16:18 J -14876978.84 -14876978.82 -14876978.80 0.1606 0.1570

Mercury -45443-12-26 05:16 J -14876273.40 -14876273.28 -14876273.17 0.1616 0.0763

Venus -45441-04-06 13:54 J -14875805.99 -14875805.92 -14875805.84 0.1708 0.1530

Mercury -45440-09-20 03:21 J -14875274.42 -14875274.36 -14875274.29 0.1924 0.1652

Mercury -45433-05-17 14:09 J -14872843.04 -14872842.91 -14872842.77 0.1614 0.0219

Mercury -45424-10-07 23:16 J -14869412.66 -14869412.53 -14869412.40 0.1611 0.0349

Mercury -45419-06-09 00:42 J -14867707.60 -14867707.47 -14867707.34 0.1917 0.0786

Mercury -45414-02-28 07:54 J -14865982.28 -14865982.17 -14865982.06 0.1608 0.0911

Mercury -45412-02-02 20:23 J -14865276.72 -14865276.65 -14865276.59 0.1619 0.1392

Mercury -45410-10-30 01:54 J -14864277.55 -14864277.42 -14864277.28 0.1921 0.0398

Venus -45407-02-02 15:06 J -14863451.01 -14863450.87 -14863450.73 0.1724 0.1041

Moon -45407-08-11 17:16 J -14863260.94 -14863260.78 -14863260.62 0.1599 0.0865

Earth -45407-08-11 23:16 J -14863260.68 -14863260.53 -14863260.37 0.1599 0.0952 *

Mercury -45405-07-20 16:33 J -14862551.86 -14862551.81 -14862551.76 0.1606 0.1482

Mercury -45403-06-26 05:30 J -14861846.38 -14861846.27 -14861846.16 0.1616 0.0848

Mercury -45400-03-21 03:50 J -14860847.42 -14860847.34 -14860847.25 0.1924 0.1528

Mercury -45394-11-16 14:23 J -14858416.03 -14858415.90 -14858415.77 0.1614 0.0299

Mercury -45384-04-07 23:16 J -14854985.66 -14854985.53 -14854985.40 0.1611 0.0267

Venus -45380-06-22 14:09 J -14853449.05 -14853448.91 -14853448.77 0.1807 0.0986

Mercury -45380-12-08 00:42 J -14853280.59 -14853280.47 -14853280.34 0.1916 0.0880

Venus -45375-02-01 21:50 J -14851763.71 -14851763.59 -14851763.46 0.1712 0.1196

Mercury -45375-08-29 08:09 J -14851555.28 -14851555.16 -14851555.05 0.1609 0.0828

Mercury -45373-08-03 20:23 J -14850849.70 -14850849.65 -14850849.59 0.1620 0.1471

Mercury -45370-04-30 02:23 J -14849850.54 -14849850.40 -14849850.26 0.1921 0.0275

Mercury -45365-01-19 16:47 J -14848124.86 -14848124.80 -14848124.74 0.1606 0.1396

Mercury -45364-12-25 05:45 J -14847419.37 -14847419.26 -14847419.16 0.1617 0.0930

Mercury -45361-09-19 04:18 J -14846420.41 -14846420.32 -14846420.23 0.1924 0.1409

Mercury -45354-05-17 14:38 J -14843989.02 -14843988.89 -14843988.76 0.1614 0.0377

Venus -45348-06-21 20:52 J -14841761.72 -14841761.63 -14841761.53 0.1821 0.1495

Mercury -45345-10-06 23:30 J -14840558.65 -14840558.52 -14840558.38 0.1611 0.0182

Venus -45342-11-30 22:33 J -14839408.66 -14839408.56 -14839408.45 0.1728 0.1395

Mercury -45340-06-08 01:11 J -14838853.57 -14838853.45 -14838853.33 0.1916 0.1003

Mercury -45335-02-27 08:23 J -14837128.27 -14837128.15 -14837128.03 0.1609 0.0744

Mercury -45333-02-02 20:38 J -14836422.67 -14836422.64 -14836422.60 0.1620 0.1553

Mercury -45331-10-29 02:38 J -14835423.53 -14835423.39 -14835423.25 0.1920 0.0164

Mercury -45326-07-20 17:02 J -14833697.87 -14833697.79 -14833697.72 0.1607 0.1312

Mercury -45324-06-25 05:45 J -14832992.36 -14832992.26 -14832992.16 0.1616 0.1007

Mercury -45321-03-20 04:18 J -14831993.42 -14831993.32 -14831993.22 0.1924 0.1313

Mercury -45315-11-15 14:52 J -14829562.01 -14829561.88 -14829561.76 0.1614 0.0459

Venus -45314-04-19 22:47 J -14829406.66 -14829406.55 -14829406.44 0.1803 0.1363

Venus -45310-11-30 05:59 J -14827721.40 -14827721.25 -14827721.09 0.1716 0.0875

Mercury -45305-04-06 23:45 J -14826131.64 -14826131.51 -14826131.38 0.1611 0.0097

Mercury -45301-12-07 01:40 J -14824426.54 -14824426.43 -14824426.32 0.1916 0.1129

Mercury -45296-08-28 08:38 J -14822701.27 -14822701.14 -14822701.02 0.1609 0.0658

Mercury -45291-04-29 02:52 J -14820996.52 -14820996.38 -14820996.24 0.1920 0.0066

Mercury -45286-01-18 17:16 J -14819270.87 -14819270.78 -14819270.70 0.1607 0.1224

Mercury -45285-12-24 05:59 J -14818565.35 -14818565.25 -14818565.15 0.1617 0.1090

Venus -45282-04-19 05:02 J -14817719.42 -14817719.29 -14817719.15 0.1816 0.1085

Mercury -45282-09-19 04:33 J -14817566.41 -14817566.31 -14817566.20 0.1924 0.1197

Earth -45281-08-08 03:50 J -14817242.49 -14817242.34 -14817242.19 0.1597 0.1004

Moon -45281-08-08 09:21 J -14817242.25 -14817242.11 -14817241.96 0.1597 0.1087 *

Mercury -45275-05-16 15:06 J -14815135.00 -14815134.87 -14815134.75 0.1614 0.0542

Mercury -45266-10-06 23:59 J -14811704.64 -14811704.50 -14811704.37 0.1611 0.0049

Mercury -45261-06-07 01:40 J -14809999.53 -14809999.43 -14809999.32 0.1916 0.1231

Mercury -45256-02-26 08:38 J -14808274.26 -14808274.14 -14808274.01 0.1609 0.0576

Mercury -45252-10-28 03:06 J -14806569.50 -14806569.37 -14806569.23 0.1921 0.0091

Venus -45248-02-14 06:42 J -14805364.26 -14805364.22 -14805364.18 0.1799 0.1744

Mercury -45247-07-19 17:30 J -14804843.87 -14804843.77 -14804843.68 0.1607 0.1142

Mercury -45245-06-24 06:14 J -14804138.33 -14804138.24 -14804138.15 0.1617 0.1171

Venus -45244-09-26 14:09 J -14803679.08 -14803678.91 -14803678.74 0.1720 0.0539

Mercury -45242-03-20 05:02 J -14803139.40 -14803139.29 -14803139.17 0.1924 0.1073

Mercury -45236-11-14 15:06 J -14800707.99 -14800707.87 -14800707.74 0.1614 0.0624

Mercury -45226-04-07 00:14 J -14797277.63 -14797277.49 -14797277.36 0.1611 0.0078

Mercury -45222-12-07 02:09 J -14795572.51 -14795572.41 -14795572.31 0.1916 0.1347

Mercury -45217-08-27 08:52 J -14793847.26 -14793847.13 -14793847.00 0.1609 0.0492

Venus -45216-02-13 12:42 J -14793677.13 -14793676.97 -14793676.82 0.1812 0.0670

Mercury -45212-04-28 03:35 J -14792142.49 -14792142.35 -14792142.21 0.1920 0.0182
 Mercury -45207-01-17 17:30 J -14790416.87 -14790416.77 -14790416.66 0.1607 0.1058
 Mercury -45206-12-24 06:14 J -14789711.32 -14789711.24 -14789711.16 0.1617 0.1248
 Mercury -45203-09-18 05:02 J -14788712.41 -14788712.29 -14788712.17 0.1924 0.0980
 Earth -45202-08-11 05:59 J -14788385.44 -14788385.25 -14788385.06 0.1598 0.0154
 Moon -45202-08-11 11:45 J -14788385.19 -14788385.01 -14788384.83 0.1598 0.0259 *
 Mercury -45196-05-15 15:21 J -14786280.98 -14786280.86 -14786280.74 0.1614 0.0704
 Mercury -45187-10-06 00:14 J -14782850.62 -14782850.49 -14782850.35 0.1612 0.0157
 Mercury -45182-06-07 02:38 J -14781145.48 -14781145.39 -14781145.30 0.1916 0.1479
 Earth -45178-02-05 00:42 J -14779806.60 -14779806.47 -14779806.33 0.1934 0.1434
 Venus -45178-07-24 21:50 J -14779636.77 -14779636.59 -14779636.41 0.1724 0.0193
 Mercury -45177-02-26 09:06 J -14779420.25 -14779420.12 -14779419.99 0.1609 0.0406
 Mercury -45173-10-27 03:50 J -14777715.48 -14777715.34 -14777715.20 0.1920 0.0293
 Mercury -45168-07-18 17:59 J -14775989.86 -14775989.75 -14775989.65 0.1607 0.0970
 Mercury -45166-06-24 06:28 J -14775284.30 -14775284.23 -14775284.16 0.1617 0.1332
 Mercury -45163-03-19 05:30 J -14774285.39 -14774285.27 -14774285.14 0.1924 0.0855
 Mercury -45159-12-09 02:23 J -14772559.43 -14772559.40 -14772559.37 0.1605 0.1543
 Mercury -45157-11-13 15:35 J -14771853.97 -14771853.85 -14771853.74 0.1614 0.0786
 Venus -45151-12-11 21:21 J -14769634.78 -14769634.61 -14769634.45 0.1808 0.0294
 Mercury -45147-04-06 00:28 J -14768423.61 -14768423.48 -14768423.35 0.1611 0.0232
 Mercury -45143-12-06 02:38 J -14766718.47 -14766718.39 -14766718.31 0.1916 0.1572
 Mercury -45138-08-27 09:21 J -14764993.24 -14764993.11 -14764992.98 0.1609 0.0322
 Mercury -45133-04-27 04:18 J -14763288.46 -14763288.32 -14763288.19 0.1920 0.0417
 Mercury -45128-01-16 17:59 J -14761562.86 -14761562.75 -14761562.63 0.1607 0.0886
 Mercury -45127-12-23 06:42 J -14760857.28 -14760857.22 -14760857.16 0.1617 0.1411
 Mercury -45124-09-17 05:45 J -14759858.38 -14759858.26 -14759858.13 0.1923 0.0741
 Moon -45123-08-13 06:14 J -14759528.34 -14759528.24 -14759528.14 0.1598 0.1297
 Earth -45123-08-13 07:11 J -14759528.31 -14759528.20 -14759528.09 0.1598 0.1296 *
 Mercury -45119-06-09 02:38 J -14758132.44 -14758132.39 -14758132.33 0.1605 0.1454
 Mercury -45117-05-14 15:35 J -14757426.96 -14757426.85 -14757426.73 0.1614 0.0869

Mercury -45114-02-07 07:40 J -14756428.21 -14756428.18 -14756428.15 0.1927 0.1870

Venus -45112-05-21 05:45 J -14755594.44 -14755594.26 -14755594.08 0.1727 0.0152

Mercury -45108-10-05 00:42 J -14753996.60 -14753996.47 -14753996.34 0.1612 0.0319

Mercury -45103-06-06 03:06 J -14752291.43 -14752291.37 -14752291.31 0.1916 0.1699

Mercury -45098-02-25 09:35 J -14750566.24 -14750566.10 -14750565.97 0.1609 0.0241

Mercury -45094-10-27 04:18 J -14748861.45 -14748861.32 -14748861.18 0.1919 0.0520

Mercury -45089-07-17 18:14 J -14747135.86 -14747135.74 -14747135.62 0.1607 0.0802

Mercury -45087-06-23 06:42 J -14746430.27 -14746430.22 -14746430.17 0.1617 0.1487

Venus -45085-10-08 05:16 J -14745592.45 -14745592.28 -14745592.11 0.1803 0.0103

Mercury -45084-03-18 05:59 J -14745431.38 -14745431.25 -14745431.12 0.1923 0.0642

Mercury -45080-12-08 02:52 J -14743705.45 -14743705.38 -14743705.31 0.1605 0.1370

Mercury -45078-11-13 15:50 J -14742999.94 -14742999.84 -14742999.73 0.1614 0.0948

Mercury -45075-08-08 08:09 J -14742001.21 -14742001.16 -14742001.10 0.1926 0.1746

Mercury -45068-04-05 00:57 J -14739569.59 -14739569.46 -14739569.33 0.1612 0.0401

Mercury -45064-12-05 03:35 J -14737864.39 -14737864.35 -14737864.31 0.1915 0.1823

Mercury -45059-08-26 09:50 J -14736139.23 -14736139.09 -14736138.96 0.1609 0.0157

Mercury -45054-04-27 04:47 J -14734434.44 -14734434.30 -14734434.17 0.1919 0.0637

Mercury -45049-01-16 18:28 J -14732708.85 -14732708.73 -14732708.61 0.1607 0.0716

Mercury -45048-12-22 06:57 J -14732003.24 -14732003.21 -14732003.18 0.1617 0.1570

Venus -45046-03-18 13:26 J -14731552.12 -14731551.94 -14731551.77 0.1731 0.0507

Mercury -45045-09-16 06:14 J -14731004.37 -14731004.24 -14731004.10 0.1923 0.0524

Mercury -45040-06-08 03:06 J -14729278.45 -14729278.37 -14729278.29 0.1605 0.1286

Mercury -45038-05-14 16:04 J -14728572.93 -14728572.83 -14728572.73 0.1614 0.1028

Mercury -45035-02-06 08:09 J -14727574.22 -14727574.16 -14727574.09 0.1926 0.1649

Mercury -45029-10-04 00:57 J -14725142.58 -14725142.46 -14725142.33 0.1612 0.0481

Mercury -45019-02-24 09:50 J -14721712.22 -14721712.09 -14721711.95 0.1609 0.0087

Venus -45019-08-05 13:40 J -14721550.09 -14721549.93 -14721549.76 0.1799 0.0475

Mercury -45015-10-26 05:02 J -14720007.42 -14720007.29 -14720007.16 0.1920 0.0752

Mercury -45010-07-17 18:42 J -14718281.84 -14718281.72 -14718281.60 0.1607 0.0632

Mercury -45005-03-17 06:42 J -14716577.36 -14716577.22 -14716577.08 0.1923 0.0399

Mercury -45001-12-07 03:21 J -14714851.45 -14714851.36 -14714851.27 0.1605 0.1197

45TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 45th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -44999-11-12 16:18 J | -14714145.92 | -14714145.82 | -14714145.73 | 0.1615 | 0.1110 | | |
| Moon | -44997-08-09 07:26 J | -14713510.37 | -14713510.19 | -14713510.02 | 0.1597 | 0.0789 | | |
| Earth | -44997-08-09 12:14 J | -14713510.16 | -14713509.99 | -14713509.82 | 0.1597 | 0.0652 | * | |
| Mercury | -44996-08-07 08:38 J | -14713147.22 | -14713147.14 | -14713147.06 | 0.1926 | 0.1538 | | |
| Mercury | -44989-04-04 01:11 J | -14710715.57 | -14710715.45 | -14710715.32 | 0.1612 | 0.0564 | | |
| Venus | -44980-01-12 21:06 J | -14707509.78 | -14707509.62 | -14707509.47 | 0.1735 | 0.0852 | | |
| Mercury | -44980-08-25 10:04 J | -14707285.21 | -14707285.08 | -14707284.94 | 0.1609 | 0.0017 | | |
| Mercury | -44975-04-26 05:16 J | -14705580.40 | -14705580.28 | -14705580.15 | 0.1919 | 0.0866 | | |
| Mercury | -44970-01-15 18:57 J | -14703854.84 | -14703854.71 | -14703854.59 | 0.1607 | 0.0550 | | |
| Mercury | -44966-09-16 06:42 J | -14702150.36 | -14702150.22 | -14702150.08 | 0.1923 | 0.0306 | | |
| Mercury | -44961-06-07 03:35 J | -14700424.45 | -14700424.35 | -14700424.26 | 0.1605 | 0.1114 | | |
| Mercury | -44959-05-13 16:18 J | -14699718.90 | -14699718.82 | -14699718.73 | 0.1615 | 0.1190 | | |
| Mercury | -44956-02-05 08:52 J | -14698720.22 | -14698720.13 | -14698720.04 | 0.1926 | 0.1417 | | |
| Venus | -44953-06-01 22:04 J | -14697507.73 | -14697507.58 | -14697507.43 | 0.1795 | 0.0844 | | |
| Mercury | -44950-10-04 01:26 J | -14696288.56 | -14696288.44 | -14696288.32 | 0.1612 | 0.0644 | | |
| Venus | -44948-01-12 05:02 J | -14695822.39 | -14695822.29 | -14695822.19 | 0.1723 | 0.1423 | | |
| Mercury | -44940-02-23 10:18 J | -14692858.20 | -14692858.07 | -14692857.93 | 0.1610 | 0.0096 | | |
| Mercury | -44936-10-25 05:30 J | -14691153.39 | -14691153.27 | -14691153.15 | 0.1919 | 0.0974 | | |

Mercury -44931-07-16 19:11 J -14689427.83 -14689427.70 -14689427.57 0.1607 0.0464

Mercury -44926-03-17 07:11 J -14687723.34 -14687723.20 -14687723.06 0.1923 0.0181

Mercury -44922-12-07 03:35 J -14685997.45 -14685997.35 -14685997.24 0.1605 0.1033

Venus -44921-06-01 03:50 J -14685820.42 -14685820.34 -14685820.25 0.1809 0.1546

Mercury -44920-11-11 16:33 J -14685291.89 -14685291.81 -14685291.73 0.1615 0.1268

Earth -44918-08-12 13:54 J -14684653.10 -14684652.92 -14684652.74 0.1597 0.0497

Moon -44918-08-12 16:47 J -14684652.99 -14684652.80 -14684652.61 0.1597 0.0591 *

Mercury -44917-08-06 08:52 J -14684293.22 -14684293.13 -14684293.03 0.1926 0.1321

Venus -44915-11-10 04:18 J -14683467.44 -14683467.32 -14683467.19 0.1739 0.1217

Mercury -44912-04-28 12:14 J -14682566.99 -14682566.99 -14682566.99 0.1604 0.1601

Mercury -44910-04-04 01:40 J -14681861.55 -14681861.43 -14681861.32 0.1612 0.0725

Mercury -44901-08-24 10:33 J -14678431.19 -14678431.06 -14678430.93 0.1610 0.0176

Mercury -44896-04-25 05:59 J -14676726.36 -14676726.25 -14676726.13 0.1919 0.1101

Mercury -44891-01-14 19:11 J -14675000.83 -14675000.70 -14675000.56 0.1608 0.0385

Venus -44887-03-30 06:57 J -14673465.34 -14673465.21 -14673465.09 0.1791 0.1203

Mercury -44887-09-15 07:26 J -14673296.33 -14673296.19 -14673296.05 0.1922 0.0070

Venus -44883-11-09 12:57 J -14671780.09 -14671779.96 -14671779.82 0.1727 0.1093

Mercury -44882-06-07 04:04 J -14671570.44 -14671570.33 -14671570.22 0.1606 0.0944

Mercury -44880-05-12 16:47 J -14670864.87 -14670864.80 -14670864.73 0.1615 0.1349

Mercury -44877-02-05 09:21 J -14669866.22 -14669866.11 -14669866.01 0.1926 0.1209

Mercury -44873-10-27 12:28 J -14668140.02 -14668139.98 -14668139.94 0.1604 0.1515

Mercury -44871-10-03 01:54 J -14667434.54 -14667434.42 -14667434.31 0.1612 0.0809

Mercury -44861-02-23 10:47 J -14664004.19 -14664004.05 -14664003.92 0.1610 0.0262

Mercury -44857-10-24 06:14 J -14662299.35 -14662299.24 -14662299.14 0.1919 0.1203

Venus -44855-03-29 11:59 J -14661778.12 -14661778.00 -14661777.87 0.1804 0.1155

Mercury -44852-07-15 19:26 J -14660573.82 -14660573.69 -14660573.56 0.1608 0.0300

Venus -44849-09-06 12:14 J -14659425.06 -14659424.99 -14659424.91 0.1743 0.1566

Mercury -44847-03-16 07:40 J -14658869.32 -14658869.18 -14658869.04 0.1923 0.0063

Mercury -44843-12-06 04:04 J -14657143.44 -14657143.33 -14657143.21 0.1606 0.0861

Mercury -44841-11-10 16:47 J -14656437.85 -14656437.80 -14656437.74 0.1615 0.1429

Mercury -44838-08-06 09:50 J -14655439.21 -14655439.09 -14655438.98 0.1925 0.1083

Mercury -44833-04-27 12:42 J -14653713.03 -14653712.97 -14653712.91 0.1604 0.1428

Mercury -44831-04-03 01:54 J -14653007.53 -14653007.42 -14653007.31 0.1612 0.0887

Mercury -44822-08-24 10:47 J -14649577.18 -14649577.05 -14649576.91 0.1610 0.0343

Venus -44821-01-25 15:06 J -14649422.95 -14649422.87 -14649422.79 0.1787 0.1566

Mercury -44817-04-24 06:28 J -14647872.33 -14647872.23 -14647872.13 0.1919 0.1317

Venus -44817-09-05 20:38 J -14647737.80 -14647737.64 -14647737.48 0.1731 0.0742

Moon -44815-02-07 05:59 J -14647218.44 -14647218.25 -14647218.06 0.1934 0.0458

Earth -44815-02-07 15:06 J -14647218.07 -14647217.87 -14647217.68 0.1934 0.0370 *

Mercury -44812-01-13 19:40 J -14646146.81 -14646146.68 -14646146.54 0.1608 0.0216

Mercury -44808-09-14 07:54 J -14644442.31 -14644442.17 -14644442.03 0.1922 0.0157

Mercury -44803-06-06 04:18 J -14642716.44 -14642716.32 -14642716.20 0.1606 0.0778

Mercury -44801-05-11 17:02 J -14642010.83 -14642010.79 -14642010.74 0.1615 0.1507

Mercury -44798-02-04 09:35 J -14641012.21 -14641012.10 -14641011.98 0.1925 0.0993

Mercury -44794-10-27 12:57 J -14639286.03 -14639285.96 -14639285.89 0.1604 0.1345

Earth -44792-08-08 17:45 J -14638634.83 -14638634.76 -14638634.69 0.1597 0.1478

Moon -44792-08-08 21:50 J -14638634.69 -14638634.59 -14638634.48 0.1597 0.1289 *

Mercury -44792-10-02 02:09 J -14638580.52 -14638580.41 -14638580.31 0.1612 0.0966

Venus -44789-01-24 19:54 J -14637735.82 -14637735.67 -14637735.51 0.1800 0.0759

Mercury -44782-02-22 11:02 J -14635150.17 -14635150.04 -14635149.91 0.1610 0.0422

Mercury -44778-10-24 06:42 J -14633445.31 -14633445.22 -14633445.12 0.1919 0.1440

Mercury -44773-07-14 19:54 J -14631719.80 -14631719.67 -14631719.54 0.1608 0.0132

Mercury -44768-03-15 08:23 J -14630015.29 -14630015.15 -14630015.02 0.1922 0.0275

Mercury -44764-12-05 04:33 J -14628289.43 -14628289.31 -14628289.19 0.1606 0.0691

Mercury -44762-11-10 17:16 J -14627583.80 -14627583.78 -14627583.76 0.1615 0.1586

Mercury -44759-08-05 10:04 J -14626585.20 -14626585.08 -14626584.96 0.1925 0.0877

Mercury -44754-04-27 13:11 J -14624859.04 -14624858.95 -14624858.87 0.1604 0.1262

Mercury -44752-04-02 02:23 J -14624153.50 -14624153.40 -14624153.30 0.1612 0.1048

Venus -44751-07-04 03:35 J -14623695.52 -14623695.35 -14623695.17 0.1735 0.0380

Mercury -44743-08-23 11:16 J -14620723.16 -14620723.03 -14620722.91 0.1610 0.0501

Mercury -44738-04-24 06:57 J -14619018.29 -14619018.21 -14619018.12 0.1918 0.1548
 Mercury -44733-01-13 20:09 J -14617292.80 -14617292.66 -14617292.53 0.1608 0.0059
 Mercury -44729-09-13 08:23 J -14615588.29 -14615588.15 -14615588.01 0.1922 0.0368
 Mercury -44724-06-05 04:47 J -14613862.43 -14613862.30 -14613862.18 0.1606 0.0610
 Venus -44724-11-21 04:47 J -14613693.46 -14613693.30 -14613693.13 0.1796 0.0399
 Mercury -44719-02-03 10:33 J -14612158.19 -14612158.06 -14612157.94 0.1925 0.0758
 Mercury -44715-10-26 13:26 J -14610432.03 -14610431.94 -14610431.85 0.1604 0.1175
 Moon -44713-08-10 17:16 J -14609777.96 -14609777.78 -14609777.61 0.1597 0.0416
 Earth -44713-08-10 19:40 J -14609777.86 -14609777.68 -14609777.49 0.1597 0.0319 *
 Mercury -44713-10-01 02:23 J -14609726.49 -14609726.40 -14609726.30 0.1613 0.1128
 Mercury -44710-06-26 12:28 J -14608728.01 -14608727.98 -14608727.95 0.1928 0.1870
 Mercury -44703-02-21 11:30 J -14606296.15 -14606296.02 -14606295.90 0.1610 0.0585
 Mercury -44699-10-23 07:11 J -14604591.27 -14604591.20 -14604591.13 0.1918 0.1654
 Mercury -44694-07-14 20:09 J -14602865.79 -14602865.66 -14602865.52 0.1608 0.0065
 Mercury -44689-03-14 08:52 J -14601161.27 -14601161.13 -14601161.00 0.1922 0.0492
 Venus -44685-04-30 11:16 J -14599653.21 -14599653.03 -14599652.85 0.1739 0.0028
 Mercury -44685-12-04 05:02 J -14599435.42 -14599435.29 -14599435.17 0.1606 0.0530
 Mercury -44680-08-04 10:33 J -14597731.19 -14597731.06 -14597730.93 0.1925 0.0662
 Mercury -44675-04-26 13:26 J -14596005.03 -14596004.94 -14596004.84 0.1604 0.1092
 Mercury -44673-04-01 02:38 J -14595299.48 -14595299.39 -14595299.31 0.1613 0.1205
 Mercury -44671-12-25 12:42 J -14594301.02 -14594300.97 -14594300.91 0.1928 0.1764
 Mercury -44664-08-22 11:30 J -14591869.14 -14591869.02 -14591868.89 0.1610 0.0666
 Mercury -44659-04-23 07:40 J -14590164.22 -14590164.18 -14590164.13 0.1918 0.1783
 Venus -44658-09-18 12:57 J -14589651.12 -14589650.96 -14589650.79 0.1791 0.0055
 Mercury -44654-01-12 20:23 J -14588438.78 -14588438.65 -14588438.51 0.1608 0.0118
 Mercury -44650-09-13 09:06 J -14586734.26 -14586734.12 -14586733.99 0.1921 0.0603
 Mercury -44645-06-04 05:16 J -14585008.41 -14585008.28 -14585008.15 0.1606 0.0442
 Mercury -44640-02-02 10:47 J -14583304.18 -14583304.05 -14583303.92 0.1925 0.0548
 Mercury -44636-10-25 13:40 J -14581578.03 -14581577.93 -14581577.82 0.1604 0.1008
 Moon -44634-08-13 15:21 J -14580921.03 -14580920.86 -14580920.70 0.1598 0.0779

Earth -44634-08-13 21:35 J -14580920.76 -14580920.60 -14580920.44 0.1598 0.0837 *
 Mercury -44634-10-01 02:52 J -14580872.46 -14580872.38 -14580872.30 0.1613 0.1287
 Mercury -44631-06-25 12:57 J -14579874.03 -14579873.96 -14579873.89 0.1927 0.1655
 Mercury -44626-03-17 22:04 J -14578147.59 -14578147.58 -14578147.56 0.1603 0.1580
 Mercury -44624-02-20 11:45 J -14577442.13 -14577442.01 -14577441.89 0.1610 0.0742
 Mercury -44620-10-22 07:54 J -14575737.20 -14575737.17 -14575737.15 0.1918 0.1880
 Venus -44619-02-25 18:14 J -14575610.91 -14575610.74 -14575610.56 0.1743 0.0350
 Mercury -44615-07-13 20:38 J -14574011.77 -14574011.64 -14574011.51 0.1608 0.0196
 Mercury -44610-03-14 09:06 J -14572307.25 -14572307.12 -14572306.99 0.1922 0.0709
 Mercury -44606-12-04 05:16 J -14570581.41 -14570581.28 -14570581.14 0.1606 0.0363
 Mercury -44601-08-03 11:16 J -14568877.17 -14568877.03 -14568876.90 0.1925 0.0426
 Mercury -44596-04-25 13:54 J -14567151.03 -14567150.92 -14567150.81 0.1604 0.0923
 Mercury -44594-04-01 02:52 J -14566445.45 -14566445.38 -14566445.31 0.1613 0.1364
 Venus -44592-07-15 21:50 J -14565608.76 -14565608.59 -14565608.42 0.1787 0.0333
 Mercury -44592-12-24 13:11 J -14565447.03 -14565446.95 -14565446.87 0.1927 0.1552
 Mercury -44587-09-15 22:33 J -14563720.61 -14563720.56 -14563720.52 0.1603 0.1493
 Mercury -44585-08-21 11:59 J -14563015.11 -14563015.00 -14563014.89 0.1610 0.0826
 Mercury -44575-01-11 20:52 J -14559584.76 -14559584.63 -14559584.50 0.1608 0.0279
 Mercury -44571-09-12 09:35 J -14557880.23 -14557880.10 -14557879.98 0.1921 0.0823
 Mercury -44566-06-04 05:30 J -14556154.40 -14556154.27 -14556154.14 0.1606 0.0279
 Mercury -44561-02-02 11:02 J -14554450.17 -14554450.04 -14554449.90 0.1924 0.0340
 Mercury -44557-10-24 14:09 J -14552724.02 -14552723.91 -14552723.79 0.1605 0.0840
 Mercury -44555-09-30 03:06 J -14552018.43 -14552018.37 -14552018.31 0.1613 0.1442
 Venus -44554-12-24 01:40 J -14551568.60 -14551568.43 -14551568.27 0.1747 0.0712
 Mercury -44552-06-24 13:26 J -14551020.03 -14551019.94 -14551019.85 0.1928 0.1438
 Mercury -44547-03-16 22:33 J -14549293.62 -14549293.56 -14549293.49 0.1603 0.1409
 Mercury -44545-02-20 12:14 J -14548588.10 -14548587.99 -14548587.89 0.1611 0.0907
 Mercury -44536-07-12 21:06 J -14545157.75 -14545157.62 -14545157.49 0.1608 0.0362
 Earth -44531-02-06 10:04 J -14543488.21 -14543488.08 -14543487.95 0.1933 0.1454
 Moon -44531-02-06 17:30 J -14543487.93 -14543487.77 -14543487.61 0.1933 0.1046

Mercury -44531-03-13 09:50 J -14543453.21 -14543453.09 -14543452.97 0.1921 0.0937

Mercury -44527-12-03 05:45 J -14541727.39 -14541727.26 -14541727.13 0.1606 0.0194

Venus -44526-05-13 06:28 J -14541566.38 -14541566.23 -14541566.07 0.1783 0.0687

Mercury -44522-08-03 11:30 J -14540023.16 -14540023.02 -14540022.88 0.1924 0.0218

Venus -44522-12-23 10:33 J -14539881.12 -14539881.06 -14539880.99 0.1734 0.1604

Mercury -44517-04-24 14:23 J -14538297.02 -14538296.90 -14538296.78 0.1605 0.0757

Mercury -44515-03-31 03:21 J -14537591.40 -14537591.36 -14537591.32 0.1613 0.1523

Mercury -44513-12-23 13:40 J -14536593.03 -14536592.93 -14536592.83 0.1927 0.1334

Earth -44508-08-10 01:11 J -14534902.58 -14534902.45 -14534902.32 0.1598 0.1148

Moon -44508-08-10 05:30 J -14534902.43 -14534902.27 -14534902.11 0.1598 0.0962 *

Mercury -44508-09-14 22:47 J -14534866.62 -14534866.55 -14534866.47 0.1603 0.1324

Mercury -44506-08-21 12:14 J -14534161.09 -14534160.99 -14534160.88 0.1611 0.0983

Mercury -44496-01-10 21:06 J -14530730.75 -14530730.62 -14530730.49 0.1609 0.0439

Venus -44494-05-12 11:16 J -14529879.10 -14529879.03 -14529878.96 0.1796 0.1614

Mercury -44492-09-11 10:04 J -14529026.20 -14529026.08 -14529025.97 0.1921 0.1040

Venus -44488-10-20 08:38 J -14527526.28 -14527526.14 -14527526.00 0.1751 0.1090

Mercury -44487-06-03 05:59 J -14527300.39 -14527300.25 -14527300.12 0.1607 0.0115

Mercury -44482-02-01 11:59 J -14525596.14 -14525596.00 -14525595.87 0.1924 0.0114

Mercury -44478-10-24 14:38 J -14523870.01 -14523869.89 -14523869.77 0.1605 0.0670

Mercury -44476-09-29 03:21 J -14523164.37 -14523164.36 -14523164.34 0.1613 0.1601

Mercury -44473-06-23 13:54 J -14522166.03 -14522165.92 -14522165.82 0.1927 0.1225

Mercury -44468-03-15 23:02 J -14520439.62 -14520439.54 -14520439.45 0.1603 0.1238

Mercury -44466-02-19 12:28 J -14519734.08 -14519733.98 -14519733.88 0.1611 0.1066

Venus -44460-03-09 15:21 J -14517524.00 -14517523.86 -14517523.72 0.1779 0.1030

Mercury -44457-07-11 21:21 J -14516303.74 -14516303.61 -14516303.48 0.1609 0.0520

Venus -44456-10-19 18:14 J -14515838.86 -14515838.74 -14515838.62 0.1738 0.1260

Moon -44452-02-09 20:09 J -14514629.74 -14514629.66 -14514629.58 0.1933 0.1733

Mercury -44452-03-12 10:18 J -14514599.18 -14514599.07 -14514598.96 0.1921 0.1158

Mercury -44448-12-02 05:59 J -14512873.38 -14512873.25 -14512873.11 0.1607 0.0062

Mercury -44443-08-02 11:59 J -14511169.14 -14511169.00 -14511168.86 0.1924 0.0043

Mercury -44438-04-24 14:52 J -14509443.01 -14509442.88 -14509442.76 0.1605 0.0590
 Mercury -44434-12-23 14:09 J -14507739.02 -14507738.91 -14507738.80 0.1927 0.1116
 Earth -44429-08-12 02:23 J -14506045.59 -14506045.40 -14506045.21 0.1598 0.0006
 Moon -44429-08-12 08:23 J -14506045.33 -14506045.15 -14506044.96 0.1598 0.0045 *
 Mercury -44429-09-13 23:16 J -14506012.62 -14506012.53 -14506012.44 0.1603 0.1155
 Venus -44428-03-08 19:26 J -14505836.81 -14505836.69 -14505836.56 0.1792 0.1239
 Mercury -44427-08-20 12:42 J -14505307.07 -14505306.97 -14505306.88 0.1611 0.1144
 Venus -44422-08-17 15:50 J -14503483.94 -14503483.84 -14503483.75 0.1755 0.1459
 Mercury -44417-01-10 21:35 J -14501876.73 -14501876.60 -14501876.48 0.1609 0.0602
 Mercury -44413-09-10 10:33 J -14500172.16 -14500172.06 -14500171.95 0.1921 0.1271
 Mercury -44408-06-02 06:28 J -14498446.37 -14498446.23 -14498446.10 0.1607 0.0075
 Mercury -44403-01-31 12:14 J -14496742.13 -14496741.99 -14496741.85 0.1924 0.0111
 Mercury -44399-10-23 14:52 J -14495016.01 -14495015.88 -14495015.75 0.1605 0.0510
 Venus -44394-01-04 23:59 J -14493481.60 -14493481.50 -14493481.39 0.1775 0.1373
 Mercury -44394-06-23 14:23 J -14493312.02 -14493311.90 -14493311.79 0.1927 0.1011
 Venus -44390-08-17 01:11 J -14491796.60 -14491796.45 -14491796.30 0.1742 0.0890
 Mercury -44389-03-14 23:30 J -14491585.62 -14491585.52 -14491585.42 0.1603 0.1072
 Mercury -44387-02-18 12:42 J -14490880.05 -14490879.97 -14490879.88 0.1611 0.1220
 Mercury -44378-07-11 21:35 J -14487449.72 -14487449.60 -14487449.47 0.1609 0.0684
 Mercury -44373-03-11 10:47 J -14485745.15 -14485745.05 -14485744.95 0.1921 0.1376
 Mercury -44369-12-01 06:28 J -14484019.36 -14484019.23 -14484019.09 0.1607 0.0133
 Mercury -44364-08-01 12:42 J -14482315.11 -14482314.97 -14482314.84 0.1924 0.0236
 Venus -44362-01-04 03:50 J -14481794.48 -14481794.34 -14481794.19 0.1788 0.0866
 Mercury -44359-04-23 15:06 J -14480589.00 -14480588.87 -14480588.74 0.1605 0.0425
 Mercury -44355-12-22 14:23 J -14478885.02 -14478884.90 -14478884.78 0.1926 0.0908
 Earth -44350-08-15 04:18 J -14477188.45 -14477188.32 -14477188.19 0.1598 0.1160
 Moon -44350-08-15 04:47 J -14477188.42 -14477188.30 -14477188.17 0.1598 0.1167 *
 Mercury -44350-09-13 23:45 J -14477158.62 -14477158.51 -14477158.40 0.1603 0.0986
 Mercury -44348-08-19 12:57 J -14476453.04 -14476452.96 -14476452.88 0.1611 0.1303
 Mercury -44340-02-03 08:09 J -14473728.19 -14473728.16 -14473728.13 0.1602 0.1559

Mercury -44338-01-09 21:50 J -14473022.71 -14473022.59 -14473022.47 0.1609 0.0762
 Mercury -44334-09-10 11:02 J -14471318.12 -14471318.04 -14471317.95 0.1921 0.1490
 Mercury -44329-06-01 06:42 J -14469592.36 -14469592.22 -14469592.09 0.1607 0.0213
 Venus -44329-11-01 09:06 J -14469439.16 -14469439.12 -14469439.07 0.1771 0.1702
 Mercury -44324-01-30 12:28 J -14467888.11 -14467887.98 -14467887.84 0.1924 0.0326
 Venus -44324-06-13 07:54 J -14467754.34 -14467754.17 -14467754.00 0.1747 0.0512
 Mercury -44320-10-22 15:21 J -14466161.99 -14466161.86 -14466161.73 0.1605 0.0341
 Mercury -44315-06-22 14:52 J -14464458.00 -14464457.88 -14464457.75 0.1927 0.0788
 Mercury -44310-03-14 23:59 J -14462731.61 -14462731.50 -14462731.39 0.1603 0.0903
 Mercury -44308-02-17 13:11 J -14462026.02 -14462025.95 -14462025.89 0.1611 0.1381
 Mercury -44306-11-12 17:16 J -14461027.81 -14461027.78 -14461027.76 0.1928 0.1888
 Mercury -44301-08-04 08:23 J -14459301.20 -14459301.15 -14459301.10 0.1602 0.1471
 Mercury -44299-07-10 22:04 J -14458595.69 -14458595.58 -14458595.47 0.1609 0.0841
 Venus -44297-10-31 12:57 J -14457752.12 -14457751.96 -14457751.80 0.1784 0.0521
 Mercury -44294-03-11 11:16 J -14456891.10 -14456891.03 -14456890.95 0.1920 0.1604
 Mercury -44290-12-01 06:57 J -14455165.34 -14455165.21 -14455165.08 0.1607 0.0297
 Mercury -44285-07-31 12:57 J -14453461.09 -14453460.96 -14453460.82 0.1924 0.0441
 Mercury -44280-04-22 15:35 J -14451734.99 -14451734.85 -14451734.72 0.1605 0.0261
 Mercury -44276-12-21 14:52 J -14450031.00 -14450030.88 -14450030.75 0.1926 0.0691
 Mercury -44271-09-12 23:59 J -14448304.61 -14448304.50 -14448304.38 0.1604 0.0822
 Mercury -44269-08-18 13:11 J -14447599.00 -14447598.95 -14447598.89 0.1611 0.1456
 Mercury -44266-05-13 17:16 J -14446600.83 -14446600.78 -14446600.73 0.1929 0.1791
 Mercury -44261-02-03 08:38 J -14444874.21 -14444874.14 -14444874.08 0.1602 0.1389
 Mercury -44259-01-08 22:18 J -14444168.68 -14444168.57 -14444168.47 0.1609 0.0922
 Venus -44258-04-10 15:06 J -14443712.05 -14443711.87 -14443711.70 0.1750 0.0149
 Mercury -44255-09-09 11:30 J -14442464.08 -14442464.02 -14442463.95 0.1921 0.1710
 Mercury -44250-06-01 06:57 J -14440738.34 -14440738.21 -14440738.07 0.1607 0.0380
 Mercury -44245-01-30 13:26 J -14439034.08 -14439033.94 -14439033.81 0.1923 0.0562
 Mercury -44241-10-21 15:50 J -14437307.98 -14437307.84 -14437307.71 0.1605 0.0175
 Mercury -44236-06-21 15:06 J -14435604.00 -14435603.87 -14435603.74 0.1926 0.0582

Mercury -44231-03-14 00:14 J -14433877.61 -14433877.49 -14433877.37 0.1604 0.0738

Venus -44231-08-28 21:21 J -14433709.78 -14433709.61 -14433709.44 0.1779 0.0157

Mercury -44229-02-17 13:26 J -14433171.98 -14433171.94 -14433171.90 0.1611 0.1538

Mercury -44227-11-11 17:30 J -14432173.83 -14432173.77 -14432173.71 0.1928 0.1681

Moon -44224-08-11 01:40 J -14431170.60 -14431170.43 -14431170.27 0.1598 0.0814

Earth -44224-08-11 07:54 J -14431170.33 -14431170.17 -14431170.01 0.1598 0.0830 *

Mercury -44222-08-04 08:38 J -14430447.21 -14430447.14 -14430447.06 0.1602 0.1307

Mercury -44220-07-09 22:18 J -14429741.67 -14429741.57 -14429741.46 0.1609 0.1001

Mercury -44215-03-10 11:59 J -14428037.04 -14428037.00 -14428036.96 0.1920 0.1826

Mercury -44211-11-30 07:11 J -14426311.33 -14426311.20 -14426311.07 0.1607 0.0456

Mercury -44206-07-31 13:26 J -14424607.07 -14424606.94 -14424606.81 0.1923 0.0655

Mercury -44201-04-21 15:50 J -14422880.97 -14422880.84 -14422880.70 0.1605 0.0110

Mercury -44197-12-20 15:35 J -14421176.99 -14421176.85 -14421176.72 0.1926 0.0470

Venus -44192-02-04 21:35 J -14419669.77 -14419669.60 -14419669.42 0.1754 0.0242

Mercury -44192-09-12 00:28 J -14419450.60 -14419450.48 -14419450.35 0.1604 0.0654

Mercury -44187-05-12 17:45 J -14417746.83 -14417746.76 -14417746.68 0.1928 0.1566

Mercury -44182-02-02 09:06 J -14416020.21 -14416020.12 -14416020.04 0.1602 0.1217

Mercury -44180-01-07 22:33 J -14415314.66 -14415314.56 -14415314.46 0.1609 0.1081

Mercury -44171-05-31 07:26 J -14411884.32 -14411884.19 -14411884.06 0.1607 0.0539

Earth -44168-02-08 19:54 J -14410899.87 -14410899.67 -14410899.47 0.1932 0.0187

Moon -44168-02-09 05:59 J -14410899.45 -14410899.25 -14410899.06 0.1932 0.0378

Mercury -44166-01-29 13:40 J -14410180.06 -14410179.93 -14410179.80 0.1923 0.0767

Venus -44165-06-25 06:28 J -14409667.40 -14409667.23 -14409667.06 0.1776 0.0173

Mercury -44162-10-21 16:04 J -14408453.96 -14408453.83 -14408453.69 0.1605 0.0023

Mercury -44157-06-20 15:35 J -14406749.98 -14406749.85 -14406749.71 0.1926 0.0365

Mercury -44152-03-13 00:42 J -14405023.60 -14405023.47 -14405023.34 0.1604 0.0570

Mercury -44148-11-10 17:45 J -14403319.84 -14403319.76 -14403319.67 0.1928 0.1475

Earth -44145-08-13 09:21 J -14402313.29 -14402313.11 -14402312.92 0.1599 0.0337

Moon -44145-08-13 10:18 J -14402313.27 -14402313.07 -14402312.87 0.1599 0.0295 *

Mercury -44143-08-03 09:06 J -14401593.21 -14401593.12 -14401593.02 0.1603 0.1136

Mercury -44141-07-08 22:47 J -14400887.64 -14400887.55 -14400887.46 0.1609 0.1160

Mercury -44132-11-29 07:40 J -14397457.31 -14397457.18 -14397457.06 0.1607 0.0619

Mercury -44127-07-30 14:09 J -14395753.04 -14395752.91 -14395752.79 0.1923 0.0890

Venus -44127-12-03 04:33 J -14395627.48 -14395627.31 -14395627.14 0.1758 0.0618

Mercury -44122-04-21 16:18 J -14394026.95 -14394026.82 -14394026.68 0.1605 0.0078

Mercury -44118-12-20 15:50 J -14392322.98 -14392322.84 -14392322.70 0.1926 0.0258

Mercury -44113-09-11 00:57 J -14390596.59 -14390596.46 -14390596.33 0.1604 0.0487

Mercury -44108-05-11 18:14 J -14388892.84 -14388892.74 -14388892.65 0.1928 0.1357

Mercury -44103-02-01 09:21 J -14387166.21 -14387166.11 -14387166.01 0.1603 0.1053

Mercury -44101-01-07 22:47 J -14386460.63 -14386460.55 -14386460.46 0.1609 0.1237

Venus -44099-04-22 15:35 J -14385625.01 -14385624.85 -14385624.69 0.1771 0.0507

Venus -44095-12-02 14:38 J -14383939.90 -14383939.89 -14383939.88 0.1746 0.1740

Mercury -44092-05-30 07:40 J -14383030.30 -14383030.18 -14383030.06 0.1607 0.0699

Mercury -44087-01-28 14:09 J -14381326.03 -14381325.91 -14381325.80 0.1923 0.0982

Mercury -44083-10-20 16:33 J -14379599.95 -14379599.81 -14379599.68 0.1606 0.0152

Mercury -44078-06-20 16:18 J -14377895.96 -14377895.82 -14377895.68 0.1926 0.0139

Mercury -44073-03-12 01:11 J -14376169.58 -14376169.45 -14376169.32 0.1604 0.0404

Mercury -44069-11-09 18:28 J -14374465.84 -14374465.73 -14374465.63 0.1928 0.1253

Venus -44067-04-21 19:11 J -14373937.74 -14373937.70 -14373937.65 0.1784 0.1709

Earth -44066-08-16 10:47 J -14373456.12 -14373456.05 -14373455.98 0.1598 0.1482

Moon -44066-08-16 17:16 J -14373455.81 -14373455.78 -14373455.74 0.1598 0.1572

Mercury -44064-08-02 09:35 J -14372739.21 -14372739.10 -14372738.99 0.1603 0.0967

Mercury -44062-07-08 23:02 J -14372033.61 -14372033.54 -14372033.46 0.1610 0.1318

Venus -44061-09-29 11:16 J -14371585.18 -14371585.03 -14371584.89 0.1763 0.1009

Mercury -44055-12-23 17:59 J -14369308.79 -14369308.75 -14369308.72 0.1601 0.1538

Mercury -44053-11-28 07:54 J -14368603.28 -14368603.17 -14368603.05 0.1607 0.0781

Mercury -44048-07-29 14:23 J -14366899.01 -14366898.90 -14366898.78 0.1923 0.1104

Mercury -44043-04-20 16:47 J -14365172.94 -14365172.80 -14365172.67 0.1606 0.0235

Mercury -44039-12-19 16:18 J -14363468.96 -14363468.82 -14363468.68 0.1925 0.0046

Mercury -44034-09-11 01:26 J -14361742.58 -14361742.44 -14361742.31 0.1604 0.0327

Venus -44033-02-18 00:42 J -14361582.62 -14361582.47 -14361582.32 0.1768 0.0834

Mercury -44029-05-10 18:28 J -14360038.83 -14360038.73 -14360038.62 0.1928 0.1151

Venus -44029-09-28 22:04 J -14359897.68 -14359897.58 -14359897.47 0.1750 0.1387

Mercury -44024-01-31 09:50 J -14358312.20 -14358312.09 -14358311.97 0.1603 0.0883

Mercury -44022-01-06 23:16 J -14357606.60 -14357606.53 -14357606.47 0.1610 0.1397

Mercury -44015-06-23 18:14 J -14354881.80 -14354881.74 -14354881.68 0.1602 0.1451

Mercury -44013-05-29 08:09 J -14354176.27 -14354176.16 -14354176.05 0.1608 0.0859

Mercury -44008-01-27 14:52 J -14352471.99 -14352471.88 -14352471.78 0.1923 0.1219

Mercury -44004-10-19 17:02 J -14350745.93 -14350745.79 -14350745.66 0.1606 0.0318

Venus -44001-02-17 03:50 J -14349895.45 -14349895.34 -14349895.23 0.1780 0.1353

44TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 44th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -43999-06-19 16:33 J | -14349041.95 | -14349041.81 | -14349041.67 | 0.1925 | 0.0073 | | |
| Venus | -43995-07-27 17:59 J | -14347542.86 | -14347542.75 | -14347542.64 | 0.1767 | 0.1392 | | |
| Mercury | -43994-03-12 01:40 J | -14347315.57 | -14347315.43 | -14347315.30 | 0.1604 | 0.0245 | | |
| Mercury | -43990-11-09 18:42 J | -14345611.83 | -14345611.72 | -14345611.60 | 0.1928 | 0.1042 | | |
| Mercury | -43985-08-01 10:04 J | -14343885.20 | -14343885.08 | -14343884.96 | 0.1603 | 0.0801 | | |
| Mercury | -43983-07-07 23:30 J | -14343179.58 | -14343179.52 | -14343179.47 | 0.1610 | 0.1475 | | |
| Mercury | -43976-12-22 18:28 J | -14340454.80 | -14340454.73 | -14340454.66 | 0.1602 | 0.1368 | | |
| Mercury | -43974-11-28 08:23 J | -14339749.26 | -14339749.15 | -14339749.05 | 0.1608 | 0.0939 | | |
| Mercury | -43969-07-28 14:52 J | -14338044.98 | -14338044.88 | -14338044.78 | 0.1923 | 0.1314 | | |

Venus -43968-12-15 09:50 J -14337540.22 -14337540.09 -14337539.96 0.1764 0.1156
 Mercury -43964-04-19 17:02 J -14336318.92 -14336318.79 -14336318.66 0.1606 0.0396
 Venus -43963-07-27 04:33 J -14335855.45 -14335855.31 -14335855.16 0.1754 0.1002
 Mercury -43960-12-18 17:02 J -14334614.93 -14334614.79 -14334614.66 0.1925 0.0196
 Mercury -43955-09-10 01:40 J -14332888.56 -14332888.43 -14332888.29 0.1604 0.0163
 Mercury -43950-05-10 19:11 J -14331184.82 -14331184.70 -14331184.58 0.1927 0.0926
 Mercury -43945-01-31 10:18 J -14329458.19 -14329458.07 -14329457.95 0.1603 0.0714
 Mercury -43943-01-05 23:30 J -14328752.55 -14328752.52 -14328752.49 0.1610 0.1555
 Moon -43940-08-12 12:28 J -14327438.15 -14327437.98 -14327437.81 0.1600 0.0428
 Earth -43940-08-12 14:38 J -14327438.07 -14327437.89 -14327437.71 0.1600 0.0511 *
 Mercury -43936-06-22 18:42 J -14326027.80 -14326027.72 -14326027.64 0.1602 0.1286
 Venus -43936-12-14 12:42 J -14325853.11 -14325852.97 -14325852.83 0.1776 0.1003
 Mercury -43934-05-29 08:23 J -14325322.25 -14325322.15 -14325322.04 0.1608 0.1021
 Mercury -43929-01-27 15:06 J -14323617.96 -14323617.87 -14323617.77 0.1922 0.1433
 Mercury -43925-10-18 17:16 J -14321891.91 -14321891.78 -14321891.65 0.1606 0.0475
 Mercury -43920-06-18 17:02 J -14320187.92 -14320187.79 -14320187.65 0.1925 0.0291
 Mercury -43915-03-11 01:54 J -14318461.55 -14318461.42 -14318461.28 0.1604 0.0080
 Mercury -43911-11-08 19:11 J -14316757.82 -14316757.70 -14316757.58 0.1928 0.0830
 Mercury -43906-08-01 10:33 J -14315031.19 -14315031.06 -14315030.94 0.1603 0.0633
 Venus -43902-10-12 19:11 J -14313497.79 -14313497.70 -14313497.60 0.1760 0.1466
 Mercury -43901-03-30 22:04 J -14313327.60 -14313327.58 -14313327.56 0.1929 0.1895
 Venus -43897-05-23 11:02 J -14311813.21 -14311813.04 -14311812.87 0.1758 0.0612
 Mercury -43897-12-21 18:57 J -14311600.80 -14311600.71 -14311600.62 0.1602 0.1197
 Mercury -43895-11-27 08:38 J -14310895.23 -14310895.14 -14310895.04 0.1608 0.1099
 Mercury -43890-07-28 15:35 J -14309190.93 -14309190.85 -14309190.77 0.1922 0.1554
 Mercury -43885-04-18 17:30 J -14307464.90 -14307464.77 -14307464.64 0.1606 0.0559
 Moon -43884-02-07 09:21 J -14307170.24 -14307170.11 -14307169.97 0.1930 0.1492
 Earth -43884-02-07 16:47 J -14307169.91 -14307169.80 -14307169.68 0.1930 0.1565
 Mercury -43881-12-17 17:16 J -14305760.92 -14305760.78 -14305760.64 0.1925 0.0396
 Mercury -43876-09-09 02:09 J -14304034.54 -14304034.41 -14304034.27 0.1604 0.0014

Mercury -43871-05-09 19:40 J -14302330.81 -14302330.68 -14302330.56 0.1927 0.0716

Venus -43870-10-11 22:04 J -14301810.74 -14301810.58 -14301810.42 0.1772 0.0680

Mercury -43866-01-30 10:47 J -14300604.18 -14300604.05 -14300603.93 0.1603 0.0552

Mercury -43862-09-29 21:50 J -14298900.63 -14298900.59 -14298900.54 0.1929 0.1810

Moon -43861-08-14 10:04 J -14298581.26 -14298581.08 -14298580.91 0.1599 0.0595

Earth -43861-08-14 16:33 J -14298580.98 -14298580.81 -14298580.63 0.1599 0.0668 *

Mercury -43857-06-21 19:11 J -14297173.80 -14297173.70 -14297173.61 0.1602 0.1114

Mercury -43855-05-28 08:52 J -14296468.22 -14296468.13 -14296468.04 0.1608 0.1178

Mercury -43850-01-26 15:35 J -14294763.92 -14294763.85 -14294763.78 0.1922 0.1646

Mercury -43846-10-18 17:45 J -14293037.89 -14293037.76 -14293037.64 0.1606 0.0639

Mercury -43841-06-17 17:45 J -14291333.89 -14291333.76 -14291333.63 0.1925 0.0520

Mercury -43836-03-10 02:23 J -14289607.54 -14289607.40 -14289607.26 0.1605 0.0091

Mercury -43832-11-07 19:40 J -14287903.81 -14287903.68 -14287903.55 0.1927 0.0610

Venus -43831-03-20 17:59 J -14287770.93 -14287770.75 -14287770.58 0.1762 0.0237

Mercury -43827-07-31 11:02 J -14286177.17 -14286177.04 -14286176.91 0.1603 0.0464

Mercury -43822-03-30 22:18 J -14284473.63 -14284473.57 -14284473.51 0.1929 0.1692

Mercury -43818-12-21 19:11 J -14282746.80 -14282746.70 -14282746.59 0.1602 0.1032

Mercury -43816-11-26 09:06 J -14282041.20 -14282041.12 -14282041.04 0.1608 0.1259

Mercury -43811-07-27 16:04 J -14280336.88 -14280336.83 -14280336.78 0.1922 0.1768

Mercury -43806-04-18 17:45 J -14278610.88 -14278610.76 -14278610.64 0.1606 0.0717

Earth -43805-02-12 07:40 J -14278311.20 -14278311.18 -14278311.15 0.1931 0.1910

Venus -43804-08-08 06:42 J -14277768.38 -14277768.22 -14277768.05 0.1768 0.0339

Mercury -43802-12-17 17:45 J -14276906.89 -14276906.76 -14276906.63 0.1924 0.0612

Mercury -43797-09-08 02:38 J -14275180.53 -14275180.39 -14275180.26 0.1605 0.0173

Mercury -43792-05-08 19:54 J -14273476.80 -14273476.67 -14273476.53 0.1927 0.0503

Mercury -43787-01-29 11:16 J -14271750.17 -14271750.03 -14271749.90 0.1603 0.0384

Mercury -43783-09-28 22:33 J -14270046.63 -14270046.56 -14270046.48 0.1929 0.1581

Mercury -43778-06-21 19:40 J -14268319.79 -14268319.68 -14268319.57 0.1602 0.0943

Mercury -43776-05-27 09:06 J -14267614.19 -14267614.12 -14267614.04 0.1608 0.1338

Mercury -43771-01-25 16:18 J -14265909.84 -14265909.82 -14265909.79 0.1922 0.1883

Mercury -43769-11-11 03:50 J -14264889.38 -14264889.34 -14264889.30 0.1601 0.1517

Mercury -43767-10-17 17:59 J -14264183.86 -14264183.75 -14264183.63 0.1606 0.0802

Venus -43765-01-15 23:59 J -14263728.67 -14263728.50 -14263728.32 0.1766 0.0171

Mercury -43762-06-17 17:59 J -14262479.87 -14262479.75 -14262479.62 0.1925 0.0731

Mercury -43757-03-09 02:52 J -14260753.52 -14260753.38 -14260753.25 0.1605 0.0257

Mercury -43753-11-06 20:09 J -14259049.79 -14259049.66 -14259049.52 0.1927 0.0395

Mercury -43748-07-30 11:16 J -14257323.16 -14257323.03 -14257322.89 0.1603 0.0303

Mercury -43743-03-29 22:33 J -14255619.64 -14255619.56 -14255619.47 0.1928 0.1489

Mercury -43739-12-20 19:40 J -14253892.79 -14253892.68 -14253892.56 0.1602 0.0863

Venus -43738-06-05 16:33 J -14253725.98 -14253725.81 -14253725.64 0.1764 0.0053

Mercury -43737-11-25 09:21 J -14253187.17 -14253187.11 -14253187.05 0.1608 0.1415

Earth -43735-08-11 19:11 J -14252562.80 -14252562.70 -14252562.60 0.1601 0.1355

Moon -43735-08-11 21:21 J -14252562.69 -14252562.61 -14252562.52 0.1601 0.1446 *

Mercury -43729-05-12 04:04 J -14250462.39 -14250462.33 -14250462.27 0.1601 0.1431

Mercury -43727-04-17 18:14 J -14249756.85 -14249756.74 -14249756.63 0.1606 0.0880

Mercury -43723-12-16 18:28 J -14248052.85 -14248052.73 -14248052.61 0.1924 0.0848

Mercury -43718-09-08 03:06 J -14246326.51 -14246326.37 -14246326.24 0.1605 0.0339

Mercury -43713-05-07 20:38 J -14244622.78 -14244622.64 -14244622.51 0.1926 0.0288

Mercury -43708-01-28 11:30 J -14242896.15 -14242896.02 -14242895.88 0.1603 0.0221

Mercury -43704-09-27 22:47 J -14241192.64 -14241192.55 -14241192.45 0.1928 0.1380

Venus -43700-11-12 06:57 J -14239686.38 -14239686.21 -14239686.04 0.1770 0.0549

Mercury -43699-06-20 19:54 J -14239465.79 -14239465.67 -14239465.55 0.1602 0.0780

Mercury -43697-05-26 09:35 J -14238760.14 -14238760.10 -14238760.05 0.1608 0.1496

Mercury -43690-11-11 04:18 J -14236035.39 -14236035.32 -14236035.25 0.1601 0.1346

Mercury -43688-10-16 18:28 J -14235329.84 -14235329.73 -14235329.62 0.1607 0.0959

Mercury -43683-06-16 18:28 J -14233625.85 -14233625.73 -14233625.61 0.1924 0.0948

Mercury -43678-03-09 03:06 J -14231899.50 -14231899.37 -14231899.24 0.1605 0.0421

Mercury -43674-11-06 20:38 J -14230195.77 -14230195.64 -14230195.50 0.1927 0.0180

Venus -43672-04-02 01:54 J -14229683.59 -14229683.42 -14229683.25 0.1760 0.0287

Mercury -43669-07-29 11:45 J -14228469.14 -14228469.01 -14228468.87 0.1604 0.0136

Mercury -43664-03-28 23:16 J -14226765.63 -14226765.53 -14226765.43 0.1928 0.1259

Mercury -43660-12-19 20:23 J -14225038.78 -14225038.65 -14225038.53 0.1602 0.0691

Mercury -43658-11-25 09:50 J -14224333.12 -14224333.09 -14224333.07 0.1608 0.1574

Earth -43656-08-13 21:35 J -14223705.78 -14223705.60 -14223705.41 0.1601 0.0180

Moon -43656-08-14 04:04 J -14223705.52 -14223705.33 -14223705.15 0.1601 0.0048 *

Mercury -43650-05-12 04:33 J -14221608.39 -14221608.31 -14221608.22 0.1601 0.1260

Mercury -43648-04-16 18:42 J -14220902.82 -14220902.72 -14220902.62 0.1607 0.1042

Mercury -43644-12-15 18:42 J -14219198.83 -14219198.72 -14219198.60 0.1924 0.1058

Mercury -43639-09-07 03:21 J -14217472.49 -14217472.36 -14217472.23 0.1605 0.0499

Mercury -43634-05-07 21:06 J -14215768.76 -14215768.62 -14215768.49 0.1926 0.0081

Venus -43634-09-09 13:11 J -14215644.10 -14215643.95 -14215643.80 0.1775 0.0948

Mercury -43629-01-28 11:59 J -14214042.13 -14214042.00 -14214041.86 0.1604 0.0054

Mercury -43625-09-26 23:16 J -14212338.64 -14212338.53 -14212338.42 0.1928 0.1172

Mercury -43620-06-19 20:23 J -14210611.77 -14210611.65 -14210611.52 0.1603 0.0610

Mercury -43611-11-10 04:47 J -14207181.39 -14207181.30 -14207181.21 0.1602 0.1175

Mercury -43609-10-15 18:42 J -14206475.81 -14206475.72 -14206475.62 0.1607 0.1122

Venus -43606-01-28 11:16 J -14205641.19 -14205641.03 -14205640.87 0.1756 0.0595

Mercury -43604-06-15 19:26 J -14204771.80 -14204771.69 -14204771.59 0.1924 0.1184

Venus -43602-09-09 01:26 J -14203956.53 -14203956.44 -14203956.35 0.1762 0.1493

Mercury -43599-03-08 03:35 J -14203045.47 -14203045.35 -14203045.22 0.1605 0.0583

Mercury -43595-11-05 21:06 J -14201341.75 -14201341.62 -14201341.48 0.1926 0.0066

Mercury -43590-07-29 12:14 J -14199615.12 -14199614.99 -14199614.85 0.1604 0.0041

Mercury -43585-03-27 23:45 J -14197911.63 -14197911.51 -14197911.40 0.1928 0.1055

Mercury -43581-12-18 20:38 J -14196184.77 -14196184.64 -14196184.51 0.1602 0.0527

Earth -43577-08-15 23:45 J -14194848.65 -14194848.51 -14194848.36 0.1600 0.1008

Moon -43577-08-16 00:57 J -14194848.60 -14194848.46 -14194848.32 0.1600 0.0994 *

Venus -43574-01-27 13:40 J -14193954.01 -14193953.93 -14193953.84 0.1769 0.1520

Mercury -43571-05-11 05:02 J -14192754.39 -14192754.29 -14192754.19 0.1602 0.1091

Mercury -43569-04-15 18:57 J -14192048.80 -14192048.71 -14192048.62 0.1607 0.1198

Venus -43568-07-06 19:40 J -14191601.80 -14191601.68 -14191601.57 0.1779 0.1346

Mercury -43565-12-14 19:11 J -14190344.80 -14190344.70 -14190344.59 0.1924 0.1276

Mercury -43560-09-06 03:50 J -14188618.46 -14188618.34 -14188618.22 0.1605 0.0662

Mercury -43555-05-06 21:35 J -14186914.74 -14186914.60 -14186914.47 0.1926 0.0158

Mercury -43550-01-27 12:28 J -14185188.11 -14185187.98 -14185187.84 0.1604 0.0116

Mercury -43546-09-26 23:59 J -14183484.62 -14183484.50 -14183484.38 0.1928 0.0942

Mercury -43541-06-18 20:52 J -14181757.76 -14181757.63 -14181757.49 0.1603 0.0443

Venus -43541-11-24 20:52 J -14181598.77 -14181598.63 -14181598.48 0.1752 0.0897

Venus -43536-07-06 07:26 J -14179914.33 -14179914.19 -14179914.05 0.1766 0.1094

Mercury -43532-11-09 05:16 J -14178327.38 -14178327.28 -14178327.17 0.1602 0.1005

Mercury -43530-10-15 19:11 J -14177621.78 -14177621.70 -14177621.62 0.1607 0.1283

Mercury -43525-06-14 19:40 J -14175917.77 -14175917.68 -14175917.58 0.1924 0.1394

Mercury -43522-04-01 13:26 J -14174896.96 -14174896.94 -14174896.92 0.1601 0.1579

Moon -43521-02-10 21:21 J -14174581.80 -14174581.61 -14174581.41 0.1929 0.0339

Earth -43521-02-11 06:57 J -14174581.41 -14174581.21 -14174581.01 0.1929 0.0245 *

Mercury -43520-03-07 04:04 J -14174191.45 -14174191.33 -14174191.21 0.1605 0.0743

Mercury -43516-11-04 21:35 J -14172487.73 -14172487.60 -14172487.46 0.1926 0.0269

Mercury -43511-07-28 12:42 J -14170761.11 -14170760.97 -14170760.84 0.1604 0.0198

Venus -43509-11-23 23:02 J -14169911.67 -14169911.54 -14169911.42 0.1765 0.1191

Mercury -43506-03-27 23:59 J -14169057.62 -14169057.50 -14169057.38 0.1928 0.0849

Venus -43502-05-04 01:11 J -14167559.46 -14167559.45 -14167559.43 0.1783 0.1772

Mercury -43502-12-18 21:06 J -14167330.75 -14167330.62 -14167330.48 0.1603 0.0359

Mercury -43497-08-17 02:52 J -14165627.40 -14165627.38 -14165627.36 0.1929 0.1901

Mercury -43492-05-10 05:30 J -14163900.38 -14163900.27 -14163900.16 0.1602 0.0919

Mercury -43490-04-15 19:26 J -14163194.76 -14163194.69 -14163194.62 0.1607 0.1360

Mercury -43486-12-14 20:09 J -14161490.75 -14161490.66 -14161490.58 0.1924 0.1513

Mercury -43483-09-30 13:40 J -14160469.97 -14160469.93 -14160469.88 0.1601 0.1491

Mercury -43481-09-05 04:18 J -14159764.44 -14159764.32 -14159764.21 0.1605 0.0825

Mercury -43476-05-05 22:04 J -14158060.72 -14158060.58 -14158060.45 0.1926 0.0375

Venus -43475-09-22 06:42 J -14157556.34 -14157556.22 -14157556.09 0.1749 0.1190

Mercury -43471-01-26 12:57 J -14156334.09 -14156333.96 -14156333.83 0.1604 0.0281

Venus -43470-05-03 13:40 J -14155872.09 -14155871.93 -14155871.77 0.1770 0.0698
 Mercury -43467-09-26 00:14 J -14154630.61 -14154630.49 -14154630.36 0.1928 0.0736
 Mercury -43462-06-18 21:21 J -14152903.74 -14152903.61 -14152903.47 0.1603 0.0276
 Mercury -43457-02-16 03:06 J -14151200.42 -14151200.37 -14151200.33 0.1929 0.1805
 Mercury -43453-11-08 05:45 J -14149473.37 -14149473.26 -14149473.14 0.1602 0.0836
 Moon -43451-08-12 20:09 J -14148830.79 -14148830.66 -14148830.54 0.1603 0.1212
 Earth -43451-08-13 02:38 J -14148830.53 -14148830.39 -14148830.24 0.1603 0.1018
 Mercury -43451-10-14 19:40 J -14148767.74 -14148767.68 -14148767.63 0.1607 0.1438
 Mercury -43446-06-14 20:09 J -14147063.73 -14147063.66 -14147063.58 0.1923 0.1610
 Mercury -43443-03-31 13:54 J -14146042.98 -14146042.92 -14146042.85 0.1601 0.1408
 Venus -43443-09-21 08:38 J -14145869.29 -14145869.14 -14145868.99 0.1761 0.0882
 Mercury -43441-03-06 04:33 J -14145337.42 -14145337.31 -14145337.20 0.1606 0.0906
 Mercury -43437-11-03 22:18 J -14143633.71 -14143633.57 -14143633.44 0.1926 0.0482
 Mercury -43432-07-27 13:11 J -14141907.08 -14141906.95 -14141906.82 0.1604 0.0363
 Mercury -43427-03-27 00:42 J -14140203.60 -14140203.47 -14140203.34 0.1927 0.0616
 Mercury -43423-12-17 21:35 J -14138476.73 -14138476.60 -14138476.46 0.1603 0.0194
 Mercury -43418-08-17 03:06 J -14136773.43 -14136773.37 -14136773.30 0.1929 0.1702
 Mercury -43413-05-09 05:59 J -14135046.37 -14135046.25 -14135046.13 0.1602 0.0752
 Mercury -43411-04-14 19:54 J -14134340.71 -14134340.67 -14134340.63 0.1607 0.1519
 Venus -43409-07-19 16:18 J -14133513.91 -14133513.82 -14133513.73 0.1745 0.1483
 Mercury -43407-12-13 20:23 J -14132636.71 -14132636.65 -14132636.59 0.1923 0.1723
 Venus -43404-02-27 20:09 J -14131829.83 -14131829.66 -14131829.48 0.1774 0.0312
 Mercury -43404-09-29 14:09 J -14131615.98 -14131615.91 -14131615.83 0.1601 0.1322
 Mercury -43402-09-05 04:33 J -14130910.41 -14130910.31 -14130910.20 0.1606 0.0986
 Mercury -43397-05-04 22:33 J -14129206.69 -14129206.56 -14129206.43 0.1925 0.0594
 Mercury -43392-01-25 13:26 J -14127480.07 -14127479.94 -14127479.81 0.1604 0.0446
 Mercury -43388-09-25 00:42 J -14125776.60 -14125776.47 -14125776.34 0.1927 0.0532
 Mercury -43383-06-17 21:50 J -14124049.72 -14124049.59 -14124049.45 0.1603 0.0110
 Mercury -43378-02-15 03:35 J -14122346.42 -14122346.35 -14122346.28 0.1929 0.1586
 Venus -43377-07-18 17:45 J -14121826.92 -14121826.76 -14121826.60 0.1757 0.0561

Mercury -43374-11-08 06:14 J -14120619.36 -14120619.24 -14120619.11 0.1602 0.0667
 Moon -43372-08-15 03:50 J -14119973.55 -14119973.34 -14119973.14 0.1602 0.0195
 Earth -43372-08-15 05:02 J -14119973.48 -14119973.29 -14119973.10 0.1602 0.0163 *
 Mercury -43372-10-13 19:54 J -14119913.68 -14119913.67 -14119913.65 0.1607 0.1598
 Mercury -43367-06-13 20:52 J -14118209.66 -14118209.63 -14118209.59 0.1923 0.1852
 Mercury -43364-03-30 14:38 J -14117188.98 -14117188.89 -14117188.81 0.1601 0.1233
 Mercury -43362-03-06 04:47 J -14116483.39 -14116483.30 -14116483.20 0.1606 0.1069
 Mercury -43358-11-03 22:47 J -14114779.68 -14114779.55 -14114779.42 0.1925 0.0699
 Mercury -43353-07-26 13:40 J -14113053.06 -14113052.93 -14113052.81 0.1604 0.0528
 Mercury -43348-03-26 00:57 J -14111349.59 -14111349.46 -14111349.32 0.1927 0.0414
 Mercury -43344-12-16 22:04 J -14109622.72 -14109622.58 -14109622.44 0.1603 0.0026
 Mercury -43339-08-16 03:35 J -14107919.43 -14107919.35 -14107919.26 0.1928 0.1490
 Venus -43339-12-26 02:09 J -14107787.59 -14107787.41 -14107787.24 0.1778 0.0112
 Mercury -43334-05-09 06:28 J -14106192.36 -14106192.23 -14106192.10 0.1602 0.0583
 Mercury -43325-09-28 14:52 J -14102761.98 -14102761.88 -14102761.79 0.1601 0.1151
 Mercury -43323-09-04 05:02 J -14102056.38 -14102056.29 -14102056.20 0.1606 0.1147
 Mercury -43318-05-04 23:02 J -14100352.66 -14100352.54 -14100352.41 0.1926 0.0817
 Mercury -43313-01-25 13:40 J -14098626.05 -14098625.93 -14098625.80 0.1604 0.0608
 Venus -43311-05-16 03:50 J -14097784.51 -14097784.34 -14097784.17 0.1753 0.0272
 Mercury -43309-09-24 01:26 J -14096922.58 -14096922.44 -14096922.31 0.1927 0.0302
 Mercury -43304-06-16 22:18 J -14095195.70 -14095195.57 -14095195.43 0.1603 0.0071
 Mercury -43299-02-14 03:50 J -14093492.43 -14093492.34 -14093492.25 0.1928 0.1384
 Mercury -43295-11-07 06:42 J -14091765.35 -14091765.22 -14091765.09 0.1602 0.0499
 Earth -43293-08-17 07:26 J -14091116.28 -14091116.19 -14091116.09 0.1602 0.1356
 Moon -43293-08-17 13:26 J -14091116.04 -14091115.94 -14091115.85 0.1602 0.1408
 Mercury -43285-03-29 14:52 J -14088334.98 -14088334.88 -14088334.77 0.1601 0.1067
 Mercury -43283-03-05 05:16 J -14087629.37 -14087629.28 -14087629.20 0.1606 0.1225
 Mercury -43279-11-02 23:16 J -14085925.65 -14085925.53 -14085925.41 0.1925 0.0917
 Mercury -43274-07-26 13:54 J -14084199.04 -14084198.92 -14084198.80 0.1605 0.0687
 Venus -43273-10-22 08:38 J -14083745.31 -14083745.14 -14083744.97 0.1782 0.0499

Mercury -43269-03-25 01:26 J -14082495.58 -14082495.44 -14082495.31 0.1927 0.0204

Mercury -43265-12-15 22:33 J -14080768.70 -14080768.56 -14080768.42 0.1603 0.0141

Mercury -43260-08-15 04:18 J -14079065.42 -14079065.32 -14079065.22 0.1928 0.1266

Mercury -43255-05-08 06:57 J -14077338.34 -14077338.21 -14077338.07 0.1602 0.0415

Mercury -43246-09-28 15:21 J -14073907.97 -14073907.86 -14073907.75 0.1601 0.0979

Venus -43245-03-12 13:26 J -14073742.11 -14073741.94 -14073741.77 0.1749 0.0033

Mercury -43244-09-03 05:30 J -14073202.35 -14073202.27 -14073202.20 0.1606 0.1307

Mercury -43239-05-03 23:30 J -14071498.63 -14071498.52 -14071498.40 0.1925 0.1030

Earth -43237-02-10 06:42 J -14070851.36 -14070851.22 -14070851.08 0.1926 0.1381

Moon -43237-02-10 11:02 J -14070851.14 -14070851.04 -14070850.94 0.1926 0.1623 *

Mercury -43236-02-17 23:16 J -14070477.56 -14070477.53 -14070477.50 0.1601 0.1554

Mercury -43234-01-24 14:09 J -14069772.03 -14069771.91 -14069771.79 0.1605 0.0771

Mercury -43230-09-24 01:40 J -14068068.56 -14068068.43 -14068068.29 0.1927 0.0102

Mercury -43225-06-15 22:47 J -14066341.69 -14066341.55 -14066341.42 0.1603 0.0223

Mercury -43220-02-13 04:18 J -14064638.43 -14064638.32 -14064638.21 0.1928 0.1173

Mercury -43216-11-06 07:11 J -14062911.33 -14062911.20 -14062911.07 0.1602 0.0332

Venus -43207-08-19 14:23 J -14059703.05 -14059702.90 -14059702.74 0.1786 0.0914

Mercury -43206-03-29 15:35 J -14059480.97 -14059480.85 -14059480.74 0.1602 0.0896

Mercury -43204-03-04 05:45 J -14058775.33 -14058775.26 -14058775.20 0.1606 0.1386

Mercury -43200-11-01 23:45 J -14057071.62 -14057071.51 -14057071.40 0.1925 0.1144

Mercury -43197-08-18 23:45 J -14056050.57 -14056050.51 -14056050.46 0.1601 0.1464

Mercury -43195-07-25 14:23 J -14055345.01 -14055344.90 -14055344.79 0.1605 0.0850

Mercury -43190-03-25 02:09 J -14053641.55 -14053641.41 -14053641.28 0.1926 0.0044

Mercury -43186-12-15 23:02 J -14051914.67 -14051914.54 -14051914.41 0.1603 0.0307

Mercury -43181-08-14 04:33 J -14050211.42 -14050211.31 -14050211.20 0.1928 0.1067

Venus -43179-01-07 23:16 J -14049699.69 -14049699.53 -14049699.36 0.1745 0.0320

Mercury -43176-05-07 07:26 J -14048484.32 -14048484.19 -14048484.05 0.1602 0.0249

Venus -43175-08-19 03:50 J -14048015.42 -14048015.34 -14048015.26 0.1773 0.1573

Earth -43167-08-14 09:50 J -14045098.27 -14045098.09 -14045097.92 0.1604 0.0687

Moon -43167-08-14 09:35 J -14045098.25 -14045098.10 -14045097.94 0.1604 0.0783 *

Mercury -43167-09-27 15:50 J -14045053.96 -14045053.84 -14045053.73 0.1602 0.0812

Mercury -43165-09-02 05:45 J -14044348.31 -14044348.26 -14044348.20 0.1606 0.1464

Mercury -43160-05-02 23:59 J -14042644.60 -14042644.50 -14042644.39 0.1925 0.1253

Mercury -43157-02-17 23:59 J -14041623.57 -14041623.50 -14041623.43 0.1601 0.1381

Mercury -43155-01-23 14:38 J -14040918.00 -14040917.89 -14040917.78 0.1605 0.0930

Mercury -43151-09-23 02:09 J -14039214.55 -14039214.41 -14039214.28 0.1927 0.0127

Venus -43147-01-07 00:42 J -14038012.49 -14038012.47 -14038012.44 0.1757 0.1724

Mercury -43146-06-15 23:16 J -14037487.66 -14037487.53 -14037487.40 0.1604 0.0388

Mercury -43141-02-13 05:02 J -14035784.41 -14035784.29 -14035784.18 0.1928 0.0952

Venus -43141-06-15 20:23 J -14035660.76 -14035660.65 -14035660.53 0.1791 0.1328

Mercury -43137-11-05 07:40 J -14034057.31 -14034057.18 -14034057.04 0.1603 0.0165

Mercury -43127-03-28 16:04 J -14030626.95 -14030626.83 -14030626.71 0.1602 0.0724

Mercury -43125-03-03 05:59 J -14029921.28 -14029921.25 -14029921.21 0.1606 0.1546

Mercury -43121-11-01 00:14 J -14028217.59 -14028217.49 -14028217.39 0.1924 0.1354

Mercury -43118-08-18 23:59 J -14027196.57 -14027196.50 -14027196.42 0.1601 0.1299

Mercury -43116-07-24 14:52 J -14026490.99 -14026490.88 -14026490.78 0.1605 0.1011

Venus -43114-11-05 09:06 J -14025657.28 -14025657.12 -14025656.96 0.1742 0.0606

Mercury -43111-03-24 02:23 J -14024787.53 -14024787.40 -14024787.26 0.1926 0.0247

Venus -43109-06-15 09:35 J -14023973.24 -14023973.10 -14023972.97 0.1778 0.1159

Mercury -43107-12-14 23:30 J -14023060.65 -14023060.52 -14023060.39 0.1604 0.0469

Mercury -43102-08-14 05:02 J -14021357.41 -14021357.29 -14021357.17 0.1927 0.0856

Mercury -43097-05-06 07:54 J -14019630.31 -14019630.17 -14019630.03 0.1603 0.0081

Mercury -43092-01-03 07:54 J -14017927.18 -14017927.17 -14017927.15 0.1929 0.1909

Moon -43088-08-16 05:30 J -14016241.45 -14016241.27 -14016241.09 0.1604 0.0493

Earth -43088-08-16 11:59 J -14016241.18 -14016241.00 -14016240.82 0.1604 0.0500 *

Mercury -43088-09-26 16:18 J -14016199.95 -14016199.82 -14016199.70 0.1602 0.0644

Venus -43082-11-04 10:18 J -14013970.17 -14013970.07 -14013969.97 0.1754 0.1410

Mercury -43081-05-02 00:42 J -14013790.56 -14013790.47 -14013790.38 0.1925 0.1475

Mercury -43078-02-17 00:28 J -14012769.57 -14012769.48 -14012769.39 0.1601 0.1208

Mercury -43076-01-22 15:06 J -14012063.97 -14012063.87 -14012063.78 0.1605 0.1092

Venus -43075-04-13 01:40 J -14011618.45 -14011618.43 -14011618.40 0.1795 0.1764

Mercury -43072-09-22 02:52 J -14010360.52 -14010360.38 -14010360.25 0.1926 0.0354

Mercury -43067-06-14 23:45 J -14008633.64 -14008633.51 -14008633.38 0.1604 0.0554

Mercury -43062-02-12 05:16 J -14006930.41 -14006930.28 -14006930.16 0.1928 0.0749

Mercury -43058-11-05 08:09 J -14005203.30 -14005203.16 -14005203.02 0.1603 0.0007

Mercury -43053-07-04 08:09 J -14003500.20 -14003500.16 -14003500.11 0.1928 0.1800

Mercury -43048-03-27 16:33 J -14001772.94 -14001772.81 -14001772.69 0.1602 0.0562

Venus -43048-09-01 19:11 J -14001614.85 -14001614.70 -14001614.55 0.1738 0.0889

Venus -43043-04-12 15:21 J -13999931.02 -13999930.86 -13999930.70 0.1782 0.0751

Mercury -43042-11-01 00:42 J -13999363.54 -13999363.47 -13999363.39 0.1924 0.1575

Mercury -43039-08-18 00:42 J -13998342.57 -13998342.47 -13998342.37 0.1601 0.1126

Mercury -43037-07-23 15:06 J -13997636.96 -13997636.87 -13997636.78 0.1605 0.1171

Mercury -43032-03-23 02:52 J -13995933.51 -13995933.38 -13995933.25 0.1926 0.0446

Mercury -43028-12-13 23:59 J -13994206.63 -13994206.50 -13994206.38 0.1604 0.0634

Mercury -43023-08-13 05:30 J -13992503.39 -13992503.27 -13992503.14 0.1927 0.0633

Mercury -43018-05-06 08:23 J -13990776.29 -13990776.15 -13990776.01 0.1603 0.0084

Venus -43016-08-31 20:09 J -13989927.79 -13989927.66 -13989927.53 0.1750 0.1112

Mercury -43013-01-03 08:23 J -13989073.21 -13989073.15 -13989073.09 0.1928 0.1700

Mercury -43009-09-25 16:47 J -13987345.93 -13987345.80 -13987345.67 0.1602 0.0474

Mercury -43002-05-02 01:11 J -13984936.52 -13984936.45 -13984936.39 0.1924 0.1688

43RD MILLENNIUM BCE

This is a list of transits visible from Mars in the 43rd millennium BCE.

| PLANET | MAX- TRANSIT | C | START | MAX | END | SUNRAD | DEPTH | S |
|--------|-----------------|---|-------|-----|-----|--------|-------|---|
|--------|-----------------|---|-------|-----|-----|--------|-------|---|

TIME

Mercury -42999-02-16 00:57 J -13983915.57 -13983915.46 -13983915.36 0.1601 0.1041

Mercury -42997-01-22 15:21 J -13983209.94 -13983209.86 -13983209.77 0.1605 0.1251

Mercury -42993-09-21 03:06 J -13981506.50 -13981506.37 -13981506.24 0.1926 0.0561

Mercury -42988-06-13 23:59 J -13979779.62 -13979779.50 -13979779.38 0.1604 0.0712

Mercury -42983-02-11 05:30 J -13978076.40 -13978076.27 -13978076.14 0.1927 0.0543

Venus -42982-06-30 05:02 J -13977572.42 -13977572.29 -13977572.17 0.1734 0.1168

Mercury -42979-11-04 08:38 J -13976349.28 -13976349.14 -13976349.01 0.1603 0.0167

Venus -42977-02-07 21:21 J -13975888.78 -13975888.61 -13975888.43 0.1786 0.0347

Mercury -42974-07-04 08:38 J -13974646.21 -13974646.14 -13974646.07 0.1928 0.1594

Mercury -42969-03-26 17:02 J -13972918.93 -13972918.79 -13972918.66 0.1602 0.0393

Mercury -42963-10-31 01:26 J -13970509.48 -13970509.44 -13970509.39 0.1924 0.1801

Earth -42962-08-13 13:54 J -13970222.96 -13970222.92 -13970222.88 0.1607 0.1568

Moon -42962-08-13 15:35 J -13970222.95 -13970222.85 -13970222.75 0.1607 0.1388 *

Mercury -42960-08-17 01:11 J -13969488.56 -13969488.45 -13969488.34 0.1602 0.0953

Mercury -42958-07-23 15:35 J -13968782.92 -13968782.85 -13968782.78 0.1605 0.1330

Mercury -42953-03-22 03:35 J -13967079.48 -13967079.35 -13967079.23 0.1926 0.0674

Mercury -42950-01-07 09:06 J -13966058.15 -13966058.12 -13966058.08 0.1601 0.1531

Venus -42950-06-29 05:30 J -13965885.42 -13965885.27 -13965885.12 0.1746 0.0808

Mercury -42949-12-13 00:14 J -13965352.60 -13965352.49 -13965352.37 0.1604 0.0795

Mercury -42944-08-12 05:59 J -13963649.39 -13963649.25 -13963649.12 0.1927 0.0436

Mercury -42939-05-05 08:52 J -13961922.27 -13961922.13 -13961922.00 0.1603 0.0249

Mercury -42934-01-02 08:38 J -13960219.22 -13960219.14 -13960219.05 0.1928 0.1493

Mercury -42930-09-25 17:16 J -13958491.92 -13958491.78 -13958491.65 0.1602 0.0312

Mercury -42923-05-01 01:40 J -13956082.45 -13956082.43 -13956082.42 0.1924 0.1905

Mercury -42920-02-15 01:26 J -13955061.56 -13955061.44 -13955061.33 0.1602 0.0872

Mercury -42918-01-21 15:50 J -13954355.90 -13954355.84 -13954355.78 0.1605 0.1408

Venus -42916-04-26 15:06 J -13953529.96 -13953529.87 -13953529.78 0.1731 0.1438

Mercury -42914-09-21 03:35 J -13952652.48 -13952652.35 -13952652.23 0.1926 0.0767

Venus -42912-12-05 02:52 J -13951846.56 -13951846.38 -13951846.20 0.1790 0.0086

Mercury -42911-07-08 09:21 J -13951631.16 -13951631.11 -13951631.05 0.1601 0.1446

Mercury -42909-06-13 00:28 J -13950925.59 -13950925.48 -13950925.37 0.1604 0.0874

Mercury -42904-02-10 06:14 J -13949222.37 -13949222.24 -13949222.11 0.1927 0.0315

Mercury -42900-11-03 09:06 J -13947495.26 -13947495.12 -13947494.99 0.1603 0.0332

Mercury -42895-07-03 08:52 J -13945792.22 -13945792.13 -13945792.03 0.1928 0.1387

Mercury -42890-03-26 17:30 J -13944064.91 -13944064.77 -13944064.64 0.1602 0.0228

Venus -42884-04-25 15:50 J -13941843.00 -13941842.84 -13941842.68 0.1742 0.0530

Earth -42883-08-15 15:50 J -13941366.03 -13941365.84 -13941365.65 0.1606 0.0371

Moon -42883-08-15 22:33 J -13941365.75 -13941365.56 -13941365.37 0.1606 0.0385 *

Mercury -42881-08-16 01:40 J -13940634.55 -13940634.43 -13940634.31 0.1602 0.0790

Mercury -42879-07-22 16:04 J -13939928.88 -13939928.83 -13939928.79 0.1605 0.1487

Earth -42874-02-12 18:57 J -13938262.91 -13938262.71 -13938262.51 0.1924 0.0333

Moon -42874-02-13 03:35 J -13938262.53 -13938262.35 -13938262.18 0.1924 0.0798 *

Mercury -42874-03-22 03:50 J -13938225.46 -13938225.34 -13938225.21 0.1926 0.0887

Mercury -42871-01-06 09:35 J -13937204.17 -13937204.10 -13937204.02 0.1601 0.1361

Mercury -42870-12-13 00:42 J -13936498.58 -13936498.47 -13936498.36 0.1604 0.0953

Mercury -42865-08-11 06:14 J -13934795.37 -13934795.24 -13934795.10 0.1927 0.0223

Mercury -42860-05-04 09:21 J -13933068.25 -13933068.11 -13933067.98 0.1603 0.0414

Mercury -42855-01-01 09:06 J -13931365.22 -13931365.12 -13931365.02 0.1928 0.1285

Mercury -42851-09-24 17:30 J -13929637.90 -13929637.77 -13929637.63 0.1602 0.0151

Venus -42850-02-22 01:11 J -13929487.47 -13929487.45 -13929487.42 0.1727 0.1699

Venus -42846-10-02 09:06 J -13927804.30 -13927804.12 -13927803.95 0.1794 0.0496

Mercury -42841-02-15 01:54 J -13926207.54 -13926207.42 -13926207.29 0.1602 0.0700

Mercury -42839-01-20 16:04 J -13925501.85 -13925501.83 -13925501.80 0.1606 0.1568

Mercury -42835-09-20 04:18 J -13923798.44 -13923798.32 -13923798.21 0.1925 0.0996

Mercury -42832-07-07 09:50 J -13922777.17 -13922777.09 -13922777.00 0.1601 0.1276

Mercury -42830-06-13 00:57 J -13922071.56 -13922071.46 -13922071.36 0.1604 0.1036

Mercury -42825-02-10 06:28 J -13920368.36 -13920368.23 -13920368.09 0.1927 0.0117

Mercury -42821-11-02 09:21 J -13918641.24 -13918641.11 -13918640.98 0.1603 0.0490

Venus -42818-02-21 01:40 J -13917800.60 -13917800.43 -13917800.27 0.1738 0.0245

Mercury -42816-07-02 09:21 J -13916938.21 -13916938.11 -13916938.00 0.1927 0.1180
 Mercury -42811-03-25 17:45 J -13915210.89 -13915210.76 -13915210.62 0.1602 0.0076
 Earth -42804-08-17 18:28 J -13912508.90 -13912508.73 -13912508.57 0.1606 0.0828
 Moon -42804-08-17 21:35 J -13912508.75 -13912508.60 -13912508.45 0.1606 0.0871 *
 Mercury -42802-08-16 02:09 J -13911780.54 -13911780.41 -13911780.28 0.1602 0.0620
 Mercury -42795-03-21 04:18 J -13909371.43 -13909371.32 -13909371.21 0.1926 0.1092
 Mercury -42792-01-05 10:18 J -13908350.17 -13908350.07 -13908349.98 0.1602 0.1190
 Mercury -42791-12-12 00:57 J -13907644.55 -13907644.46 -13907644.36 0.1604 0.1114
 Mercury -42786-08-11 06:57 J -13905941.35 -13905941.21 -13905941.08 0.1927 0.0032
 Mercury -42781-05-03 09:35 J -13904214.22 -13904214.10 -13904213.97 0.1603 0.0576
 Venus -42780-07-29 14:09 J -13903762.06 -13903761.91 -13903761.76 0.1798 0.0930
 Mercury -42777-12-31 09:35 J -13902511.21 -13902511.10 -13902510.99 0.1927 0.1081
 Mercury -42772-09-23 17:59 J -13900783.88 -13900783.75 -13900783.61 0.1603 0.0055
 Mercury -42762-02-14 02:23 J -13897353.53 -13897353.40 -13897353.27 0.1602 0.0538
 Mercury -42756-09-19 04:33 J -13894944.41 -13894944.31 -13894944.20 0.1925 0.1203
 Mercury -42753-07-06 10:18 J -13893923.16 -13893923.07 -13893922.97 0.1602 0.1108
 Venus -42753-12-18 11:45 J -13893758.18 -13893758.01 -13893757.84 0.1735 0.0039
 Mercury -42751-06-12 01:11 J -13893217.54 -13893217.45 -13893217.36 0.1604 0.1191
 Venus -42748-07-29 04:47 J -13892074.38 -13892074.30 -13892074.22 0.1785 0.1603
 Mercury -42746-02-09 06:57 J -13891514.35 -13891514.21 -13891514.08 0.1926 0.0111
 Mercury -42742-11-02 09:50 J -13889787.21 -13889787.09 -13889786.96 0.1604 0.0654
 Mercury -42737-07-01 09:50 J -13888084.21 -13888084.09 -13888083.97 0.1928 0.0969
 Mercury -42732-03-24 18:14 J -13886356.87 -13886356.74 -13886356.60 0.1603 0.0111
 Mercury -42723-08-15 02:38 J -13882926.52 -13882926.39 -13882926.26 0.1602 0.0451
 Mercury -42716-03-20 04:47 J -13880517.39 -13880517.30 -13880517.20 0.1925 0.1316
 Venus -42714-05-26 19:54 J -13879719.79 -13879719.67 -13879719.56 0.1802 0.1361
 Mercury -42713-01-05 10:47 J -13879496.16 -13879496.05 -13879495.95 0.1602 0.1022
 Mercury -42712-12-11 01:26 J -13878790.52 -13878790.44 -13878790.36 0.1605 0.1274
 Mercury -42707-08-10 07:11 J -13877087.34 -13877087.20 -13877087.07 0.1926 0.0203
 Mercury -42704-05-27 18:42 J -13876065.73 -13876065.72 -13876065.72 0.1602 0.1600

Mercury -42702-05-03 10:04 J -13875360.20 -13875360.08 -13875359.96 0.1603 0.0733

Mercury -42698-12-31 09:50 J -13873657.21 -13873657.09 -13873656.97 0.1927 0.0873

Mercury -42693-09-22 18:28 J -13871929.86 -13871929.73 -13871929.59 0.1603 0.0186

Mercury -42688-05-22 12:57 J -13870226.97 -13870226.96 -13870226.95 0.1928 0.1917

Venus -42687-10-15 21:50 J -13869715.76 -13869715.59 -13869715.42 0.1731 0.0309

Mercury -42683-02-13 02:52 J -13868499.52 -13868499.38 -13868499.25 0.1602 0.0371

Venus -42682-05-26 10:04 J -13868032.22 -13868032.08 -13868031.95 0.1789 0.1170

Moon -42678-08-14 12:57 J -13866491.08 -13866490.96 -13866490.84 0.1610 0.1232

Earth -42678-08-14 19:26 J -13866490.81 -13866490.69 -13866490.58 0.1609 0.1272

Mercury -42677-09-18 05:02 J -13866090.38 -13866090.29 -13866090.20 0.1925 0.1413

Mercury -42674-07-06 11:02 J -13865069.15 -13865069.04 -13865068.93 0.1602 0.0936

Mercury -42672-06-11 01:40 J -13864363.50 -13864363.43 -13864363.36 0.1605 0.1350

Mercury -42667-02-08 07:26 J -13862660.32 -13862660.19 -13862660.05 0.1926 0.0319

Mercury -42665-11-25 18:57 J -13861638.75 -13861638.71 -13861638.67 0.1602 0.1512

Mercury -42663-11-01 10:18 J -13860933.19 -13860933.07 -13860932.95 0.1604 0.0815

Mercury -42658-07-01 10:04 J -13859230.20 -13859230.08 -13859229.96 0.1927 0.0768

Venus -42655-10-14 22:04 J -13858028.64 -13858028.58 -13858028.53 0.1743 0.1637

Mercury -42653-03-23 18:42 J -13857502.85 -13857502.72 -13857502.58 0.1603 0.0268

Mercury -42649-11-20 13:11 J -13855799.99 -13855799.95 -13855799.91 0.1927 0.1810

Mercury -42644-08-14 03:06 J -13854072.51 -13854072.37 -13854072.24 0.1602 0.0292

Mercury -42637-03-19 05:16 J -13851663.36 -13851663.28 -13851663.19 0.1925 0.1528

Mercury -42634-01-04 11:16 J -13850642.15 -13850642.03 -13850641.92 0.1602 0.0854

Mercury -42633-12-10 01:54 J -13849936.48 -13849936.42 -13849936.36 0.1605 0.1428

Mercury -42628-08-09 07:26 J -13848233.32 -13848233.19 -13848233.06 0.1926 0.0406

Mercury -42625-05-26 19:11 J -13847211.76 -13847211.70 -13847211.64 0.1602 0.1430

Mercury -42623-05-02 10:33 J -13846506.18 -13846506.06 -13846505.95 0.1604 0.0894

Venus -42621-08-12 07:54 J -13845673.33 -13845673.17 -13845673.01 0.1728 0.0585

Mercury -42619-12-30 10:18 J -13844803.19 -13844803.07 -13844802.94 0.1927 0.0663

Venus -42616-03-22 15:21 J -13843990.02 -13843989.86 -13843989.70 0.1794 0.0745

Mercury -42614-09-22 18:57 J -13843075.84 -13843075.71 -13843075.58 0.1603 0.0349

Mercury -42609-05-21 13:26 J -13841373.00 -13841372.94 -13841372.88 0.1927 0.1700

Mercury -42604-02-12 03:21 J -13839645.50 -13839645.36 -13839645.22 0.1602 0.0202

Moon -42599-08-16 19:40 J -13837633.88 -13837633.68 -13837633.47 0.1609 0.0154

Earth -42599-08-16 21:50 J -13837633.78 -13837633.59 -13837633.40 0.1609 0.0065 *

Mercury -42598-09-18 05:30 J -13837236.34 -13837236.27 -13837236.20 0.1925 0.1633

Mercury -42595-07-05 11:30 J -13836215.15 -13836215.02 -13836214.90 0.1602 0.0772

Mercury -42593-06-10 02:09 J -13835509.46 -13835509.41 -13835509.37 0.1605 0.1508

Moon -42590-02-11 14:09 J -13834533.06 -13834532.91 -13834532.77 0.1919 0.1420

Earth -42590-02-11 18:42 J -13834532.87 -13834532.72 -13834532.57 0.1919 0.1267 *

Venus -42589-08-11 07:54 J -13833986.28 -13833986.17 -13833986.06 0.1739 0.1350

Mercury -42588-02-07 07:40 J -13833806.31 -13833806.18 -13833806.04 0.1926 0.0518

Mercury -42586-11-25 19:26 J -13832784.77 -13832784.69 -13832784.62 0.1602 0.1346

Mercury -42584-10-31 10:33 J -13832079.16 -13832079.06 -13832078.95 0.1604 0.0972

Mercury -42579-06-30 10:33 J -13830376.19 -13830376.06 -13830375.93 0.1927 0.0560

Mercury -42574-03-23 19:11 J -13828648.83 -13828648.70 -13828648.57 0.1603 0.0430

Mercury -42570-11-20 13:26 J -13826946.01 -13826945.94 -13826945.87 0.1927 0.1615

Mercury -42565-08-13 03:35 J -13825218.49 -13825218.35 -13825218.22 0.1603 0.0131

Mercury -42558-03-19 05:45 J -13822809.32 -13822809.26 -13822809.20 0.1925 0.1736

Mercury -42555-01-03 11:45 J -13821788.14 -13821788.01 -13821787.89 0.1602 0.0687

Venus -42555-06-09 17:59 J -13821630.90 -13821630.75 -13821630.61 0.1724 0.0850

Mercury -42554-12-10 02:09 J -13821082.42 -13821082.41 -13821082.39 0.1605 0.1585

Venus -42550-01-17 20:52 J -13819947.81 -13819947.63 -13819947.46 0.1798 0.0319

Mercury -42549-08-08 08:09 J -13819379.29 -13819379.16 -13819379.03 0.1926 0.0633

Mercury -42546-05-26 19:40 J -13818357.76 -13818357.68 -13818357.59 0.1602 0.1257

Mercury -42544-05-01 10:47 J -13817652.15 -13817652.05 -13817651.94 0.1604 0.1057

Mercury -42540-12-29 10:33 J -13815949.19 -13815949.06 -13815948.92 0.1927 0.0464

Mercury -42535-09-21 19:26 J -13814221.82 -13814221.69 -13814221.56 0.1603 0.0512

Mercury -42530-05-21 13:40 J -13812519.01 -13812518.93 -13812518.84 0.1927 0.1504

Mercury -42525-02-12 03:35 J -13810791.48 -13810791.35 -13810791.21 0.1602 0.0060

Venus -42523-06-08 17:30 J -13809943.90 -13809943.77 -13809943.63 0.1735 0.1060

Earth -42520-08-18 23:45 J -13808776.64 -13808776.51 -13808776.37 0.1608 0.1141
 Moon -42520-08-19 05:16 J -13808776.41 -13808776.28 -13808776.15 0.1608 0.1197 *
 Mercury -42519-09-17 05:59 J -13808382.29 -13808382.25 -13808382.21 0.1924 0.1845
 Mercury -42516-07-04 11:59 J -13807361.13 -13807361.00 -13807360.88 0.1602 0.0605
 Mercury -42509-02-07 08:09 J -13804952.29 -13804952.16 -13804952.04 0.1926 0.0721
 Mercury -42507-11-24 19:54 J -13803930.76 -13803930.67 -13803930.58 0.1602 0.1175
 Mercury -42505-10-30 11:02 J -13803225.13 -13803225.04 -13803224.94 0.1604 0.1132
 Mercury -42500-06-29 11:02 J -13801522.17 -13801522.04 -13801521.91 0.1927 0.0348
 Mercury -42495-03-22 19:40 J -13799794.81 -13799794.68 -13799794.56 0.1603 0.0593
 Mercury -42491-11-19 13:54 J -13798092.01 -13798091.92 -13798091.83 0.1927 0.1401
 Venus -42489-04-06 04:18 J -13797588.45 -13797588.32 -13797588.19 0.1721 0.1111
 Mercury -42486-08-13 04:04 J -13796364.47 -13796364.33 -13796364.20 0.1603 0.0062
 Venus -42485-11-14 01:54 J -13795905.60 -13795905.42 -13795905.25 0.1802 0.0129
 Mercury -42476-01-02 12:14 J -13792934.13 -13792933.99 -13792933.86 0.1602 0.0522
 Mercury -42470-08-08 08:23 J -13790525.27 -13790525.15 -13790525.03 0.1926 0.0834
 Mercury -42467-05-25 20:09 J -13789503.76 -13789503.66 -13789503.56 0.1602 0.1091
 Mercury -42465-04-30 11:16 J -13788798.12 -13788798.03 -13788797.94 0.1604 0.1209
 Mercury -42461-12-28 11:02 J -13787095.17 -13787095.04 -13787094.91 0.1926 0.0255
 Venus -42457-04-05 04:04 J -13785901.48 -13785901.33 -13785901.18 0.1732 0.0792
 Mercury -42456-09-20 19:40 J -13785367.80 -13785367.68 -13785367.55 0.1603 0.0673
 Mercury -42451-05-20 13:54 J -13783665.01 -13783664.92 -13783664.82 0.1927 0.1309
 Mercury -42446-02-11 04:04 J -13781937.46 -13781937.33 -13781937.19 0.1603 0.0132
 Mercury -42437-07-03 12:28 J -13778507.12 -13778506.98 -13778506.85 0.1602 0.0436
 Mercury -42430-02-06 08:38 J -13776098.25 -13776098.14 -13776098.02 0.1925 0.0947
 Mercury -42428-11-23 20:23 J -13775076.76 -13775076.65 -13775076.54 0.1602 0.1005
 Mercury -42426-10-30 11:30 J -13774371.10 -13774371.02 -13774370.94 0.1604 0.1291
 Venus -42423-02-01 14:38 J -13773545.99 -13773545.89 -13773545.79 0.1717 0.1361
 Mercury -42421-06-28 11:16 J -13772668.16 -13772668.03 -13772667.90 0.1926 0.0148
 Venus -42419-09-11 07:26 J -13771863.36 -13771863.19 -13771863.02 0.1806 0.0550
 Mercury -42418-04-16 04:04 J -13771646.34 -13771646.33 -13771646.31 0.1602 0.1589

Mercury -42416-03-21 19:54 J -13770940.79 -13770940.67 -13770940.55 0.1603 0.0755

Mercury -42412-11-18 14:23 J -13769238.01 -13769237.90 -13769237.80 0.1927 0.1202

Mercury -42407-08-12 04:18 J -13767510.45 -13767510.32 -13767510.18 0.1603 0.0204

Mercury -42397-01-02 12:28 J -13764080.11 -13764079.98 -13764079.84 0.1602 0.0357

Earth -42394-08-15 23:45 J -13762758.66 -13762758.51 -13762758.36 0.1612 0.0991

Moon -42394-08-16 01:40 J -13762758.58 -13762758.43 -13762758.28 0.1612 0.0884 *

Venus -42391-01-31 14:09 J -13761859.08 -13761858.91 -13761858.75 0.1728 0.0518

Mercury -42391-08-07 08:38 J -13761671.25 -13761671.14 -13761671.02 0.1925 0.1037

Mercury -42388-05-24 20:38 J -13760649.75 -13760649.64 -13760649.53 0.1602 0.0922

Mercury -42386-04-30 11:45 J -13759944.08 -13759944.01 -13759943.95 0.1604 0.1369

Mercury -42382-12-28 11:30 J -13758241.15 -13758241.02 -13758240.88 0.1926 0.0044

Mercury -42379-10-15 04:33 J -13757219.36 -13757219.31 -13757219.26 0.1602 0.1497

Mercury -42377-09-19 20:09 J -13756513.77 -13756513.66 -13756513.54 0.1604 0.0834

Mercury -42372-05-19 14:38 J -13754811.00 -13754810.89 -13754810.78 0.1926 0.1093

Mercury -42367-02-10 04:33 J -13753083.44 -13753083.31 -13753083.17 0.1603 0.0293

Mercury -42358-07-03 12:42 J -13749653.10 -13749652.97 -13749652.83 0.1602 0.0275

Venus -42358-11-30 00:57 J -13749503.52 -13749503.46 -13749503.41 0.1714 0.1613

Venus -42353-07-08 12:14 J -13747821.14 -13747820.99 -13747820.84 0.1810 0.1003

Mercury -42351-02-05 09:06 J -13747244.23 -13747244.12 -13747244.01 0.1925 0.1148

Mercury -42349-11-22 20:52 J -13746222.75 -13746222.63 -13746222.51 0.1602 0.0838

Mercury -42347-10-29 11:45 J -13745517.06 -13745517.01 -13745516.95 0.1604 0.1446

Mercury -42342-06-28 11:45 J -13743814.15 -13743814.01 -13743813.88 0.1926 0.0072

Mercury -42339-04-15 04:47 J -13742792.37 -13742792.30 -13742792.24 0.1602 0.1415

Mercury -42337-03-20 20:23 J -13742086.76 -13742086.65 -13742086.54 0.1604 0.0913

Mercury -42333-11-17 14:23 J -13740384.01 -13740383.90 -13740383.78 0.1927 0.1008

Mercury -42328-08-11 04:47 J -13738656.43 -13738656.30 -13738656.17 0.1603 0.0366

Venus -42326-11-29 00:28 J -13737816.65 -13737816.48 -13737816.31 0.1725 0.0253

Venus -42321-07-08 04:04 J -13736133.42 -13736133.33 -13736133.25 0.1797 0.1576

Mercury -42318-01-01 13:11 J -13735226.09 -13735225.95 -13735225.82 0.1603 0.0192

Moon -42315-08-17 21:50 J -13733901.77 -13733901.59 -13733901.41 0.1611 0.0158

Earth -42315-08-18 02:52 J -13733901.57 -13733901.38 -13733901.19 0.1611 0.0239 *
 Mercury -42312-08-06 09:21 J -13732817.21 -13732817.11 -13732817.00 0.1925 0.1266
 Mercury -42309-05-23 21:06 J -13731795.74 -13731795.62 -13731795.50 0.1602 0.0752
 Mercury -42307-04-29 11:59 J -13731090.03 -13731090.00 -13731089.96 0.1604 0.1529
 Mercury -42303-12-27 11:45 J -13729387.14 -13729387.01 -13729386.87 0.1926 0.0162
 Mercury -42300-10-14 05:02 J -13728365.37 -13728365.29 -13728365.22 0.1602 0.1332
 Mercury -42298-09-19 20:38 J -13727659.75 -13727659.64 -13727659.53 0.1604 0.0992
 Mercury -42293-05-18 14:52 J -13725957.00 -13725956.88 -13725956.76 0.1926 0.0892
 Mercury -42288-02-09 05:02 J -13724229.42 -13724229.29 -13724229.16 0.1603 0.0447
 Venus -42287-05-05 17:30 J -13723778.88 -13723778.77 -13723778.67 0.1814 0.1448
 Mercury -42284-10-08 17:59 J -13722526.75 -13722526.75 -13722526.75 0.1926 0.1925
 Mercury -42279-07-02 13:11 J -13720799.08 -13720798.95 -13720798.81 0.1603 0.0114
 Mercury -42272-02-04 09:21 J -13718390.21 -13718390.11 -13718390.01 0.1925 0.1350
 Mercury -42270-11-22 21:21 J -13717368.74 -13717368.61 -13717368.48 0.1603 0.0671
 Mercury -42268-10-28 12:14 J -13716662.99 -13716662.99 -13716662.99 0.1605 0.1603
 Mercury -42263-06-27 12:14 J -13714960.13 -13714959.99 -13714959.86 0.1926 0.0277
 Mercury -42260-04-14 05:16 J -13713938.37 -13713938.28 -13713938.19 0.1602 0.1243
 Venus -42260-09-25 10:47 J -13713774.22 -13713774.05 -13713773.88 0.1721 0.0016
 Mercury -42258-03-20 20:52 J -13713232.73 -13713232.63 -13713232.53 0.1604 0.1072
 Venus -42255-05-05 08:52 J -13712091.27 -13712091.13 -13712091.00 0.1801 0.1129
 Mercury -42254-11-17 15:06 J -13711530.00 -13711529.87 -13711529.75 0.1926 0.0793
 Mercury -42249-08-10 05:16 J -13709802.41 -13709802.28 -13709802.15 0.1603 0.0532
 Mercury -42244-04-08 18:14 J -13708099.78 -13708099.74 -13708099.69 0.1926 0.1818
 Mercury -42240-12-31 13:26 J -13706372.07 -13706371.94 -13706371.80 0.1603 0.0043
 Moon -42236-08-20 00:28 J -13705044.58 -13705044.48 -13705044.38 0.1610 0.1378
 Earth -42236-08-20 05:30 J -13705044.35 -13705044.27 -13705044.19 0.1610 0.1457
 Mercury -42233-08-05 09:50 J -13703963.18 -13703963.09 -13703963.01 0.1925 0.1467
 Mercury -42230-05-23 21:35 J -13702941.73 -13702941.60 -13702941.47 0.1603 0.0588
 Moon -42227-02-13 21:50 J -13701944.79 -13701944.59 -13701944.39 0.1917 0.0474
 Earth -42227-02-14 07:11 J -13701944.40 -13701944.20 -13701944.01 0.1917 0.0445 *

Mercury -42224-12-26 12:14 J -13700533.12 -13700532.99 -13700532.86 0.1925 0.0368
 Mercury -42221-10-13 05:30 J -13699511.37 -13699511.27 -13699511.18 0.1603 0.1161
 Mercury -42219-09-18 21:06 J -13698805.72 -13698805.62 -13698805.53 0.1604 0.1151
 Mercury -42214-05-18 15:06 J -13697102.99 -13697102.87 -13697102.74 0.1926 0.0693
 Mercury -42209-02-09 05:30 J -13695375.40 -13695375.27 -13695375.15 0.1603 0.0611
 Mercury -42205-10-07 18:28 J -13693672.78 -13693672.73 -13693672.67 0.1926 0.1711
 Mercury -42200-07-01 13:40 J -13691945.06 -13691944.93 -13691944.79 0.1603 0.0078
 Venus -42194-07-23 21:06 J -13689731.79 -13689731.62 -13689731.46 0.1718 0.0275
 Mercury -42193-02-04 10:04 J -13689536.16 -13689536.08 -13689536.01 0.1925 0.1578
 Mercury -42191-11-21 21:50 J -13688514.72 -13688514.59 -13688514.46 0.1603 0.0503
 Venus -42189-03-01 13:54 J -13688049.08 -13688048.92 -13688048.76 0.1806 0.0691
 Mercury -42184-06-26 12:28 J -13686106.11 -13686105.98 -13686105.85 0.1925 0.0477
 Mercury -42181-04-13 05:45 J -13685084.36 -13685084.26 -13685084.16 0.1603 0.1076
 Mercury -42179-03-19 21:21 J -13684378.70 -13684378.61 -13684378.53 0.1604 0.1232
 Mercury -42175-11-16 15:21 J -13682675.99 -13682675.86 -13682675.73 0.1926 0.0588
 Mercury -42170-08-10 05:45 J -13680948.39 -13680948.26 -13680948.14 0.1603 0.0691
 Mercury -42165-04-07 18:28 J -13679245.80 -13679245.73 -13679245.66 0.1926 0.1623
 Venus -42162-07-22 20:23 J -13678044.71 -13678044.65 -13678044.59 0.1729 0.1601
 Mercury -42161-12-30 13:54 J -13677518.06 -13677517.92 -13677517.78 0.1603 0.0142
 Mercury -42154-08-05 10:04 J -13675109.15 -13675109.08 -13675109.02 0.1925 0.1670
 Mercury -42151-05-22 22:04 J -13674087.71 -13674087.58 -13674087.44 0.1603 0.0420
 Mercury -42145-12-25 12:42 J -13671679.09 -13671678.97 -13671678.84 0.1926 0.0591
 Mercury -42142-10-13 05:59 J -13670657.36 -13670657.25 -13670657.14 0.1603 0.0989
 Mercury -42140-09-17 21:21 J -13669951.68 -13669951.61 -13669951.53 0.1604 0.1311
 Mercury -42135-05-17 15:35 J -13668248.98 -13668248.85 -13668248.72 0.1926 0.0481
 Mercury -42132-03-04 13:40 J -13667226.95 -13667226.93 -13667226.90 0.1603 0.1574
 Mercury -42130-02-08 05:59 J -13666521.37 -13666521.25 -13666521.13 0.1603 0.0774
 Venus -42128-05-20 07:26 J -13665689.35 -13665689.19 -13665689.02 0.1714 0.0524
 Mercury -42126-10-07 18:42 J -13664818.80 -13664818.72 -13664818.64 0.1926 0.1520
 Venus -42124-12-27 18:57 J -13664006.89 -13664006.71 -13664006.54 0.1810 0.0249

Mercury -42121-06-30 14:09 J -13663091.04 -13663090.91 -13663090.77 0.1603 0.0223

Mercury -42114-02-03 10:18 J -13660682.11 -13660682.07 -13660682.02 0.1925 0.1786

Mercury -42112-11-20 22:18 J -13659660.71 -13659660.57 -13659660.43 0.1603 0.0337

Earth -42110-08-17 04:33 J -13659026.48 -13659026.31 -13659026.14 0.1615 0.0702

Moon -42110-08-17 11:02 J -13659026.23 -13659026.04 -13659025.86 0.1615 0.0512 *

Mercury -42105-06-25 12:57 J -13657252.09 -13657251.96 -13657251.84 0.1925 0.0686

Mercury -42102-04-13 06:14 J -13656230.35 -13656230.24 -13656230.12 0.1603 0.0907

Mercury -42100-03-18 21:35 J -13655524.66 -13655524.60 -13655524.53 0.1604 0.1388

Venus -42096-05-19 06:28 J -13654002.34 -13654002.23 -13654002.12 0.1725 0.1327

Mercury -42096-11-15 15:35 J -13653821.98 -13653821.85 -13653821.72 0.1926 0.0391

Mercury -42093-09-02 14:09 J -13652799.96 -13652799.91 -13652799.86 0.1603 0.1487

Mercury -42091-08-09 05:59 J -13652094.36 -13652094.25 -13652094.13 0.1604 0.0853

Mercury -42086-04-07 19:11 J -13650391.79 -13650391.70 -13650391.61 0.1926 0.1405

Mercury -42082-12-30 14:23 J -13648664.03 -13648663.90 -13648663.76 0.1603 0.0310

Mercury -42075-08-04 10:47 J -13646255.07 -13646255.05 -13646255.03 0.1924 0.1899

Mercury -42072-05-21 22:33 J -13645233.69 -13645233.56 -13645233.42 0.1603 0.0254

Mercury -42066-12-25 12:57 J -13642825.08 -13642824.96 -13642824.83 0.1925 0.0788

Mercury -42063-10-12 06:28 J -13641803.35 -13641803.23 -13641803.11 0.1603 0.0824

Venus -42062-03-17 17:59 J -13641646.90 -13641646.75 -13641646.60 0.1711 0.0771

Mercury -42061-09-16 21:50 J -13641097.64 -13641097.59 -13641097.54 0.1604 0.1467

Venus -42058-10-24 23:45 J -13639964.69 -13639964.51 -13639964.33 0.1814 0.0205

Mercury -42056-05-16 16:04 J -13639394.97 -13639394.83 -13639394.70 0.1926 0.0277

Mercury -42053-03-03 14:23 J -13638372.97 -13638372.90 -13638372.84 0.1603 0.1401

Mercury -42051-02-07 06:14 J -13637667.35 -13637667.24 -13637667.13 0.1604 0.0933

Mercury -42047-10-06 18:57 J -13635964.80 -13635964.71 -13635964.61 0.1925 0.1324

Mercury -42042-06-30 14:38 J -13634237.02 -13634236.89 -13634236.75 0.1603 0.0387

Mercury -42033-11-19 22:47 J -13630806.69 -13630806.55 -13630806.41 0.1603 0.0171

Earth -42031-08-19 07:26 J -13630169.37 -13630169.19 -13630169.01 0.1614 0.0530

Moon -42031-08-19 12:14 J -13630169.16 -13630168.99 -13630168.82 0.1613 0.0571 *

Venus -42030-03-16 17:02 J -13629959.92 -13629959.79 -13629959.65 0.1722 0.1073

Mercury -42026-06-25 13:26 J -13628398.06 -13628397.94 -13628397.82 0.1925 0.0907

Mercury -42023-04-12 06:57 J -13627376.34 -13627376.21 -13627376.09 0.1603 0.0736

Mercury -42021-03-17 22:04 J -13626670.61 -13626670.58 -13626670.55 0.1604 0.1548

Mercury -42017-11-14 16:04 J -13624967.96 -13624967.83 -13624967.69 0.1925 0.0183

Mercury -42014-09-02 14:38 J -13623945.97 -13623945.89 -13623945.81 0.1603 0.1316

Mercury -42012-08-08 06:28 J -13623240.33 -13623240.23 -13623240.12 0.1604 0.1016

Mercury -42007-04-06 19:26 J -13621537.79 -13621537.69 -13621537.59 0.1925 0.1214

Mercury -42003-12-29 14:52 J -13619810.01 -13619809.88 -13619809.75 0.1603 0.0467

42ND MILLENNIUM BCE

This is a list of transits visible from Mars in the 42nd millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Venus | -41996-01-12 04:47 J | -13617604.44 | -13617604.30 | -13617604.17 | 0.1708 | 0.1008 | | |
| Mercury | -41993-05-20 23:02 J | -13616379.68 | -13616379.54 | -13616379.40 | 0.1603 | 0.0089 | | |
| Venus | -41992-08-21 05:02 J | -13615922.46 | -13615922.29 | -13615922.13 | 0.1818 | 0.0642 | | |
| Mercury | -41987-12-24 13:26 J | -13613971.05 | -13613970.94 | -13613970.82 | 0.1925 | 0.0996 | | |
| Mercury | -41984-10-11 06:57 J | -13612949.33 | -13612949.21 | -13612949.08 | 0.1603 | 0.0655 | | |
| Mercury | -41977-05-15 16:18 J | -13610540.95 | -13610540.82 | -13610540.68 | 0.1926 | 0.0077 | | |
| Mercury | -41974-03-03 14:52 J | -13609518.97 | -13609518.88 | -13609518.79 | 0.1603 | 0.1229 | | |
| Mercury | -41972-02-06 06:42 J | -13608813.32 | -13608813.22 | -13608813.12 | 0.1604 | 0.1093 | | |
| Mercury | -41968-10-05 19:40 J | -13607110.79 | -13607110.68 | -13607110.57 | 0.1925 | 0.1106 | | |
| Venus | -41964-01-11 03:21 J | -13605917.50 | -13605917.36 | -13605917.21 | 0.1718 | 0.0814 | | |
| Mercury | -41963-06-29 15:06 J | -13605383.00 | -13605382.87 | -13605382.74 | 0.1603 | 0.0552 | | |

Mercury -41954-11-19 23:16 J -13601952.67 -13601952.53 -13601952.39 0.1603 0.0027

Mercury -41947-06-24 13:54 J -13599544.04 -13599543.92 -13599543.81 0.1925 0.1108

Mercury -41944-04-11 07:11 J -13598522.33 -13598522.20 -13598522.07 0.1603 0.0573

Earth -41943-02-13 10:18 J -13598214.24 -13598214.07 -13598213.90 0.1912 0.1009

Moon -41943-02-13 11:02 J -13598214.21 -13598214.04 -13598213.87 0.1912 0.0712 *

Mercury -41938-11-14 16:33 J -13596113.94 -13596113.81 -13596113.68 0.1925 0.0031

Mercury -41935-09-01 15:06 J -13595091.97 -13595091.87 -13595091.77 0.1603 0.1146

Mercury -41933-08-07 06:57 J -13594386.30 -13594386.21 -13594386.12 0.1604 0.1170

Venus -41931-11-09 15:21 J -13593561.98 -13593561.86 -13593561.75 0.1704 0.1247

Mercury -41928-04-05 19:40 J -13592683.79 -13592683.68 -13592683.57 0.1925 0.1018

Venus -41926-06-18 09:21 J -13591880.25 -13591880.11 -13591879.97 0.1822 0.1110

Mercury -41924-12-28 15:21 J -13590955.99 -13590955.86 -13590955.73 0.1604 0.0631

Mercury -41914-05-20 23:30 J -13587525.66 -13587525.52 -13587525.38 0.1603 0.0083

Mercury -41908-12-23 14:09 J -13585117.02 -13585116.91 -13585116.81 0.1925 0.1219

Mercury -41905-10-10 07:40 J -13584095.32 -13584095.18 -13584095.05 0.1603 0.0484

Venus -41899-11-08 14:09 J -13581875.07 -13581874.91 -13581874.75 0.1715 0.0565

Mercury -41898-05-15 16:47 J -13581686.93 -13581686.80 -13581686.66 0.1925 0.0139

Mercury -41895-03-02 15:21 J -13580664.96 -13580664.86 -13580664.75 0.1603 0.1060

Venus -41894-06-18 02:23 J -13580192.49 -13580192.40 -13580192.30 0.1809 0.1517

Mercury -41893-02-06 07:11 J -13579959.28 -13579959.20 -13579959.11 0.1604 0.1254

Mercury -41889-10-04 19:54 J -13578256.79 -13578256.67 -13578256.55 0.1925 0.0911

Mercury -41884-06-28 15:35 J -13576528.97 -13576528.85 -13576528.73 0.1603 0.0711

Mercury -41879-02-24 23:30 J -13574826.53 -13574826.52 -13574826.51 0.1924 0.1916

Mercury -41875-11-18 23:45 J -13573098.65 -13573098.51 -13573098.37 0.1603 0.0161

Mercury -41868-06-23 14:09 J -13570690.01 -13570689.91 -13570689.81 0.1924 0.1314

Mercury -41865-04-10 07:54 J -13569668.31 -13569668.17 -13569668.04 0.1603 0.0405

Venus -41865-09-06 02:38 J -13569519.48 -13569519.39 -13569519.31 0.1701 0.1469

Moon -41864-02-16 11:02 J -13569356.14 -13569356.04 -13569355.94 0.1914 0.1620

Venus -41860-04-14 14:23 J -13567837.99 -13567837.90 -13567837.81 0.1826 0.1559

Mercury -41859-11-13 17:02 J -13567259.93 -13567259.79 -13567259.66 0.1925 0.0242

Mercury -41856-08-31 15:50 J -13566237.95 -13566237.84 -13566237.73 0.1604 0.0973
 Mercury -41854-08-07 07:26 J -13565532.26 -13565532.19 -13565532.12 0.1604 0.1332
 Mercury -41849-04-04 20:23 J -13563829.78 -13563829.65 -13563829.53 0.1925 0.0798
 Mercury -41846-01-21 23:30 J -13562807.55 -13562807.52 -13562807.49 0.1604 0.1557
 Mercury -41845-12-27 15:50 J -13562101.96 -13562101.84 -13562101.72 0.1604 0.0796
 Mercury -41840-08-25 23:30 J -13560399.56 -13560399.52 -13560399.48 0.1924 0.1820
 Mercury -41835-05-19 23:59 J -13558671.63 -13558671.50 -13558671.36 0.1603 0.0244
 Venus -41833-09-05 00:42 J -13557832.63 -13557832.47 -13557832.30 0.1712 0.0315
 Mercury -41829-12-22 14:23 J -13556262.99 -13556262.90 -13556262.81 0.1924 0.1419
 Venus -41828-04-14 06:57 J -13556150.35 -13556150.21 -13556150.06 0.1813 0.1063
 Moon -41826-08-18 04:47 J -13555294.49 -13555294.30 -13555294.10 0.1618 0.0437
 Earth -41826-08-18 09:35 J -13555294.29 -13555294.10 -13555293.92 0.1618 0.0411 *
 Mercury -41826-10-10 08:09 J -13555241.30 -13555241.16 -13555241.03 0.1603 0.0320
 Mercury -41819-05-14 17:16 J -13552832.91 -13552832.78 -13552832.65 0.1925 0.0348
 Mercury -41816-03-01 16:04 J -13551810.95 -13551810.83 -13551810.72 0.1604 0.0889
 Mercury -41814-02-05 07:40 J -13551105.24 -13551105.18 -13551105.12 0.1604 0.1411
 Mercury -41810-10-04 20:09 J -13549402.78 -13549402.66 -13549402.54 0.1925 0.0715
 Mercury -41807-07-22 23:30 J -13548380.57 -13548380.52 -13548380.46 0.1604 0.1474
 Mercury -41805-06-27 16:04 J -13547674.95 -13547674.83 -13547674.72 0.1604 0.0874
 Mercury -41800-02-23 23:59 J -13545972.56 -13545972.50 -13545972.45 0.1924 0.1712
 Mercury -41796-11-18 00:14 J -13544244.62 -13544244.49 -13544244.35 0.1604 0.0327
 Mercury -41789-06-22 14:52 J -13541835.96 -13541835.88 -13541835.80 0.1924 0.1542
 Mercury -41786-04-10 08:23 J -13540814.29 -13540814.15 -13540814.01 0.1603 0.0231
 Mercury -41780-11-12 17:16 J -13538405.91 -13538405.78 -13538405.64 0.1924 0.0451
 Mercury -41777-08-30 16:18 J -13537383.94 -13537383.82 -13537383.70 0.1604 0.0805
 Mercury -41775-08-06 07:54 J -13536678.22 -13536678.17 -13536678.12 0.1604 0.1492
 Mercury -41770-04-04 20:38 J -13534975.77 -13534975.64 -13534975.52 0.1925 0.0605
 Mercury -41767-01-20 23:59 J -13533953.57 -13533953.50 -13533953.43 0.1604 0.1387
 Venus -41767-07-03 11:16 J -13533790.20 -13533790.03 -13533789.86 0.1708 0.0074
 Mercury -41766-12-27 16:18 J -13533247.93 -13533247.82 -13533247.71 0.1604 0.0954

Venus -41762-02-09 11:45 J -13532108.17 -13532108.01 -13532107.84 0.1817 0.0619

Mercury -41761-08-24 23:59 J -13531545.57 -13531545.50 -13531545.43 0.1924 0.1617

Mercury -41756-05-19 00:28 J -13529817.61 -13529817.48 -13529817.34 0.1604 0.0410

Mercury -41750-12-22 14:52 J -13527408.95 -13527408.88 -13527408.81 0.1924 0.1629

Earth -41747-08-20 12:42 J -13526437.13 -13526436.97 -13526436.81 0.1616 0.0841

Moon -41747-08-20 17:02 J -13526436.96 -13526436.79 -13526436.62 0.1616 0.0854 *

Mercury -41747-10-09 08:38 J -13526387.28 -13526387.14 -13526387.00 0.1604 0.0151

Mercury -41740-05-13 17:45 J -13523978.89 -13523978.76 -13523978.63 0.1925 0.0556

Mercury -41737-02-29 16:33 J -13522956.93 -13522956.81 -13522956.68 0.1604 0.0717

Mercury -41735-02-04 08:09 J -13522251.19 -13522251.16 -13522251.14 0.1604 0.1570

Mercury -41731-10-03 20:52 J -13520548.76 -13520548.63 -13520548.50 0.1924 0.0495

Mercury -41728-07-22 00:14 J -13519526.57 -13519526.49 -13519526.41 0.1604 0.1299

Mercury -41726-06-27 16:33 J -13518820.91 -13518820.81 -13518820.70 0.1604 0.1039

Mercury -41721-02-24 00:14 J -13517118.57 -13517118.49 -13517118.41 0.1924 0.1518

Mercury -41717-11-17 00:42 J -13515390.60 -13515390.47 -13515390.34 0.1604 0.0492

Mercury -41710-06-22 15:06 J -13512981.92 -13512981.87 -13512981.81 0.1924 0.1741

Mercury -41707-04-09 08:52 J -13511960.27 -13511960.13 -13511959.99 0.1604 0.0069

Venus -41701-04-29 22:18 J -13509747.74 -13509747.57 -13509747.40 0.1705 0.0171

Mercury -41701-11-11 17:45 J -13509551.88 -13509551.76 -13509551.63 0.1924 0.0658

Mercury -41698-08-30 16:47 J -13508529.93 -13508529.80 -13508529.67 0.1604 0.0635

Venus -41697-12-06 16:33 J -13508065.98 -13508065.81 -13508065.63 0.1821 0.0165

Mercury -41691-04-03 20:52 J -13506121.76 -13506121.63 -13506121.50 0.1924 0.0406

Mercury -41688-01-20 00:28 J -13505099.57 -13505099.48 -13505099.39 0.1604 0.1213

Mercury -41687-12-26 16:47 J -13504393.90 -13504393.80 -13504393.70 0.1604 0.1117

Mercury -41682-08-25 00:28 J -13502691.57 -13502691.48 -13502691.39 0.1924 0.1409

Mercury -41677-05-18 00:57 J -13500963.59 -13500963.46 -13500963.33 0.1604 0.0574

Mercury -41671-12-21 15:35 J -13498554.88 -13498554.85 -13498554.82 0.1924 0.1856

Venus -41669-04-28 20:23 J -13498060.70 -13498060.65 -13498060.59 0.1715 0.1623

Mercury -41668-10-08 09:06 J -13497533.26 -13497533.12 -13497532.98 0.1604 0.0028

Mercury -41661-05-12 17:59 J -13495124.87 -13495124.75 -13495124.62 0.1924 0.0767

Moon -41659-02-12 21:50 J -13494483.62 -13494483.59 -13494483.57 0.1906 0.1889
 Mercury -41658-02-28 17:02 J -13494102.92 -13494102.79 -13494102.66 0.1604 0.0550
 Mercury -41652-10-02 21:06 J -13491694.75 -13491694.62 -13491694.49 0.1924 0.0296
 Mercury -41649-07-21 00:42 J -13490672.57 -13490672.47 -13490672.37 0.1604 0.1129
 Mercury -41647-06-26 17:02 J -13489966.88 -13489966.79 -13489966.70 0.1604 0.1196
 Mercury -41642-02-23 00:28 J -13488264.57 -13488264.48 -13488264.38 0.1923 0.1317
 Mercury -41638-11-17 01:11 J -13486536.57 -13486536.45 -13486536.32 0.1604 0.0653
 Venus -41635-02-25 08:52 J -13485705.29 -13485705.13 -13485704.96 0.1702 0.0407
 Venus -41631-10-03 21:06 J -13484023.79 -13484023.62 -13484023.44 0.1825 0.0302
 Mercury -41628-04-08 09:21 J -13483106.25 -13483106.11 -13483105.97 0.1604 0.0102
 Mercury -41622-11-11 18:14 J -13480697.86 -13480697.74 -13480697.62 0.1924 0.0869
 Earth -41621-08-16 10:47 J -13480419.15 -13480419.05 -13480418.95 0.1622 0.1375
 Moon -41621-08-16 13:40 J -13480419.00 -13480418.93 -13480418.85 0.1622 0.1460 *
 Mercury -41619-08-29 17:16 J -13479675.91 -13479675.78 -13479675.64 0.1604 0.0465
 Mercury -41612-04-02 21:21 J -13477267.74 -13477267.61 -13477267.47 0.1924 0.0190
 Mercury -41609-01-20 01:11 J -13476245.56 -13476245.45 -13476245.35 0.1604 0.1042
 Mercury -41608-12-25 17:16 J -13475539.86 -13475539.78 -13475539.70 0.1604 0.1278
 Venus -41603-02-24 07:11 J -13474018.29 -13474018.20 -13474018.10 0.1712 0.1382
 Mercury -41603-08-24 00:42 J -13473837.57 -13473837.47 -13473837.37 0.1923 0.1217
 Mercury -41598-05-18 01:26 J -13472109.56 -13472109.44 -13472109.31 0.1604 0.0736
 Mercury -41589-10-07 09:35 J -13468679.24 -13468679.10 -13468678.96 0.1604 0.0183
 Mercury -41582-05-12 18:28 J -13466270.84 -13466270.73 -13466270.61 0.1924 0.0976
 Earth -41580-02-16 00:28 J -13465625.67 -13465625.48 -13465625.30 0.1909 0.0752
 Moon -41580-02-16 06:28 J -13465625.40 -13465625.23 -13465625.05 0.1909 0.0587 *
 Mercury -41579-02-27 17:30 J -13465248.90 -13465248.77 -13465248.63 0.1604 0.0383
 Mercury -41573-10-01 21:21 J -13462840.74 -13462840.61 -13462840.48 0.1924 0.0100
 Mercury -41570-07-21 01:26 J -13461818.56 -13461818.44 -13461818.33 0.1605 0.0958
 Venus -41570-12-23 19:54 J -13461662.82 -13461662.67 -13461662.51 0.1699 0.0631
 Mercury -41568-06-25 17:30 J -13461112.84 -13461112.77 -13461112.70 0.1604 0.1357
 Venus -41565-07-31 02:09 J -13459981.58 -13459981.41 -13459981.25 0.1829 0.0752

Mercury -41563-02-22 00:57 J -13459410.57 -13459410.46 -13459410.35 0.1924 0.1107
 Mercury -41561-12-10 09:06 J -13458388.16 -13458388.12 -13458388.09 0.1605 0.1540
 Mercury -41559-11-16 01:40 J -13457682.54 -13457682.43 -13457682.31 0.1604 0.0819
 Mercury -41549-04-07 09:50 J -13454252.22 -13454252.09 -13454251.95 0.1604 0.0274
 Mercury -41543-11-10 18:42 J -13451843.83 -13451843.72 -13451843.61 0.1924 0.1073
 Moon -41542-08-19 10:04 J -13451562.26 -13451562.08 -13451561.90 0.1621 0.0138
 Earth -41542-08-19 14:09 J -13451562.10 -13451561.91 -13451561.72 0.1621 0.0114 *
 Mercury -41540-08-28 17:45 J -13450821.89 -13450821.76 -13450821.62 0.1604 0.0301
 Venus -41538-12-22 17:59 J -13449975.87 -13449975.75 -13449975.62 0.1709 0.1138
 Mercury -41533-04-01 21:50 J -13448413.73 -13448413.59 -13448413.46 0.1924 0.0041
 Mercury -41530-01-19 01:40 J -13447391.55 -13447391.43 -13447391.31 0.1605 0.0871
 Mercury -41529-12-24 17:45 J -13446685.82 -13446685.76 -13446685.71 0.1604 0.1436
 Mercury -41524-08-23 00:57 J -13444983.57 -13444983.46 -13444983.34 0.1923 0.1015
 Mercury -41521-06-10 09:06 J -13443961.17 -13443961.12 -13443961.06 0.1605 0.1458
 Mercury -41519-05-17 01:54 J -13443255.53 -13443255.42 -13443255.30 0.1604 0.0899
 Mercury -41510-10-07 10:04 J -13439825.21 -13439825.08 -13439824.94 0.1604 0.0349
 Venus -41504-10-20 06:57 J -13437620.36 -13437620.21 -13437620.06 0.1696 0.0855
 Mercury -41503-05-11 18:57 J -13437416.81 -13437416.71 -13437416.60 0.1924 0.1188
 Mercury -41500-02-26 18:14 J -13436394.88 -13436394.74 -13436394.60 0.1604 0.0210
 Venus -41499-05-28 06:14 J -13435939.37 -13435939.24 -13435939.11 0.1833 0.1230
 Mercury -41494-10-01 22:04 J -13433986.72 -13433986.58 -13433986.45 0.1924 0.0127
 Mercury -41491-07-20 01:54 J -13432964.54 -13432964.42 -13432964.30 0.1605 0.0784
 Mercury -41489-06-24 17:59 J -13432258.79 -13432258.75 -13432258.71 0.1604 0.1519
 Mercury -41484-02-21 01:11 J -13430556.56 -13430556.45 -13430556.33 0.1923 0.0914
 Mercury -41482-12-10 09:35 J -13429534.17 -13429534.10 -13429534.03 0.1605 0.1371
 Mercury -41480-11-15 02:09 J -13428828.52 -13428828.41 -13428828.30 0.1604 0.0979
 Mercury -41475-07-14 05:02 J -13427126.30 -13427126.29 -13427126.27 0.1922 0.1902
 Venus -41472-10-19 05:02 J -13425933.43 -13425933.29 -13425933.14 0.1706 0.0905
 Mercury -41470-04-07 10:18 J -13425398.20 -13425398.07 -13425397.93 0.1604 0.0431
 Venus -41467-05-28 00:28 J -13424251.59 -13424251.48 -13424251.37 0.1821 0.1441

Mercury -41464-11-09 19:11 J -13422989.80 -13422989.70 -13422989.60 0.1924 0.1286
 Moon -41463-08-21 11:30 J -13422705.15 -13422705.02 -13422704.88 0.1619 0.1152
 Earth -41463-08-21 17:59 J -13422704.88 -13422704.75 -13422704.61 0.1619 0.1151 *
 Mercury -41461-08-27 18:28 J -13421967.87 -13421967.73 -13421967.59 0.1604 0.0132
 Mercury -41454-04-01 22:04 J -13419559.71 -13419559.58 -13419559.45 0.1924 0.0215
 Mercury -41451-01-18 02:09 J -13418537.53 -13418537.41 -13418537.28 0.1605 0.0700
 Mercury -41450-12-24 18:14 J -13417831.75 -13417831.74 -13417831.73 0.1605 0.1596
 Mercury -41445-08-22 01:40 J -13416129.55 -13416129.43 -13416129.31 0.1923 0.0804
 Mercury -41442-06-10 09:50 J -13415107.17 -13415107.09 -13415107.00 0.1605 0.1281
 Mercury -41440-05-16 02:23 J -13414401.50 -13414401.40 -13414401.29 0.1604 0.1061
 Venus -41438-08-17 18:14 J -13413577.87 -13413577.74 -13413577.61 0.1693 0.1071
 Mercury -41435-01-12 05:16 J -13412699.33 -13412699.28 -13412699.24 0.1922 0.1804
 Venus -41433-03-24 11:02 J -13411897.11 -13411897.04 -13411896.97 0.1837 0.1689
 Mercury -41431-10-06 10:47 J -13410971.18 -13410971.05 -13410970.92 0.1604 0.0517
 Mercury -41424-05-10 19:26 J -13408562.78 -13408562.69 -13408562.60 0.1923 0.1394
 Mercury -41421-02-26 18:42 J -13407540.86 -13407540.72 -13407540.58 0.1604 0.0050
 Mercury -41415-09-30 22:18 J -13405132.70 -13405132.57 -13405132.44 0.1924 0.0324
 Mercury -41412-07-19 02:23 J -13404110.53 -13404110.40 -13404110.27 0.1605 0.0617
 Venus -41406-08-16 15:50 J -13401891.00 -13401890.84 -13401890.68 0.1702 0.0660
 Mercury -41405-02-21 01:40 J -13401702.56 -13401702.43 -13401702.31 0.1923 0.0713
 Mercury -41403-12-09 10:04 J -13400680.17 -13400680.08 -13400679.99 0.1606 0.1198
 Venus -41401-03-24 04:33 J -13400209.45 -13400209.31 -13400209.15 0.1825 0.0976
 Mercury -41401-11-14 02:38 J -13399974.48 -13399974.39 -13399974.29 0.1604 0.1141
 Mercury -41396-07-13 05:16 J -13398272.33 -13398272.28 -13398272.22 0.1922 0.1707
 Mercury -41391-04-06 10:47 J -13396544.17 -13396544.05 -13396543.92 0.1604 0.0598
 Mercury -41385-11-08 19:40 J -13394135.76 -13394135.68 -13394135.59 0.1924 0.1499
 Mercury -41382-08-27 18:57 J -13393113.85 -13393113.71 -13393113.57 0.1605 0.0042
 Mercury -41375-03-31 22:47 J -13390705.69 -13390705.55 -13390705.42 0.1923 0.0440
 Mercury -41372-01-17 02:52 J -13389683.52 -13389683.38 -13389683.25 0.1605 0.0532
 Venus -41372-06-14 05:02 J -13389535.40 -13389535.29 -13389535.18 0.1689 0.1290

Mercury -41366-08-22 01:54 J -13387275.55 -13387275.42 -13387275.30 0.1923 0.0611

Mercury -41363-06-09 10:18 J -13386253.17 -13386253.07 -13386252.97 0.1606 0.1113

Mercury -41361-05-15 02:52 J -13385547.46 -13385547.38 -13385547.29 0.1604 0.1222

Mercury -41356-01-11 05:30 J -13383845.34 -13383845.27 -13383845.20 0.1922 0.1606

Mercury -41352-10-05 11:02 J -13382117.16 -13382117.04 -13382116.91 0.1604 0.0678

Mercury -41345-05-09 19:54 J -13379708.74 -13379708.67 -13379708.60 0.1923 0.1603

Mercury -41342-02-25 19:11 J -13378686.84 -13378686.70 -13378686.56 0.1605 0.0122

Venus -41340-06-13 02:38 J -13377848.55 -13377848.39 -13377848.22 0.1699 0.0432

Earth -41337-08-17 14:38 J -13376687.03 -13376686.89 -13376686.75 0.1626 0.1107

Moon -41337-08-17 19:11 J -13376686.84 -13376686.70 -13376686.56 0.1626 0.1123 *

Mercury -41336-09-29 22:33 J -13376278.69 -13376278.56 -13376278.43 0.1923 0.0524

Venus -41335-01-19 09:06 J -13376167.29 -13376167.12 -13376166.95 0.1829 0.0515

Mercury -41333-07-18 03:06 J -13375256.51 -13375256.37 -13375256.24 0.1605 0.0446

Mercury -41326-02-20 02:09 J -13372848.54 -13372848.41 -13372848.28 0.1923 0.0498

Mercury -41324-12-08 10:47 J -13371826.16 -13371826.05 -13371825.94 0.1606 0.1022

Mercury -41322-11-14 03:06 J -13371120.44 -13371120.37 -13371120.29 0.1605 0.1303

Mercury -41317-07-12 05:45 J -13369418.34 -13369418.26 -13369418.18 0.1922 0.1504

Mercury -41312-04-05 11:30 J -13367690.14 -13367690.02 -13367689.90 0.1604 0.0761

Venus -41306-04-11 16:33 J -13365492.88 -13365492.81 -13365492.73 0.1687 0.1497

Mercury -41306-11-08 20:09 J -13365281.72 -13365281.66 -13365281.60 0.1923 0.1704

Mercury -41303-08-26 19:26 J -13364259.83 -13364259.69 -13364259.55 0.1605 0.0203

Moon -41296-02-15 06:57 J -13361895.41 -13361895.21 -13361895.01 0.1903 0.0758

Earth -41296-02-15 06:57 J -13361895.40 -13361895.21 -13361895.02 0.1903 0.0566 *

Mercury -41296-03-30 23:02 J -13361851.67 -13361851.54 -13361851.41 0.1923 0.0637

Mercury -41293-01-17 03:21 J -13360829.50 -13360829.36 -13360829.23 0.1605 0.0361

Mercury -41287-08-21 02:09 J -13358421.54 -13358421.41 -13358421.28 0.1922 0.0408

Mercury -41284-06-08 11:02 J -13357399.16 -13357399.04 -13357398.93 0.1606 0.0940

Mercury -41282-05-15 03:21 J -13356693.43 -13356693.36 -13356693.29 0.1605 0.1381

Mercury -41277-01-11 05:45 J -13354991.34 -13354991.26 -13354991.17 0.1922 0.1412

Mercury -41275-10-29 18:28 J -13353968.77 -13353968.73 -13353968.69 0.1607 0.1529

Venus -41274-04-10 13:54 J -13353806.09 -13353805.92 -13353805.75 0.1696 0.0205
 Mercury -41273-10-04 11:30 J -13353263.13 -13353263.02 -13353262.90 0.1605 0.0841
 Venus -41270-11-16 13:40 J -13352125.11 -13352124.93 -13352124.76 0.1832 0.0057
 Mercury -41266-05-09 20:23 J -13350854.69 -13350854.65 -13350854.60 0.1923 0.1821
 Mercury -41263-02-24 19:40 J -13349832.81 -13349832.68 -13349832.54 0.1605 0.0296
 Earth -41258-08-20 18:42 J -13347829.91 -13347829.72 -13347829.53 0.1624 0.0180
 Moon -41258-08-21 00:14 J -13347829.67 -13347829.49 -13347829.31 0.1624 0.0272 *
 Mercury -41257-09-28 23:16 J -13347424.65 -13347424.53 -13347424.41 0.1923 0.0743
 Mercury -41254-07-18 03:35 J -13346402.49 -13346402.35 -13346402.21 0.1605 0.0277
 Mercury -41247-02-19 02:23 J -13343994.53 -13343994.40 -13343994.27 0.1922 0.0307
 Mercury -41245-12-07 11:16 J -13342972.15 -13342972.03 -13342971.91 0.1606 0.0856
 Mercury -41243-11-13 03:35 J -13342266.40 -13342266.35 -13342266.29 0.1605 0.1459
 Mercury -41238-07-12 05:59 J -13340564.34 -13340564.25 -13340564.15 0.1921 0.1307
 Mercury -41235-04-29 18:42 J -13339541.78 -13339541.72 -13339541.66 0.1607 0.1443
 Mercury -41233-04-04 11:59 J -13338836.12 -13338836.00 -13338835.89 0.1605 0.0922
 Mercury -41227-11-07 20:38 J -13336427.65 -13336427.64 -13336427.63 0.1923 0.1915
 Mercury -41224-08-25 19:54 J -13335405.80 -13335405.67 -13335405.53 0.1605 0.0370
 Mercury -41217-03-29 23:16 J -13332997.65 -13332997.53 -13332997.41 0.1923 0.0835
 Mercury -41214-01-16 03:50 J -13331975.48 -13331975.34 -13331975.20 0.1605 0.0193
 Venus -41208-02-05 00:42 J -13329763.64 -13329763.47 -13329763.30 0.1693 0.0040
 Mercury -41208-08-20 02:52 J -13329567.52 -13329567.38 -13329567.25 0.1922 0.0205
 Mercury -41205-06-07 11:30 J -13328545.14 -13328545.02 -13328544.89 0.1606 0.0767
 Venus -41204-09-12 17:45 J -13328082.93 -13328082.76 -13328082.59 0.1836 0.0428
 Mercury -41203-05-14 03:50 J -13327839.37 -13327839.34 -13327839.30 0.1605 0.1541
 Mercury -41198-01-10 06:14 J -13326137.34 -13326137.24 -13326137.14 0.1921 0.1208
 Mercury -41196-10-28 18:57 J -13325114.78 -13325114.71 -13325114.63 0.1607 0.1357
 Mercury -41194-10-04 12:14 J -13324409.10 -13324408.99 -13324408.89 0.1605 0.1004
 Mercury -41184-02-23 20:09 J -13320978.79 -13320978.66 -13320978.52 0.1605 0.0452
 Moon -41179-08-22 21:21 J -13318972.67 -13318972.61 -13318972.55 0.1622 0.1505
 Earth -41179-08-22 22:18 J -13318972.65 -13318972.57 -13318972.48 0.1622 0.1449 *

Mercury -41178-09-28 23:30 J -13318570.63 -13318570.52 -13318570.40 0.1923 0.0945

Mercury -41175-07-17 04:04 J -13317548.47 -13317548.33 -13317548.19 0.1605 0.0111

Mercury -41168-02-18 02:38 J -13315140.52 -13315140.39 -13315140.25 0.1922 0.0118

Mercury -41166-12-07 11:45 J -13314118.13 -13314118.01 -13314117.88 0.1606 0.0685

Mercury -41159-07-11 06:28 J -13311710.34 -13311710.23 -13311710.12 0.1922 0.1108

Mercury -41156-04-28 19:26 J -13310687.78 -13310687.69 -13310687.61 0.1607 0.1268

Mercury -41154-04-04 12:28 J -13309982.08 -13309981.98 -13309981.88 0.1605 0.1083

Mercury -41145-08-24 20:23 J -13306551.78 -13306551.65 -13306551.52 0.1605 0.0538

Venus -41143-12-03 11:59 J -13305721.17 -13305721.00 -13305720.83 0.1690 0.0246

Mercury -41138-03-29 23:59 J -13304143.62 -13304143.50 -13304143.39 0.1923 0.1054

Venus -41138-07-10 22:04 J -13304040.73 -13304040.58 -13304040.42 0.1840 0.0893

Mercury -41135-01-15 04:18 J -13303121.46 -13303121.32 -13303121.18 0.1605 0.0051

Mercury -41129-08-19 03:06 J -13300713.51 -13300713.37 -13300713.24 0.1922 0.0062

Mercury -41126-06-07 11:59 J -13299691.13 -13299691.00 -13299690.87 0.1606 0.0601

Mercury -41119-01-09 06:28 J -13297283.34 -13297283.23 -13297283.11 0.1921 0.1013

Mercury -41117-10-27 19:40 J -13296260.78 -13296260.68 -13296260.59 0.1607 0.1186

Mercury -41115-10-03 12:28 J -13295555.07 -13295554.98 -13295554.88 0.1605 0.1162

Venus -41111-12-02 09:21 J -13294034.20 -13294034.11 -13294034.03 0.1700 0.1470

Venus -41106-07-10 16:18 J -13292352.85 -13292352.82 -13292352.77 0.1828 0.1775

Mercury -41105-02-23 20:38 J -13292124.76 -13292124.64 -13292124.51 0.1605 0.0618

Mercury -41099-09-27 23:59 J -13289716.61 -13289716.50 -13289716.39 0.1923 0.1144

Mercury -41096-07-16 04:33 J -13288694.45 -13288694.31 -13288694.17 0.1606 0.0077

Mercury -41089-02-18 03:21 J -13286286.50 -13286286.36 -13286286.23 0.1922 0.0114

Mercury -41087-12-06 12:28 J -13285264.12 -13285263.98 -13285263.85 0.1606 0.0513

Mercury -41080-07-10 06:42 J -13282856.33 -13282856.22 -13282856.10 0.1921 0.0910

Mercury -41077-04-27 19:54 J -13281833.77 -13281833.67 -13281833.57 0.1607 0.1100

Venus -41077-09-29 23:02 J -13281678.71 -13281678.54 -13281678.38 0.1687 0.0463

Mercury -41075-04-03 12:57 J -13281128.05 -13281127.96 -13281127.88 0.1605 0.1244

Venus -41072-05-07 01:54 J -13279998.54 -13279998.42 -13279998.31 0.1844 0.1389

Mercury -41071-11-30 10:33 J -13279426.07 -13279426.06 -13279426.04 0.1920 0.1891

Mercury -41066-08-24 20:52 J -13277697.75 -13277697.63 -13277697.50 0.1605 0.0697

Mercury -41059-03-29 00:14 J -13275289.59 -13275289.49 -13275289.39 0.1922 0.1256

Mercury -41056-01-14 04:47 J -13274267.43 -13274267.30 -13274267.16 0.1606 0.0150

Moon -41053-08-18 11:30 J -13272955.18 -13272955.02 -13272954.85 0.1630 0.0937

Earth -41053-08-18 17:59 J -13272954.91 -13272954.75 -13272954.59 0.1629 0.0846 *

Mercury -41050-08-19 03:21 J -13271859.50 -13271859.36 -13271859.23 0.1922 0.0201

Mercury -41047-06-06 12:42 J -13270837.11 -13270836.97 -13270836.84 0.1606 0.0433

Venus -41045-09-28 20:38 J -13269991.76 -13269991.64 -13269991.53 0.1697 0.1245

Mercury -41040-01-08 06:57 J -13268429.33 -13268429.21 -13268429.09 0.1921 0.0813

Venus -41040-05-06 21:06 J -13268310.74 -13268310.62 -13268310.50 0.1832 0.1322

Mercury -41038-10-27 20:09 J -13267406.77 -13267406.66 -13267406.55 0.1607 0.1011

Mercury -41036-10-02 12:57 J -13266701.03 -13266700.96 -13266700.88 0.1605 0.1324

Mercury -41031-05-31 11:02 J -13264999.09 -13264999.04 -13264999.00 0.1919 0.1782

Mercury -41028-03-19 03:35 J -13263976.35 -13263976.35 -13263976.35 0.1608 0.1606

Mercury -41026-02-22 21:21 J -13263270.73 -13263270.61 -13263270.49 0.1605 0.0783

Mercury -41020-09-27 00:28 J -13260862.57 -13260862.48 -13260862.39 0.1922 0.1358

Mercury -41017-07-15 05:16 J -13259840.42 -13259840.28 -13259840.15 0.1606 0.0229

Earth -41012-02-14 14:23 J -13258164.96 -13258164.90 -13258164.85 0.1896 0.1813

Venus -41011-07-28 10:18 J -13257636.23 -13257636.07 -13257635.92 0.1684 0.0673

Mercury -41010-02-17 03:35 J -13257432.48 -13257432.35 -13257432.22 0.1922 0.0303

Mercury -41008-12-05 12:57 J -13256410.10 -13256409.96 -13256409.83 0.1606 0.0348

Mercury -41001-07-09 07:11 J -13254002.33 -13254002.20 -13254002.08 0.1921 0.0711

41ST MILLENNIUM BCE

This is a list of transits visible from Mars in the 41st millennium BCE.

| PLANET | MAX- | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|----------------------|--------------|--------------|--------------|--------|--------|-------|---|
| | TRANSIT | | | | | | | |
| | TIME | | | | | | | |
| Mercury | -40998-04-27 20:23 J | -13252979.76 | -13252979.65 | -13252979.53 | 0.1607 | 0.0928 | | |
| Mercury | -40996-04-02 13:11 J | -13252274.01 | -13252273.95 | -13252273.88 | 0.1605 | 0.1402 | | |
| Mercury | -40992-11-29 10:47 J | -13250572.11 | -13250572.05 | -13250571.99 | 0.1919 | 0.1704 | | |
| Mercury | -40989-09-17 03:50 J | -13249549.38 | -13249549.34 | -13249549.30 | 0.1608 | 0.1522 | | |
| Mercury | -40987-08-23 21:21 J | -13248843.72 | -13248843.61 | -13248843.49 | 0.1605 | 0.0860 | | |
| Mercury | -40980-03-28 00:28 J | -13246435.56 | -13246435.48 | -13246435.39 | 0.1922 | 0.1456 | | |
| Venus | -40979-07-27 07:11 J | -13245949.33 | -13245949.20 | -13245949.06 | 0.1694 | 0.1011 | | |
| Mercury | -40977-01-14 05:30 J | -13245413.41 | -13245413.27 | -13245413.14 | 0.1606 | 0.0308 | | |
| Venus | -40974-03-04 00:57 J | -13244268.61 | -13244268.46 | -13244268.30 | 0.1836 | 0.0841 | | |
| Earth | -40974-08-21 22:18 J | -13244097.75 | -13244097.57 | -13244097.39 | 0.1628 | 0.0453 | | |
| Moon | -40974-08-21 23:30 J | -13244097.72 | -13244097.52 | -13244097.33 | 0.1628 | 0.0431 | * | |
| Mercury | -40971-08-18 03:50 J | -13243005.47 | -13243005.34 | -13243005.21 | 0.1922 | 0.0416 | | |
| Mercury | -40968-06-05 13:11 J | -13241983.09 | -13241982.95 | -13241982.81 | 0.1606 | 0.0260 | | |
| Mercury | -40961-01-08 07:11 J | -13239575.32 | -13239575.20 | -13239575.07 | 0.1921 | 0.0616 | | |
| Mercury | -40959-10-26 20:38 J | -13238552.76 | -13238552.64 | -13238552.52 | 0.1607 | 0.0845 | | |
| Mercury | -40957-10-01 13:26 J | -13237846.99 | -13237846.94 | -13237846.89 | 0.1605 | 0.1483 | | |
| Mercury | -40952-05-30 11:02 J | -13236145.11 | -13236145.04 | -13236144.96 | 0.1919 | 0.1598 | | |
| Mercury | -40949-03-18 04:04 J | -13235122.39 | -13235122.33 | -13235122.27 | 0.1608 | 0.1436 | | |
| Mercury | -40947-02-21 21:35 J | -13234416.71 | -13234416.60 | -13234416.49 | 0.1605 | 0.0940 | | |
| Venus | -40945-05-24 21:21 J | -13233593.75 | -13233593.61 | -13233593.46 | 0.1681 | 0.0883 | | |
| Mercury | -40941-09-26 00:57 J | -13232008.54 | -13232008.46 | -13232008.39 | 0.1922 | 0.1562 | | |
| Mercury | -40938-07-15 05:45 J | -13230986.40 | -13230986.26 | -13230986.13 | 0.1606 | 0.0389 | | |
| Moon | -40933-02-18 15:35 J | -13229307.03 | -13229306.85 | -13229306.68 | 0.1900 | 0.1054 | | |
| Earth | -40933-02-18 21:50 J | -13229306.74 | -13229306.59 | -13229306.44 | 0.1900 | 0.1197 | * | |
| Mercury | -40931-02-16 03:50 J | -13228578.47 | -13228578.34 | -13228578.21 | 0.1921 | 0.0499 | | |
| Mercury | -40929-12-04 13:26 J | -13227556.08 | -13227555.94 | -13227555.80 | 0.1607 | 0.0179 | | |
| Mercury | -40922-07-09 07:26 J | -13225148.32 | -13225148.19 | -13225148.06 | 0.1921 | 0.0512 | | |

Mercury -40919-04-26 21:06 J -13224125.75 -13224125.62 -13224125.50 0.1607 0.0755

Mercury -40917-04-01 13:40 J -13223419.96 -13223419.93 -13223419.90 0.1605 0.1560

Venus -40913-05-23 18:28 J -13221906.88 -13221906.73 -13221906.58 0.1691 0.0789

Mercury -40913-11-28 11:16 J -13221718.11 -13221718.03 -13221717.95 0.1919 0.1496

Mercury -40910-09-17 04:18 J -13220695.39 -13220695.32 -13220695.24 0.1608 0.1349

Venus -40909-12-29 05:02 J -13220226.47 -13220226.29 -13220226.12 0.1840 0.0365

Mercury -40908-08-22 22:04 J -13219989.69 -13219989.58 -13219989.48 0.1606 0.1025

Mercury -40901-03-27 01:11 J -13217581.52 -13217581.45 -13217581.39 0.1922 0.1669

Mercury -40898-01-13 05:59 J -13216559.39 -13216559.25 -13216559.12 0.1606 0.0471

Mercury -40892-08-17 04:04 J -13214151.46 -13214151.33 -13214151.20 0.1921 0.0606

Mercury -40889-06-04 13:40 J -13213129.07 -13213128.93 -13213128.79 0.1607 0.0097

Mercury -40882-01-07 07:40 J -13210721.31 -13210721.18 -13210721.06 0.1920 0.0422

Mercury -40880-10-25 21:21 J -13209698.74 -13209698.61 -13209698.49 0.1607 0.0675

Venus -40879-03-22 08:52 J -13209551.26 -13209551.13 -13209551.00 0.1679 0.1085

Mercury -40873-05-29 11:16 J -13207291.12 -13207291.03 -13207290.94 0.1919 0.1410

Mercury -40870-03-18 04:47 J -13206268.39 -13206268.30 -13206268.22 0.1608 0.1262

Mercury -40868-02-20 22:04 J -13205562.68 -13205562.58 -13205562.48 0.1606 0.1103

Mercury -40862-09-26 01:11 J -13203154.50 -13203154.45 -13203154.40 0.1922 0.1762

Mercury -40859-07-14 06:14 J -13202132.37 -13202132.24 -13202132.11 0.1606 0.0553

Mercury -40852-02-15 04:18 J -13199724.44 -13199724.32 -13199724.19 0.1921 0.0716

Mercury -40850-12-04 13:54 J -13198702.06 -13198701.92 -13198701.78 0.1607 0.0031

Venus -40847-03-21 05:30 J -13197864.43 -13197864.27 -13197864.11 0.1688 0.0566

Mercury -40843-07-08 07:40 J -13196294.31 -13196294.18 -13196294.05 0.1920 0.0320

Venus -40843-10-26 09:06 J -13196184.30 -13196184.12 -13196183.94 0.1843 0.0116

Mercury -40840-04-25 21:35 J -13195271.73 -13195271.60 -13195271.47 0.1607 0.0589

Mercury -40834-11-28 11:30 J -13192864.11 -13192864.02 -13192863.92 0.1919 0.1307

Mercury -40831-09-16 05:02 J -13191841.39 -13191841.29 -13191841.20 0.1608 0.1177

Mercury -40829-08-21 22:18 J -13191135.66 -13191135.57 -13191135.48 0.1606 0.1180

Mercury -40822-03-27 01:26 J -13188727.46 -13188727.44 -13188727.41 0.1922 0.1871

Mercury -40819-01-12 06:28 J -13187705.36 -13187705.23 -13187705.11 0.1606 0.0633

Venus -40813-01-17 20:09 J -13185508.76 -13185508.66 -13185508.55 0.1676 0.1288

Mercury -40813-08-16 04:18 J -13185297.44 -13185297.32 -13185297.20 0.1921 0.0802

Mercury -40810-06-04 14:09 J -13184275.05 -13184274.91 -13184274.77 0.1607 0.0077

Mercury -40803-01-06 07:54 J -13181867.30 -13181867.17 -13181867.04 0.1920 0.0218

Mercury -40801-10-24 21:50 J -13180844.72 -13180844.59 -13180844.45 0.1608 0.0502

Mercury -40794-05-29 11:45 J -13178437.11 -13178437.01 -13178436.91 0.1919 0.1203

Mercury -40791-03-17 05:16 J -13177414.38 -13177414.28 -13177414.18 0.1608 0.1091

Mercury -40789-02-20 22:33 J -13176708.64 -13176708.56 -13176708.47 0.1606 0.1265

Venus -40781-01-16 16:33 J -13173821.98 -13173821.81 -13173821.64 0.1685 0.0347

Mercury -40780-07-13 06:42 J -13173278.35 -13173278.22 -13173278.10 0.1606 0.0714

Venus -40777-08-22 12:28 J -13172142.14 -13172141.98 -13172141.81 0.1847 0.0615

Mercury -40773-02-15 04:33 J -13170870.42 -13170870.31 -13170870.19 0.1921 0.0909

Mercury -40771-12-03 14:23 J -13169848.04 -13169847.90 -13169847.76 0.1607 0.0157

Moon -40769-08-19 17:45 J -13169222.92 -13169222.76 -13169222.59 0.1633 0.0667

Earth -40769-08-19 20:23 J -13169222.83 -13169222.65 -13169222.47 0.1633 0.0605 *

Mercury -40764-07-07 08:09 J -13167440.29 -13167440.16 -13167440.03 0.1920 0.0120

Mercury -40761-04-24 22:04 J -13166417.71 -13166417.58 -13166417.44 0.1608 0.0421

Mercury -40755-11-27 11:45 J -13164010.12 -13164010.01 -13164009.91 0.1919 0.1123

Mercury -40752-09-15 05:30 J -13162987.38 -13162987.27 -13162987.16 0.1609 0.1007

Mercury -40750-08-21 22:47 J -13162281.62 -13162281.55 -13162281.48 0.1606 0.1340

Venus -40748-11-14 07:40 J -13161466.25 -13161466.18 -13161466.10 0.1674 0.1487

Mercury -40742-02-05 12:57 J -13159556.97 -13159556.96 -13159556.95 0.1610 0.1601

Mercury -40740-01-11 06:57 J -13158851.33 -13158851.21 -13158851.09 0.1606 0.0797

Mercury -40734-08-16 05:02 J -13156443.40 -13156443.29 -13156443.18 0.1921 0.1020

Mercury -40731-06-03 14:52 J -13155421.02 -13155420.88 -13155420.75 0.1607 0.0243

Mercury -40724-01-05 08:09 J -13153013.29 -13153013.16 -13153013.03 0.1920 0.0029

Mercury -40722-10-24 22:18 J -13151990.71 -13151990.57 -13151990.43 0.1608 0.0338

Venus -40716-11-13 03:50 J -13149779.51 -13149779.34 -13149779.17 0.1682 0.0140

Mercury -40715-05-28 11:59 J -13149583.11 -13149583.00 -13149582.89 0.1919 0.1014

Mercury -40712-03-16 05:45 J -13148560.37 -13148560.26 -13148560.14 0.1609 0.0922

Venus -40711-06-19 16:33 J -13148099.95 -13148099.81 -13148099.66 0.1851 0.1095
 Mercury -40710-02-19 23:02 J -13147854.60 -13147854.54 -13147854.48 0.1606 0.1419
 Mercury -40703-08-06 12:57 J -13145130.00 -13145129.96 -13145129.91 0.1610 0.1520
 Mercury -40701-07-12 07:11 J -13144424.32 -13144424.20 -13144424.09 0.1606 0.0876
 Mercury -40694-02-14 04:47 J -13142016.41 -13142016.30 -13142016.19 0.1921 0.1101
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 Moon -40690-08-22 17:45 J -13140365.94 -13140365.76 -13140365.59 0.1632 0.0565
 Earth -40690-08-23 00:42 J -13140365.64 -13140365.47 -13140365.29 0.1631 0.0708 *
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 Venus -40679-06-19 11:59 J -13136412.09 -13136412.00 -13136411.92 0.1839 0.1608
 Mercury -40676-11-26 12:14 J -13135156.11 -13135155.99 -13135155.88 0.1918 0.0915
 Mercury -40673-09-14 06:14 J -13134133.36 -13134133.24 -13134133.12 0.1609 0.0836
 Mercury -40671-08-20 23:16 J -13133427.57 -13133427.53 -13133427.48 0.1606 0.1502
 Mercury -40666-04-18 16:18 J -13131725.84 -13131725.82 -13131725.80 0.1917 0.1877
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 Venus -40650-09-10 15:06 J -13125737.04 -13125736.87 -13125736.70 0.1679 0.0080
 Moon -40649-02-18 01:54 J -13125576.60 -13125576.42 -13125576.24 0.1894 0.0235
 Earth -40649-02-18 05:16 J -13125576.48 -13125576.28 -13125576.08 0.1894 0.0065 *
 Mercury -40645-01-05 08:38 J -13124159.28 -13124159.14 -13124159.01 0.1920 0.0184
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 Mercury -40633-03-15 06:28 J -13119706.36 -13119706.23 -13119706.11 0.1609 0.0750
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Mercury -40622-07-12 07:40 J -13115570.29 -13115570.18 -13115570.08 0.1607 0.1038
 Venus -40618-09-09 11:59 J -13114050.06 -13114050.00 -13114049.94 0.1689 0.1580
 Mercury -40615-02-13 05:30 J -13113162.37 -13113162.27 -13113162.17 0.1921 0.1319
 Venus -40613-04-15 16:18 J -13112369.96 -13112369.82 -13112369.69 0.1843 0.1146
 Mercury -40613-12-01 15:35 J -13112139.99 -13112139.85 -13112139.72 0.1607 0.0485
 Mercury -40606-07-06 08:38 J -13109732.27 -13109732.14 -13109732.00 0.1920 0.0287
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 Mercury -40597-11-25 12:28 J -13106302.10 -13106301.98 -13106301.86 0.1918 0.0725
 Mercury -40594-09-14 06:42 J -13105279.35 -13105279.22 -13105279.09 0.1609 0.0667
 Mercury -40587-04-17 16:33 J -13102871.87 -13102871.81 -13102871.75 0.1916 0.1690
 Mercury -40584-02-03 13:54 J -13101849.01 -13101848.92 -13101848.83 0.1610 0.1261
 Venus -40584-07-08 02:23 J -13101694.57 -13101694.40 -13101694.23 0.1677 0.0280
 Mercury -40582-01-10 07:54 J -13101143.27 -13101143.17 -13101143.08 0.1607 0.1117
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 Mercury -40573-06-01 15:50 J -13097712.97 -13097712.84 -13097712.71 0.1607 0.0566
 Mercury -40566-01-04 08:52 J -13095305.26 -13095305.13 -13095305.00 0.1920 0.0385
 Moon -40564-08-18 19:54 J -13094347.69 -13094347.67 -13094347.65 0.1640 0.1628
 Mercury -40564-10-22 23:30 J -13094282.66 -13094282.52 -13094282.38 0.1608 0.0004
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 Mercury -40554-03-15 06:57 J -13090852.34 -13090852.21 -13090852.08 0.1609 0.0582
 Venus -40552-07-06 22:47 J -13090007.65 -13090007.55 -13090007.45 0.1686 0.1357
 Mercury -40548-10-16 16:47 J -13088444.87 -13088444.80 -13088444.73 0.1916 0.1597
 Venus -40547-02-10 19:40 J -13088327.85 -13088327.68 -13088327.51 0.1847 0.0650
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 Mercury -40536-02-12 05:45 J -13084308.34 -13084308.26 -13084308.18 0.1920 0.1512
 Mercury -40534-12-01 16:04 J -13083285.96 -13083285.83 -13083285.71 0.1607 0.0647
 Mercury -40527-07-05 09:06 J -13080878.25 -13080878.12 -13080877.99 0.1919 0.0476
 Mercury -40524-04-22 23:45 J -13079855.65 -13079855.51 -13079855.37 0.1608 0.0086
 Venus -40518-05-05 13:54 J -13077652.09 -13077651.92 -13077651.76 0.1674 0.0485

Mercury -40518-11-25 12:42 J -13077448.10 -13077447.97 -13077447.85 0.1918 0.0539
 Mercury -40515-09-13 07:11 J -13076425.33 -13076425.20 -13076425.06 0.1609 0.0497
 Mercury -40508-04-16 17:02 J -13074017.87 -13074017.79 -13074017.71 0.1916 0.1486
 Mercury -40505-02-03 14:38 J -13072994.99 -13072994.89 -13072994.79 0.1610 0.1084
 Mercury -40503-01-09 08:23 J -13072289.23 -13072289.15 -13072289.07 0.1607 0.1279
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 Mercury -40494-06-01 16:18 J -13068858.95 -13068858.82 -13068858.70 0.1607 0.0728
 Mercury -40487-01-03 09:06 J -13066451.24 -13066451.12 -13066450.99 0.1919 0.0572
 Venus -40486-05-04 10:18 J -13065965.20 -13065965.07 -13065964.95 0.1683 0.1142
 Earth -40485-08-20 21:21 J -13065490.79 -13065490.61 -13065490.42 0.1637 0.0388
 Moon -40485-08-21 04:18 J -13065490.51 -13065490.32 -13065490.14 0.1637 0.0270 *
 Mercury -40485-10-21 23:59 J -13065428.64 -13065428.50 -13065428.36 0.1608 0.0164
 Venus -40482-12-08 23:16 J -13064285.71 -13064285.53 -13064285.35 0.1851 0.0160
 Mercury -40478-05-26 12:57 J -13063021.09 -13063020.96 -13063020.83 0.1918 0.0429
 Mercury -40475-03-14 07:26 J -13061998.32 -13061998.19 -13061998.05 0.1609 0.0414
 Mercury -40469-10-15 16:47 J -13059590.88 -13059590.80 -13059590.71 0.1916 0.1409
 Mercury -40466-08-04 14:52 J -13058567.99 -13058567.88 -13058567.77 0.1610 0.1005
 Mercury -40464-07-10 08:23 J -13057862.22 -13057862.15 -13057862.07 0.1607 0.1357
 Mercury -40457-02-12 05:59 J -13055454.31 -13055454.25 -13055454.19 0.1920 0.1704
 Mercury -40457-12-24 22:04 J -13055137.59 -13055137.58 -13055137.57 0.1612 0.1603
 Mercury -40455-11-30 16:18 J -13054431.93 -13054431.82 -13054431.69 0.1608 0.0809
 Venus -40452-03-02 01:26 J -13053609.60 -13053609.44 -13053609.28 0.1672 0.0679
 Mercury -40448-07-04 09:35 J -13052024.23 -13052024.10 -13052023.98 0.1919 0.0683
 Mercury -40445-04-22 00:14 J -13051001.63 -13051001.49 -13051001.35 0.1608 0.0252
 Mercury -40439-11-24 13:11 J -13048594.08 -13048593.95 -13048593.82 0.1918 0.0334
 Mercury -40436-09-12 07:40 J -13047571.31 -13047571.18 -13047571.04 0.1609 0.0332
 Mercury -40429-04-15 17:02 J -13045163.88 -13045163.79 -13045163.69 0.1916 0.1308
 Mercury -40426-02-02 15:06 J -13044140.99 -13044140.87 -13044140.75 0.1610 0.0917
 Mercury -40424-01-08 08:38 J -13043435.20 -13043435.14 -13043435.08 0.1607 0.1435
 Venus -40420-02-28 21:21 J -13041922.75 -13041922.61 -13041922.47 0.1680 0.0928

Mercury -40418-08-13 06:14 J -13041027.27 -13041027.24 -13041027.19 0.1920 0.1818

Mercury -40417-06-24 22:18 J -13040710.62 -13040710.57 -13040710.53 0.1612 0.1521

Venus -40416-10-05 03:06 J -13040243.55 -13040243.37 -13040243.20 0.1854 0.0333

Mercury -40415-05-31 16:47 J -13040004.92 -13040004.80 -13040004.69 0.1608 0.0889

Mercury -40408-01-02 09:35 J -13037597.22 -13037597.10 -13037596.98 0.1919 0.0772

Earth -40406-08-24 02:38 J -13036633.55 -13036633.39 -13036633.24 0.1635 0.0949

Moon -40406-08-24 03:50 J -13036633.49 -13036633.34 -13036633.19 0.1635 0.0897 *

Mercury -40406-10-22 00:28 J -13036574.62 -13036574.48 -13036574.34 0.1608 0.0328

Mercury -40399-05-25 13:11 J -13034167.08 -13034166.95 -13034166.82 0.1918 0.0241

Mercury -40396-03-13 08:09 J -13033144.30 -13033144.16 -13033144.02 0.1609 0.0246

Mercury -40390-10-15 17:16 J -13030736.88 -13030736.78 -13030736.67 0.1916 0.1206

Mercury -40387-08-03 15:21 J -13029713.98 -13029713.86 -13029713.74 0.1610 0.0831

Venus -40387-12-28 12:57 J -13029567.11 -13029566.96 -13029566.81 0.1669 0.0874

Mercury -40385-07-09 09:06 J -13029008.17 -13029008.12 -13029008.08 0.1607 0.1517

Mercury -40378-12-24 22:33 J -13026283.62 -13026283.56 -13026283.50 0.1612 0.1432

Mercury -40376-11-29 17:02 J -13025577.90 -13025577.79 -13025577.68 0.1608 0.0971

Mercury -40369-07-03 09:50 J -13023170.21 -13023170.09 -13023169.98 0.1919 0.0874

Mercury -40366-04-22 00:42 J -13022147.60 -13022147.47 -13022147.33 0.1608 0.0411

Earth -40365-02-17 14:38 J -13021846.04 -13021845.89 -13021845.74 0.1886 0.1219

Moon -40365-02-17 23:16 J -13021845.67 -13021845.53 -13021845.39 0.1887 0.1296

Mercury -40360-11-23 13:26 J -13019740.07 -13019739.94 -13019739.81 0.1918 0.0141

Mercury -40357-09-11 08:23 J -13018717.29 -13018717.15 -13018717.01 0.1609 0.0169

Venus -40355-12-27 08:52 J -13017880.29 -13017880.13 -13017879.98 0.1677 0.0720

Mercury -40350-04-15 17:16 J -13016309.88 -13016309.78 -13016309.67 0.1916 0.1120

Venus -40350-08-02 06:14 J -13016201.40 -13016201.24 -13016201.09 0.1858 0.0842

Mercury -40347-02-01 15:35 J -13015286.97 -13015286.85 -13015286.72 0.1611 0.0748

Mercury -40345-01-08 09:06 J -13014581.13 -13014581.12 -13014581.10 0.1607 0.1595

Mercury -40338-06-24 22:47 J -13011856.62 -13011856.55 -13011856.47 0.1612 0.1343

Mercury -40336-05-30 17:16 J -13011150.89 -13011150.78 -13011150.68 0.1608 0.1051

Mercury -40329-01-02 10:04 J -13008743.20 -13008743.08 -13008742.97 0.1919 0.0978

Mercury -40327-10-21 00:57 J -13007720.59 -13007720.46 -13007720.32 0.1608 0.0498
 Venus -40321-10-25 00:42 J -13005524.60 -13005524.47 -13005524.34 0.1667 0.1064
 Mercury -40320-05-24 13:40 J -13005313.06 -13005312.93 -13005312.80 0.1917 0.0040
 Mercury -40317-03-12 08:38 J -13004290.28 -13004290.14 -13004290.00 0.1609 0.0079
 Mercury -40311-10-14 17:30 J -13001882.88 -13001882.77 -13001882.66 0.1916 0.1021
 Mercury -40308-08-02 16:04 J -13000859.96 -13000859.83 -13000859.71 0.1611 0.0663
 Mercury -40299-12-23 23:02 J -12997429.62 -12997429.54 -12997429.45 0.1612 0.1261
 Mercury -40297-11-28 17:30 J -12996723.87 -12996723.77 -12996723.68 0.1608 0.1131
 Mercury -40290-07-03 10:04 J -12994316.19 -12994316.08 -12994315.97 0.1918 0.1073
 Venus -40289-10-23 20:23 J -12993837.82 -12993837.65 -12993837.49 0.1675 0.0520
 Mercury -40287-04-21 01:11 J -12993293.58 -12993293.45 -12993293.32 0.1609 0.0575
 Earth -40286-02-20 20:09 J -12992987.75 -12992987.66 -12992987.57 0.1890 0.1673
 Venus -40284-05-29 10:04 J -12992159.20 -12992159.08 -12992158.96 0.1861 0.1335
 Mercury -40281-11-22 13:40 J -12990886.06 -12990885.93 -12990885.80 0.1918 0.0054
 Moon -40280-08-19 11:30 J -12990616.07 -12990616.02 -12990615.97 0.1644 0.1584
 Earth -40280-08-19 17:59 J -12990615.82 -12990615.75 -12990615.67 0.1644 0.1515
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 Mercury -40271-04-14 17:59 J -12987455.87 -12987455.75 -12987455.64 0.1916 0.0915
 Mercury -40268-01-31 16:18 J -12986432.95 -12986432.82 -12986432.69 0.1611 0.0574
 Mercury -40262-09-04 22:04 J -12984025.61 -12984025.58 -12984025.56 0.1913 0.1869
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 Mercury -40208-04-20 01:54 J -12964439.55 -12964439.42 -12964439.30 0.1609 0.0744
 Mercury -40202-11-22 14:09 J -12962032.04 -12962031.91 -12962031.78 0.1917 0.0261
 Moon -40201-08-21 21:35 J -12961758.80 -12961758.60 -12961758.40 0.1642 0.0117
 Earth -40201-08-21 22:47 J -12961758.74 -12961758.55 -12961758.36 0.1642 0.0165 *
 Mercury -40199-09-10 09:21 J -12961009.25 -12961009.11 -12961008.97 0.1610 0.0173
 Mercury -40192-04-13 17:59 J -12958601.87 -12958601.75 -12958601.63 0.1915 0.0730
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 Venus -40157-06-17 19:11 J -12945752.87 -12945752.70 -12945752.53 0.1669 0.0121
 Mercury -40153-10-12 18:14 J -12944174.86 -12944174.74 -12944174.61 0.1915 0.0626
 Mercury -40150-08-01 17:16 J -12943151.92 -12943151.78 -12943151.65 0.1611 0.0323
 Mercury -40143-03-04 22:33 J -12940744.63 -12940744.56 -12940744.49 0.1913 0.1584
 Mercury -40141-12-22 00:14 J -12939721.60 -12939721.49 -12939721.37 0.1612 0.0916
 Mercury -40139-11-27 18:28 J -12939015.79 -12939015.73 -12939015.67 0.1608 0.1452
 Mercury -40132-07-01 10:47 J -12936608.13 -12936608.05 -12936607.96 0.1918 0.1474

Mercury -40131-05-14 07:26 J -12936291.24 -12936291.19 -12936291.15 0.1614 0.1522

Mercury -40129-04-19 02:09 J -12935585.52 -12935585.41 -12935585.29 0.1609 0.0903

Venus -40123-04-16 11:30 J -12933397.05 -12933397.02 -12933396.98 0.1659 0.1626

Mercury -40123-11-21 14:23 J -12933178.03 -12933177.90 -12933177.77 0.1917 0.0453

Earth -40122-08-25 03:50 J -12932901.47 -12932901.34 -12932901.21 0.1639 0.1186

Moon -40122-08-25 09:50 J -12932901.23 -12932901.09 -12932900.95 0.1639 0.1121 *

Venus -40120-01-20 13:26 J -12932387.11 -12932386.94 -12932386.77 0.1857 0.0427

Mercury -40120-09-09 09:50 J -12932155.22 -12932155.09 -12932154.95 0.1610 0.0343

Mercury -40113-04-12 18:14 J -12929747.87 -12929747.74 -12929747.61 0.1915 0.0540

Mercury -40110-01-30 17:30 J -12928724.91 -12928724.77 -12928724.63 0.1611 0.0240

Mercury -40104-09-02 22:33 J -12926317.64 -12926317.56 -12926317.48 0.1913 0.1487

Mercury -40101-06-22 00:42 J -12925294.59 -12925294.47 -12925294.35 0.1612 0.0825

Mercury -40099-05-28 18:42 J -12924588.76 -12924588.72 -12924588.68 0.1608 0.1532

Mercury -40093-12-30 11:16 J -12922181.11 -12922181.03 -12922180.96 0.1918 0.1582

Mercury -40092-11-12 07:40 J -12921864.24 -12921864.18 -12921864.12 0.1614 0.1434

Venus -40091-04-15 06:42 J -12921710.39 -12921710.22 -12921710.04 0.1667 0.0087

Mercury -40090-10-19 02:38 J -12921158.50 -12921158.39 -12921158.28 0.1609 0.0987

Mercury -40083-05-22 14:38 J -12918751.02 -12918750.89 -12918750.76 0.1917 0.0557

Mercury -40080-03-10 10:18 J -12917728.21 -12917728.07 -12917727.94 0.1610 0.0425

Mercury -40074-10-12 18:28 J -12915320.86 -12915320.73 -12915320.60 0.1915 0.0441

Mercury -40071-07-31 17:45 J -12914297.90 -12914297.76 -12914297.62 0.1611 0.0155

Mercury -40064-03-03 22:47 J -12911890.64 -12911890.55 -12911890.46 0.1913 0.1394

Mercury -40062-12-22 00:57 J -12910867.59 -12910867.46 -12910867.33 0.1613 0.0743

Venus -40059-04-14 02:52 J -12910023.45 -12910023.38 -12910023.31 0.1675 0.1509

Venus -40055-11-17 17:02 J -12908344.96 -12908344.79 -12908344.61 0.1861 0.0073

Mercury -40053-06-30 11:16 J -12907754.09 -12907754.03 -12907753.97 0.1918 0.1675

Mercury -40052-05-13 07:54 J -12907437.24 -12907437.17 -12907437.09 0.1614 0.1346

Mercury -40050-04-19 02:52 J -12906731.49 -12906731.38 -12906731.28 0.1609 0.1066

Mercury -40044-11-20 14:38 J -12904324.01 -12904323.89 -12904323.76 0.1917 0.0653

Mercury -40041-09-08 10:33 J -12903301.19 -12903301.06 -12903300.93 0.1610 0.0508

Mercury -40034-04-12 18:42 J -12900893.85 -12900893.72 -12900893.59 0.1915 0.0334

Mercury -40031-01-29 17:59 J -12899870.89 -12899870.75 -12899870.61 0.1611 0.0068

Venus -40025-02-10 18:28 J -12897667.90 -12897667.73 -12897667.56 0.1665 0.0266

Mercury -40025-09-01 22:47 J -12897463.64 -12897463.55 -12897463.45 0.1913 0.1300

Mercury -40022-06-22 01:11 J -12896440.58 -12896440.45 -12896440.32 0.1613 0.0658

Mercury -40014-12-30 11:30 J -12893327.07 -12893327.02 -12893326.98 0.1918 0.1775

Mercury -40013-11-11 08:23 J -12893010.24 -12893010.15 -12893010.07 0.1614 0.1260

Mercury -40011-10-18 03:06 J -12892304.47 -12892304.37 -12892304.28 0.1609 0.1146

Mercury -40004-05-21 15:06 J -12889897.00 -12889896.87 -12889896.75 0.1917 0.0756

Earth -40002-02-20 06:28 J -12889257.42 -12889257.23 -12889257.04 0.1883 0.0528

Moon -40002-02-20 11:30 J -12889257.21 -12889257.02 -12889256.84 0.1883 0.0951 *

Mercury -40001-03-09 10:47 J -12888874.18 -12888874.05 -12888873.92 0.1610 0.0588

40TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 40th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Earth | -39996-08-20 17:59 J | -12886883.86 | -12886883.75 | -12886883.64 | 0.1649 | 0.1331 | | |
| Moon | -39996-08-20 19:26 J | -12886883.78 | -12886883.69 | -12886883.59 | 0.1649 | 0.1376 | * | |
| Mercury | -39995-10-11 18:42 J | -12886466.85 | -12886466.72 | -12886466.59 | 0.1915 | 0.0254 | | |
| Venus | -39993-02-09 14:09 J | -12885981.02 | -12885980.91 | -12885980.80 | 0.1673 | 0.1303 | | |
| Mercury | -39992-07-30 18:14 J | -12885443.88 | -12885443.74 | -12885443.60 | 0.1611 | 0.0022 | | |
| Venus | -39989-09-13 20:38 J | -12884302.81 | -12884302.64 | -12884302.47 | 0.1864 | 0.0567 | | |
| Mercury | -39985-03-02 23:02 J | -12883036.64 | -12883036.54 | -12883036.44 | 0.1913 | 0.1199 | | |

Mercury -39983-12-21 01:40 J -12882013.56 -12882013.43 -12882013.30 0.1613 0.0566

Mercury -39974-06-30 11:45 J -12878900.03 -12878900.01 -12878899.99 0.1918 0.1890

Mercury -39973-05-12 08:38 J -12878583.24 -12878583.14 -12878583.04 0.1614 0.1172

Mercury -39971-04-18 03:21 J -12877877.45 -12877877.36 -12877877.27 0.1609 0.1231

Mercury -39965-11-19 15:06 J -12875469.99 -12875469.87 -12875469.75 0.1916 0.0850

Mercury -39962-09-08 11:02 J -12874447.17 -12874447.04 -12874446.91 0.1610 0.0670

Venus -39960-12-08 06:14 J -12873625.40 -12873625.24 -12873625.07 0.1662 0.0453

Mercury -39955-04-11 18:57 J -12872039.84 -12872039.71 -12872039.58 0.1915 0.0147

Mercury -39952-01-28 18:42 J -12871016.87 -12871016.72 -12871016.58 0.1611 0.0113

Mercury -39946-09-01 23:16 J -12868609.64 -12868609.53 -12868609.43 0.1912 0.1107

Mercury -39943-06-21 01:54 J -12867586.56 -12867586.42 -12867586.29 0.1613 0.0486

Mercury -39934-11-11 08:52 J -12864156.23 -12864156.13 -12864156.02 0.1615 0.1085

Mercury -39932-10-17 03:35 J -12863450.43 -12863450.35 -12863450.27 0.1609 0.1307

Venus -39928-12-07 01:40 J -12861938.55 -12861938.43 -12861938.30 0.1670 0.1105

Mercury -39925-05-20 15:21 J -12861042.97 -12861042.86 -12861042.74 0.1917 0.0953

Venus -39923-07-11 23:30 J -12860260.67 -12860260.52 -12860260.38 0.1867 0.1083

Mercury -39922-03-09 11:30 J -12860020.15 -12860020.02 -12860019.90 0.1610 0.0759

Moon -39917-08-22 17:59 J -12858026.93 -12858026.75 -12858026.56 0.1646 0.0080

Earth -39917-08-23 00:14 J -12858026.69 -12858026.49 -12858026.30 0.1646 0.0068 *

Mercury -39916-10-10 19:11 J -12857612.83 -12857612.70 -12857612.57 0.1914 0.0053

Mercury -39913-07-29 18:57 J -12856589.85 -12856589.71 -12856589.57 0.1611 0.0189

Mercury -39906-03-02 23:16 J -12854182.64 -12854182.53 -12854182.42 0.1912 0.1013

Mercury -39904-12-20 02:09 J -12853159.55 -12853159.41 -12853159.27 0.1613 0.0400

Mercury -39894-05-12 09:21 J -12849729.23 -12849729.11 -12849729.00 0.1615 0.0999

Venus -39894-10-05 18:28 J -12849582.89 -12849582.73 -12849582.58 0.1660 0.0632

Mercury -39892-04-17 03:50 J -12849023.41 -12849023.34 -12849023.27 0.1609 0.1389

Venus -39891-07-11 21:06 J -12848572.69 -12848572.62 -12848572.55 0.1856 0.1688

Mercury -39886-11-19 15:35 J -12846615.96 -12846615.85 -12846615.74 0.1916 0.1051

Mercury -39885-10-01 16:04 J -12846298.83 -12846298.83 -12846298.82 0.1616 0.1612

Mercury -39883-09-07 11:30 J -12845593.14 -12845593.02 -12845592.90 0.1610 0.0837

Mercury -39876-04-10 19:11 J -12843185.83 -12843185.70 -12843185.57 0.1914 0.0044

Mercury -39873-01-28 19:11 J -12842162.84 -12842162.70 -12842162.56 0.1612 0.0269

Mercury -39867-08-31 23:30 J -12839755.63 -12839755.52 -12839755.40 0.1912 0.0911

Mercury -39864-06-20 02:38 J -12838732.53 -12838732.39 -12838732.25 0.1613 0.0314

Venus -39862-10-04 13:40 J -12837896.07 -12837895.93 -12837895.79 0.1668 0.0915

Mercury -39857-01-22 04:04 J -12836325.36 -12836325.33 -12836325.30 0.1910 0.1842

Venus -39857-05-08 03:06 J -12836218.46 -12836218.37 -12836218.28 0.1870 0.1581

Mercury -39855-11-10 09:35 J -12835302.22 -12835302.10 -12835301.98 0.1615 0.0911

Mercury -39853-10-16 04:04 J -12834596.38 -12834596.33 -12834596.27 0.1609 0.1474

Mercury -39846-05-20 15:50 J -12832188.95 -12832188.84 -12832188.74 0.1916 0.1154

Mercury -39845-04-01 16:33 J -12831871.86 -12831871.81 -12831871.77 0.1616 0.1523

Mercury -39843-03-08 11:59 J -12831166.12 -12831166.00 -12831165.89 0.1610 0.0920

Moon -39838-08-26 00:57 J -12829169.59 -12829169.46 -12829169.32 0.1644 0.1227

Earth -39838-08-26 05:30 J -12829169.36 -12829169.27 -12829169.18 0.1644 0.1433 *

Mercury -39837-10-09 19:26 J -12828758.82 -12828758.69 -12828758.56 0.1914 0.0146

Mercury -39834-07-29 19:26 J -12827735.83 -12827735.69 -12827735.55 0.1612 0.0351

Venus -39828-08-02 05:59 J -12825540.40 -12825540.25 -12825540.10 0.1658 0.0816

Mercury -39827-03-01 23:45 J -12825328.63 -12825328.51 -12825328.40 0.1912 0.0822

Venus -39825-05-08 00:14 J -12824530.62 -12824530.49 -12824530.35 0.1859 0.1187

Mercury -39825-12-19 02:52 J -12824305.53 -12824305.38 -12824305.24 0.1613 0.0234

Mercury -39818-07-23 04:04 J -12821898.37 -12821898.33 -12821898.28 0.1910 0.1753

Mercury -39815-05-11 09:50 J -12820875.21 -12820875.09 -12820874.96 0.1615 0.0823

Mercury -39813-04-16 04:18 J -12820169.35 -12820169.32 -12820169.28 0.1610 0.1550

Mercury -39807-11-18 15:50 J -12817761.94 -12817761.84 -12817761.74 0.1916 0.1250

Mercury -39806-10-01 16:47 J -12817444.86 -12817444.80 -12817444.73 0.1616 0.1433

Mercury -39804-09-06 12:14 J -12816739.10 -12816738.99 -12816738.88 0.1611 0.1003

Mercury -39797-04-09 19:40 J -12814331.81 -12814331.68 -12814331.54 0.1914 0.0263

Venus -39796-08-01 00:57 J -12813853.62 -12813853.46 -12813853.31 0.1665 0.0714

Mercury -39794-01-27 19:40 J -12813308.81 -12813308.68 -12813308.54 0.1612 0.0439

Mercury -39788-08-30 23:45 J -12810901.63 -12810901.51 -12810901.39 0.1912 0.0724

Mercury -39785-06-19 03:06 J -12809878.51 -12809878.37 -12809878.23 0.1613 0.0144
 Mercury -39778-01-21 04:18 J -12807471.38 -12807471.32 -12807471.26 0.1909 0.1657
 Mercury -39776-11-09 10:18 J -12806448.20 -12806448.07 -12806447.95 0.1615 0.0740
 Mercury -39767-05-19 16:04 J -12803334.92 -12803334.83 -12803334.73 0.1916 0.1354
 Mercury -39766-04-01 17:02 J -12803017.86 -12803017.79 -12803017.71 0.1617 0.1348
 Mercury -39764-03-07 12:28 J -12802312.08 -12802311.98 -12802311.88 0.1611 0.1082
 Venus -39762-05-30 17:45 J -12801497.89 -12801497.76 -12801497.62 0.1655 0.0996
 Venus -39759-03-05 04:18 J -12800488.48 -12800488.32 -12800488.16 0.1863 0.0709
 Mercury -39758-10-09 19:40 J -12799904.81 -12799904.68 -12799904.55 0.1914 0.0336
 Mercury -39755-07-28 19:54 J -12798881.80 -12798881.67 -12798881.53 0.1612 0.0522
 Mercury -39748-02-28 23:59 J -12796474.62 -12796474.50 -12796474.37 0.1912 0.0623
 Mercury -39746-12-19 03:21 J -12795451.50 -12795451.36 -12795451.21 0.1613 0.0070
 Mercury -39739-07-22 04:33 J -12793044.38 -12793044.31 -12793044.24 0.1909 0.1558
 Mercury -39736-05-10 10:33 J -12792021.19 -12792021.06 -12792020.93 0.1615 0.0651
 Venus -39730-05-29 12:57 J -12789811.12 -12789810.96 -12789810.80 0.1663 0.0535
 Mercury -39728-11-17 16:18 J -12788907.91 -12788907.82 -12788907.74 0.1916 0.1450
 Mercury -39727-09-30 17:30 J -12788590.86 -12788590.77 -12788590.68 0.1617 0.1260
 Mercury -39725-09-05 12:42 J -12787885.07 -12787884.97 -12787884.88 0.1611 0.1163
 Moon -39718-02-19 11:30 J -12785527.21 -12785527.02 -12785526.83 0.1875 0.0369
 Earth -39718-02-19 20:09 J -12785526.85 -12785526.66 -12785526.47 0.1875 0.0471 *
 Mercury -39718-04-09 20:09 J -12785477.79 -12785477.66 -12785477.54 0.1914 0.0448
 Mercury -39715-01-26 20:23 J -12784454.78 -12784454.65 -12784454.52 0.1612 0.0605
 Earth -39712-08-21 18:14 J -12783151.88 -12783151.74 -12783151.60 0.1654 0.1142
 Moon -39712-08-22 01:11 J -12783151.59 -12783151.45 -12783151.30 0.1653 0.1098
 Mercury -39709-08-29 23:59 J -12782047.62 -12782047.50 -12782047.37 0.1912 0.0536
 Mercury -39706-06-19 03:35 J -12781024.49 -12781024.35 -12781024.21 0.1613 0.0040
 Mercury -39699-01-20 04:33 J -12778617.39 -12778617.31 -12778617.23 0.1910 0.1472
 Mercury -39697-11-08 10:47 J -12777594.18 -12777594.05 -12777593.91 0.1615 0.0565
 Venus -39696-03-27 05:45 J -12777455.38 -12777455.26 -12777455.13 0.1653 0.1169
 Venus -39694-12-31 07:11 J -12776446.38 -12776446.20 -12776446.03 0.1866 0.0199

Mercury -39688-05-18 16:33 J -12774480.88 -12774480.81 -12774480.73 0.1916 0.1557

Mercury -39687-03-31 17:45 J -12774163.85 -12774163.76 -12774163.66 0.1616 0.1168

Mercury -39685-03-06 12:57 J -12773458.04 -12773457.96 -12773457.87 0.1611 0.1250

Mercury -39679-10-08 20:09 J -12771050.78 -12771050.66 -12771050.53 0.1914 0.0551

Mercury -39676-07-27 20:38 J -12770027.77 -12770027.64 -12770027.51 0.1612 0.0686

Mercury -39669-02-29 00:14 J -12767620.61 -12767620.49 -12767620.36 0.1912 0.0436

Mercury -39667-12-18 03:50 J -12766597.48 -12766597.34 -12766597.19 0.1613 0.0121

Venus -39664-03-26 00:42 J -12765768.64 -12765768.47 -12765768.31 0.1660 0.0346

Mercury -39660-07-21 04:47 J -12764190.39 -12764190.30 -12764190.21 0.1909 0.1370

Mercury -39657-05-09 11:16 J -12763167.17 -12763167.03 -12763166.90 0.1615 0.0480

Mercury -39649-11-16 16:47 J -12760053.87 -12760053.80 -12760053.74 0.1915 0.1651

Mercury -39648-09-29 17:59 J -12759736.85 -12759736.75 -12759736.64 0.1617 0.1085

Mercury -39646-09-05 13:11 J -12759031.03 -12759030.95 -12759030.87 0.1611 0.1326

Mercury -39639-04-08 20:23 J -12756623.78 -12756623.65 -12756623.53 0.1914 0.0637

Mercury -39636-01-25 20:52 J -12755600.75 -12755600.63 -12755600.51 0.1612 0.0769

Earth -39633-08-24 00:42 J -12754294.66 -12754294.47 -12754294.28 0.1651 0.0275

Moon -39633-08-24 05:16 J -12754294.45 -12754294.28 -12754294.10 0.1651 0.0472 *

Venus -39630-01-22 17:30 J -12753412.86 -12753412.77 -12753412.67 0.1651 0.1347

Mercury -39630-08-30 00:42 J -12753193.60 -12753193.47 -12753193.35 0.1912 0.0336

Venus -39628-10-27 10:47 J -12752404.23 -12752404.05 -12752403.88 0.1870 0.0302

Mercury -39627-06-18 04:18 J -12752170.46 -12752170.32 -12752170.18 0.1613 0.0200

Mercury -39620-01-19 05:02 J -12749763.39 -12749763.29 -12749763.20 0.1909 0.1276

Mercury -39618-11-08 11:30 J -12748740.16 -12748740.02 -12748739.88 0.1615 0.0393

Mercury -39609-05-17 17:02 J -12745626.84 -12745626.79 -12745626.74 0.1915 0.1755

Mercury -39608-03-30 18:28 J -12745309.84 -12745309.73 -12745309.62 0.1617 0.0996

Mercury -39606-03-06 13:26 J -12744604.00 -12744603.94 -12744603.87 0.1611 0.1407

Mercury -39600-10-07 20:38 J -12742196.76 -12742196.64 -12742196.52 0.1914 0.0739

Mercury -39599-08-21 01:11 J -12741879.46 -12741879.45 -12741879.45 0.1619 0.1616

Venus -39598-01-21 12:42 J -12741726.14 -12741725.97 -12741725.80 0.1658 0.0169

Mercury -39597-07-26 21:06 J -12741173.74 -12741173.62 -12741173.50 0.1612 0.0851

Mercury -39590-02-28 00:42 J -12738766.60 -12738766.47 -12738766.34 0.1911 0.0249

Mercury -39588-12-17 04:33 J -12737743.45 -12737743.31 -12737743.17 0.1614 0.0280

Mercury -39581-07-20 05:02 J -12735336.39 -12735336.29 -12735336.19 0.1909 0.1184

Mercury -39578-05-09 11:45 J -12734313.15 -12734313.01 -12734312.87 0.1615 0.0307

Mercury -39570-11-16 17:02 J -12731199.82 -12731199.79 -12731199.76 0.1916 0.1855

Mercury -39569-09-28 18:42 J -12730882.84 -12730882.72 -12730882.60 0.1617 0.0908

Mercury -39567-09-04 13:54 J -12730176.97 -12730176.92 -12730176.87 0.1611 0.1492

Venus -39565-11-19 05:45 J -12729370.32 -12729370.26 -12729370.19 0.1649 0.1511

Venus -39562-08-24 13:40 J -12728362.08 -12728361.93 -12728361.77 0.1873 0.0813

Mercury -39560-04-07 20:52 J -12727769.75 -12727769.63 -12727769.51 0.1913 0.0846

Mercury -39559-02-19 01:26 J -12727452.48 -12727452.44 -12727452.39 0.1619 0.1525

Mercury -39557-01-25 21:21 J -12726746.72 -12726746.61 -12726746.49 0.1612 0.0937

Moon -39554-08-27 03:35 J -12725437.43 -12725437.35 -12725437.28 0.1649 0.1488

Mercury -39551-08-29 00:42 J -12724339.60 -12724339.47 -12724339.34 0.1911 0.0153

Mercury -39548-06-17 04:47 J -12723316.44 -12723316.30 -12723316.16 0.1614 0.0364

Mercury -39541-01-19 05:16 J -12720909.39 -12720909.28 -12720909.18 0.1909 0.1089

Mercury -39539-11-07 11:59 J -12719886.14 -12719886.00 -12719885.86 0.1615 0.0225

Venus -39533-11-18 00:28 J -12717683.65 -12717683.48 -12717683.30 0.1656 0.0037

Mercury -39529-03-29 19:11 J -12716455.83 -12716455.70 -12716455.58 0.1617 0.0823

Mercury -39527-03-05 14:09 J -12715749.94 -12715749.91 -12715749.89 0.1611 0.1571

Mercury -39521-10-06 20:52 J -12713342.75 -12713342.63 -12713342.52 0.1914 0.0930

Mercury -39520-08-20 01:54 J -12713025.48 -12713025.42 -12713025.36 0.1619 0.1432

Mercury -39518-07-26 21:35 J -12712319.70 -12712319.60 -12712319.49 0.1612 0.1018

Mercury -39511-02-27 00:57 J -12709912.59 -12709912.46 -12709912.32 0.1911 0.0079

Mercury -39509-12-16 05:16 J -12708889.42 -12708889.28 -12708889.15 0.1614 0.0452

Mercury -39502-07-20 05:30 J -12706482.38 -12706482.27 -12706482.16 0.1909 0.0992

Venus -39501-11-16 19:40 J -12705996.75 -12705996.68 -12705996.61 0.1664 0.1504

Mercury -39499-05-08 12:28 J -12705459.13 -12705458.98 -12705458.84 0.1615 0.0141

Venus -39496-06-20 16:33 J -12704319.93 -12704319.81 -12704319.69 0.1876 0.1336

Mercury -39493-12-09 10:04 J -12703052.08 -12703052.08 -12703052.08 0.1906 0.1905

Mercury -39490-09-28 19:26 J -12702028.82 -12702028.69 -12702028.56 0.1617 0.0735
 Mercury -39481-04-06 21:06 J -12698915.73 -12698915.62 -12698915.51 0.1913 0.1037
 Mercury -39480-02-18 02:09 J -12698598.49 -12698598.41 -12698598.33 0.1619 0.1349
 Mercury -39478-01-24 22:04 J -12697892.68 -12697892.58 -12697892.48 0.1612 0.1099
 Mercury -39472-08-28 01:11 J -12695485.59 -12695485.45 -12695485.32 0.1911 0.0079
 Mercury -39469-06-16 05:30 J -12694462.41 -12694462.27 -12694462.14 0.1614 0.0532
 Venus -39467-09-15 12:42 J -12693641.14 -12693640.97 -12693640.80 0.1654 0.0194
 Venus -39464-06-20 14:52 J -12692631.99 -12692631.88 -12692631.77 0.1865 0.1458
 Mercury -39462-01-18 05:30 J -12692055.38 -12692055.27 -12692055.16 0.1909 0.0900
 Mercury -39460-11-06 12:42 J -12691032.11 -12691031.97 -12691031.83 0.1615 0.0053
 Mercury -39453-06-09 10:18 J -12688625.10 -12688625.07 -12688625.03 0.1906 0.1803
 Mercury -39450-03-29 19:40 J -12687601.81 -12687601.68 -12687601.55 0.1617 0.0647
 Mercury -39442-10-06 21:21 J -12684488.72 -12684488.61 -12684488.50 0.1913 0.1138
 Mercury -39441-08-19 02:23 J -12684171.49 -12684171.40 -12684171.31 0.1619 0.1263
 Mercury -39439-07-25 22:18 J -12683465.67 -12683465.57 -12683465.48 0.1612 0.1180
 Venus -39435-09-14 07:26 J -12681954.29 -12681954.19 -12681954.08 0.1661 0.1317
 Earth -39434-02-19 11:45 J -12681796.14 -12681796.01 -12681795.88 0.1867 0.1372
 Moon -39434-02-19 16:04 J -12681795.97 -12681795.83 -12681795.69 0.1868 0.1146 *
 Mercury -39432-02-26 01:11 J -12681058.58 -12681058.45 -12681058.32 0.1911 0.0157
 Venus -39430-04-17 19:54 J -12680277.70 -12680277.67 -12680277.64 0.1879 0.1839
 Mercury -39430-12-16 05:45 J -12680035.39 -12680035.26 -12680035.13 0.1614 0.0614
 Moon -39428-08-22 13:54 J -12679420.07 -12679419.92 -12679419.77 0.1659 0.1122
 Earth -39428-08-22 17:59 J -12679419.90 -12679419.75 -12679419.59 0.1659 0.0961 *
 Mercury -39423-07-19 05:45 J -12677628.38 -12677628.26 -12677628.14 0.1908 0.0800
 Mercury -39420-05-07 12:57 J -12676605.10 -12676604.96 -12676604.82 0.1615 0.0043
 Mercury -39414-12-09 10:18 J -12674198.12 -12674198.07 -12674198.02 0.1905 0.1727
 Mercury -39411-09-27 19:54 J -12673174.80 -12673174.67 -12673174.53 0.1617 0.0565
 Mercury -39402-04-06 21:21 J -12670061.71 -12670061.61 -12670061.51 0.1913 0.1228
 Mercury -39401-02-18 02:52 J -12669744.48 -12669744.38 -12669744.28 0.1619 0.1168
 Venus -39401-07-13 00:14 J -12669598.65 -12669598.49 -12669598.32 0.1652 0.0374

Mercury -39399-01-23 22:33 J -12669038.65 -12669038.56 -12669038.47 0.1613 0.1263
 Venus -39398-04-17 17:45 J -12668589.91 -12668589.76 -12668589.61 0.1869 0.0950
 Mercury -39393-08-27 01:40 J -12666631.56 -12666631.43 -12666631.30 0.1911 0.0257
 Mercury -39390-06-16 05:59 J -12665608.37 -12665608.25 -12665608.12 0.1614 0.0703
 Mercury -39383-01-17 05:45 J -12663201.38 -12663201.26 -12663201.14 0.1908 0.0709
 Mercury -39381-11-05 13:11 J -12662178.09 -12662177.95 -12662177.80 0.1615 0.0127
 Mercury -39374-06-09 10:33 J -12659771.12 -12659771.06 -12659770.99 0.1906 0.1624
 Mercury -39371-03-28 20:23 J -12658747.79 -12658747.65 -12658747.52 0.1617 0.0476
 Venus -39369-07-11 18:57 J -12657911.84 -12657911.71 -12657911.59 0.1659 0.1123
 Mercury -39363-10-05 21:35 J -12655634.69 -12655634.60 -12655634.50 0.1913 0.1333
 Mercury -39362-08-19 03:06 J -12655317.47 -12655317.37 -12655317.26 0.1619 0.1086
 Mercury -39360-07-24 22:47 J -12654611.62 -12654611.55 -12654611.47 0.1613 0.1343
 Moon -39355-02-22 07:11 J -12652938.35 -12652938.20 -12652938.04 0.1872 0.1032
 Earth -39355-02-22 14:09 J -12652938.04 -12652937.91 -12652937.77 0.1872 0.1340 *
 Mercury -39353-02-26 01:40 J -12652204.56 -12652204.43 -12652204.31 0.1911 0.0343
 Mercury -39351-12-15 06:14 J -12651181.36 -12651181.24 -12651181.11 0.1614 0.0780
 Earth -39349-08-25 00:42 J -12650562.65 -12650562.47 -12650562.28 0.1656 0.0478
 Moon -39349-08-25 05:45 J -12650562.45 -12650562.26 -12650562.08 0.1656 0.0665 *
 Mercury -39344-07-18 05:59 J -12648774.37 -12648774.25 -12648774.13 0.1909 0.0612
 Mercury -39341-05-06 13:40 J -12647751.07 -12647750.93 -12647750.79 0.1616 0.0206
 Venus -39335-05-10 12:28 J -12645556.14 -12645555.98 -12645555.82 0.1650 0.0545
 Mercury -39335-12-08 10:47 J -12645344.13 -12645344.05 -12645343.98 0.1905 0.1527
 Venus -39332-02-11 21:35 J -12644547.77 -12644547.60 -12644547.43 0.1872 0.0464
 Mercury -39332-09-26 20:38 J -12644320.78 -12644320.64 -12644320.50 0.1617 0.0389
 Mercury -39323-04-05 21:50 J -12641207.67 -12641207.59 -12641207.50 0.1913 0.1439
 Mercury -39322-02-17 03:35 J -12640890.47 -12640890.35 -12640890.24 0.1619 0.0997
 Mercury -39320-01-22 23:02 J -12640184.60 -12640184.54 -12640184.47 0.1613 0.1425
 Mercury -39314-08-27 01:40 J -12637777.55 -12637777.43 -12637777.30 0.1911 0.0442
 Mercury -39311-06-15 06:28 J -12636754.34 -12636754.23 -12636754.11 0.1614 0.0864
 Mercury -39304-01-16 05:59 J -12634347.37 -12634347.25 -12634347.12 0.1908 0.0523

Venus -39303-05-09 07:11 J -12633869.34 -12633869.20 -12633869.06 0.1657 0.0949
 Mercury -39302-11-05 13:54 J -12633324.06 -12633323.92 -12633323.78 0.1616 0.0288
 Mercury -39295-06-08 10:47 J -12630917.14 -12630917.05 -12630916.97 0.1905 0.1445
 Mercury -39292-03-27 20:52 J -12629893.77 -12629893.63 -12629893.48 0.1617 0.0308
 Mercury -39284-10-04 21:50 J -12626780.66 -12626780.59 -12626780.51 0.1913 0.1523
 Mercury -39283-08-18 03:50 J -12626463.46 -12626463.34 -12626463.22 0.1619 0.0907
 Mercury -39281-07-23 23:16 J -12625757.57 -12625757.53 -12625757.48 0.1613 0.1505
 Mercury -39274-02-25 02:09 J -12623350.54 -12623350.41 -12623350.29 0.1911 0.0545
 Mercury -39273-01-08 10:18 J -12623033.11 -12623033.07 -12623033.02 0.1621 0.1533
 Mercury -39272-12-14 06:57 J -12622327.33 -12622327.21 -12622327.10 0.1614 0.0948
 Venus -39269-03-07 00:28 J -12621513.64 -12621513.48 -12621513.33 0.1648 0.0716
 Venus -39267-12-09 23:59 J -12620505.67 -12620505.50 -12620505.32 0.1875 0.0065
 Mercury -39265-07-17 06:14 J -12619920.36 -12619920.24 -12619920.11 0.1908 0.0422
 Mercury -39262-05-06 14:09 J -12618897.05 -12618896.91 -12618896.77 0.1616 0.0373
 Mercury -39256-12-07 11:02 J -12616490.13 -12616490.04 -12616489.95 0.1905 0.1348
 Mercury -39253-09-25 21:21 J -12615466.76 -12615466.61 -12615466.47 0.1617 0.0222
 Mercury -39244-04-04 22:18 J -12612353.64 -12612353.57 -12612353.50 0.1913 0.1629
 Mercury -39243-02-16 04:04 J -12612036.45 -12612036.33 -12612036.20 0.1619 0.0824
 Mercury -39241-01-22 23:30 J -12611330.54 -12611330.52 -12611330.50 0.1613 0.1585
 Venus -39237-03-05 18:42 J -12609826.87 -12609826.72 -12609826.57 0.1654 0.0762
 Mercury -39235-08-26 02:09 J -12608923.54 -12608923.41 -12608923.29 0.1910 0.0631
 Mercury -39234-07-09 10:47 J -12608606.11 -12608606.05 -12608605.99 0.1622 0.1443
 Mercury -39232-06-14 07:11 J -12607900.31 -12607900.20 -12607900.09 0.1614 0.1028
 Mercury -39225-01-16 06:28 J -12605493.36 -12605493.23 -12605493.10 0.1908 0.0329
 Mercury -39223-11-04 14:38 J -12604470.03 -12604469.89 -12604469.76 0.1616 0.0461
 Mercury -39216-06-07 11:16 J -12602063.13 -12602063.03 -12602062.94 0.1905 0.1247
 Mercury -39213-03-26 21:35 J -12601039.74 -12601039.60 -12601039.46 0.1617 0.0132
 Mercury -39205-10-03 22:18 J -12597926.62 -12597926.57 -12597926.51 0.1912 0.1731
 Mercury -39204-08-17 04:33 J -12597609.44 -12597609.31 -12597609.19 0.1619 0.0739
 Venus -39203-01-02 12:14 J -12597471.13 -12597470.99 -12597470.84 0.1646 0.0889

Venus -39201-10-06 03:35 J -12596463.52 -12596463.35 -12596463.19 0.1878 0.0565
 Mercury -39195-02-24 02:09 J -12594496.53 -12594496.41 -12594496.28 0.1910 0.0732
 Mercury -39194-01-07 11:02 J -12594179.11 -12594179.04 -12594178.96 0.1622 0.1356
 Mercury -39193-12-13 07:26 J -12593473.29 -12593473.19 -12593473.09 0.1614 0.1110
 Mercury -39186-07-17 06:28 J -12591066.36 -12591066.23 -12591066.10 0.1908 0.0239
 Mercury -39183-05-05 14:52 J -12590043.02 -12590042.88 -12590042.75 0.1616 0.0541
 Mercury -39177-12-06 11:02 J -12587636.14 -12587636.04 -12587635.94 0.1905 0.1170
 Mercury -39174-09-25 21:50 J -12586612.73 -12586612.59 -12586612.45 0.1618 0.0051
 Venus -39171-01-01 06:57 J -12585784.37 -12585784.21 -12585784.05 0.1652 0.0590
 Mercury -39165-04-03 22:33 J -12583499.60 -12583499.56 -12583499.52 0.1913 0.1821
 Mercury -39164-02-15 04:47 J -12583182.43 -12583182.30 -12583182.16 0.1619 0.0646
 Mercury -39156-08-25 02:38 J -12580069.51 -12580069.39 -12580069.27 0.1910 0.0835
 Mercury -39155-07-08 11:30 J -12579752.11 -12579752.02 -12579751.93 0.1622 0.1269
 Mercury -39153-06-13 07:40 J -12579046.27 -12579046.18 -12579046.08 0.1614 0.1194
 Mercury -39146-01-15 06:42 J -12576639.35 -12576639.22 -12576639.09 0.1908 0.0145
 Moon -39144-08-23 12:28 J -12575688.12 -12575687.98 -12575687.83 0.1664 0.1027
 Earth -39144-08-23 16:18 J -12575687.99 -12575687.82 -12575687.66 0.1664 0.0813 *
 Mercury -39144-11-03 15:06 J -12575616.00 -12575615.87 -12575615.74 0.1616 0.0622
 Venus -39138-10-31 00:28 J -12573428.61 -12573428.48 -12573428.34 0.1644 0.1049
 Mercury -39137-06-06 11:16 J -12573209.13 -12573209.03 -12573208.92 0.1905 0.1068
 Venus -39135-08-03 05:59 J -12572421.39 -12572421.25 -12572421.10 0.1881 0.1087
 Mercury -39134-03-26 22:18 J -12572185.72 -12572185.57 -12572185.43 0.1618 0.0063
 Mercury -39125-08-16 05:02 J -12568755.42 -12568755.29 -12568755.15 0.1620 0.0565
 Mercury -39116-02-23 02:23 J -12565642.51 -12565642.40 -12565642.28 0.1910 0.0916
 Mercury -39115-01-06 11:45 J -12565325.11 -12565325.01 -12565324.91 0.1622 0.1179
 Mercury -39114-12-13 07:54 J -12564619.25 -12564619.17 -12564619.08 0.1614 0.1272
 Mercury -39107-07-16 06:57 J -12562212.34 -12562212.21 -12562212.08 0.1908 0.0047
 Venus -39106-10-29 18:57 J -12561741.88 -12561741.71 -12561741.54 0.1650 0.0415
 Mercury -39104-05-04 15:21 J -12561188.98 -12561188.86 -12561188.73 0.1616 0.0709
 Venus -39103-08-03 04:04 J -12560733.41 -12560733.33 -12560733.26 0.1871 0.1682

Mercury -39098-12-06 11:30 J -12558782.13 -12558782.02 -12558781.91 0.1905 0.0970

Mercury -39095-09-24 22:33 J -12557758.70 -12557758.56 -12557758.42 0.1618 0.0125

Mercury -39088-04-27 16:33 J -12555351.83 -12555351.81 -12555351.79 0.1901 0.1869

Mercury -39085-02-15 05:30 J -12554328.41 -12554328.27 -12554328.14 0.1620 0.0479

Mercury -39077-08-24 02:52 J -12551215.50 -12551215.38 -12551215.27 0.1910 0.1020

Mercury -39076-07-07 11:59 J -12550898.10 -12550898.00 -12550897.89 0.1622 0.1095

Mercury -39074-06-13 08:09 J -12550192.23 -12550192.16 -12550192.08 0.1614 0.1354

Venus -39072-08-27 12:28 J -12549386.09 -12549385.98 -12549385.86 0.1642 0.1219

Earth -39071-02-22 06:14 J -12549207.43 -12549207.24 -12549207.05 0.1864 0.0424

Moon -39071-02-22 14:23 J -12549207.08 -12549206.90 -12549206.73 0.1865 0.0604 *

Venus -39069-05-30 08:23 J -12548379.23 -12548379.15 -12548379.06 0.1884 0.1624

Mercury -39067-01-14 06:57 J -12547785.34 -12547785.21 -12547785.08 0.1907 0.0052

Moon -39065-08-25 17:16 J -12546830.95 -12546830.78 -12546830.60 0.1661 0.0768

Earth -39065-08-25 23:59 J -12546830.68 -12546830.50 -12546830.33 0.1661 0.0656 *

Mercury -39065-11-02 15:35 J -12546761.97 -12546761.85 -12546761.73 0.1616 0.0788

Mercury -39058-06-06 11:30 J -12544355.13 -12544355.02 -12544354.91 0.1905 0.0888

Mercury -39055-03-25 22:47 J -12543331.69 -12543331.55 -12543331.41 0.1618 0.0206

Mercury -39049-10-26 16:33 J -12540924.85 -12540924.81 -12540924.76 0.1902 0.1775

Mercury -39046-08-16 05:45 J -12539901.40 -12539901.26 -12539901.12 0.1620 0.0389

Venus -39040-08-26 06:57 J -12537699.38 -12537699.21 -12537699.04 0.1648 0.0240

Mercury -39037-02-23 03:06 J -12536788.48 -12536788.37 -12536788.27 0.1910 0.1124

Venus -39037-05-30 07:26 J -12536691.33 -12536691.19 -12536691.05 0.1874 0.1185

Mercury -39036-01-05 12:28 J -12536471.09 -12536470.98 -12536470.87 0.1622 0.1005

Mercury -39035-12-12 08:38 J -12535765.20 -12535765.14 -12535765.08 0.1614 0.1438

Mercury -39028-07-15 07:11 J -12533358.33 -12533358.20 -12533358.07 0.1907 0.0149

Mercury -39025-05-03 15:50 J -12532334.96 -12532334.84 -12532334.72 0.1616 0.0871

Mercury -39019-12-05 11:45 J -12529928.13 -12529928.01 -12529927.89 0.1905 0.0791

Mercury -39016-09-23 23:02 J -12528904.68 -12528904.54 -12528904.40 0.1618 0.0290

Mercury -39009-04-26 16:47 J -12526497.86 -12526497.80 -12526497.75 0.1901 0.1689

Mercury -39006-02-14 05:59 J -12525474.39 -12525474.25 -12525474.11 0.1620 0.0306

Venus -39006-06-25 00:28 J -12525343.57 -12525343.48 -12525343.38 0.1640 0.1381

39TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 39th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -38998-08-24 02:52 J | -12522361.48 | -12522361.38 | -12522361.27 | 0.1910 | 0.1208 | | |
| Mercury | -38997-07-06 12:42 J | -12522044.08 | -12522043.97 | -12522043.85 | 0.1622 | 0.0917 | | |
| Mercury | -38995-06-12 08:38 J | -12521338.18 | -12521338.14 | -12521338.09 | 0.1615 | 0.1517 | | |
| Mercury | -38988-01-13 07:11 J | -12518931.33 | -12518931.20 | -12518931.07 | 0.1908 | 0.0248 | | |
| Mercury | -38988-11-26 19:11 J | -12518613.74 | -12518613.70 | -12518613.66 | 0.1624 | 0.1547 | | |
| Mercury | -38986-11-02 16:18 J | -12517907.94 | -12517907.82 | -12517907.71 | 0.1616 | 0.0956 | | |
| Mercury | -38979-06-05 11:59 J | -12515501.12 | -12515501.00 | -12515500.88 | 0.1904 | 0.0690 | | |
| Mercury | -38976-03-24 23:16 J | -12514477.66 | -12514477.53 | -12514477.39 | 0.1618 | 0.0377 | | |
| Venus | -38974-06-23 18:42 J | -12513656.89 | -12513656.72 | -12513656.54 | 0.1646 | 0.0073 | | |
| Venus | -38971-03-27 10:04 J | -12512649.24 | -12512649.08 | -12512648.91 | 0.1877 | 0.0669 | | |
| Mercury | -38970-10-26 16:47 J | -12512070.87 | -12512070.80 | -12512070.73 | 0.1901 | 0.1599 | | |
| Mercury | -38967-08-15 06:14 J | -12511047.38 | -12511047.24 | -12511047.09 | 0.1620 | 0.0227 | | |
| Mercury | -38958-02-22 03:06 J | -12507934.46 | -12507934.37 | -12507934.27 | 0.1910 | 0.1307 | | |
| Mercury | -38957-01-05 12:57 J | -12507617.08 | -12507616.96 | -12507616.83 | 0.1622 | 0.0833 | | |
| Mercury | -38956-12-11 09:06 J | -12506911.14 | -12506911.12 | -12506911.11 | 0.1615 | 0.1596 | | |
| Mercury | -38949-07-14 07:26 J | -12504504.32 | -12504504.19 | -12504504.06 | 0.1907 | 0.0336 | | |
| Mercury | -38948-05-27 19:26 J | -12504186.75 | -12504186.69 | -12504186.63 | 0.1625 | 0.1462 | | |
| Mercury | -38946-05-03 16:18 J | -12503480.92 | -12503480.82 | -12503480.71 | 0.1616 | 0.1035 | | |

Venus -38942-06-22 12:57 J -12501970.02 -12501969.96 -12501969.89 0.1653 0.1526

Venus -38940-04-21 12:42 J -12501301.02 -12501300.97 -12501300.91 0.1638 0.1543

Mercury -38940-12-04 11:45 J -12501074.13 -12501074.01 -12501073.88 0.1904 0.0614

Mercury -38937-09-22 23:45 J -12500050.65 -12500050.51 -12500050.38 0.1618 0.0460

Mercury -38930-04-26 17:02 J -12497643.87 -12497643.79 -12497643.71 0.1901 0.1497

Mercury -38927-02-13 06:42 J -12496620.36 -12496620.22 -12496620.08 0.1620 0.0131

Mercury -38919-08-23 03:35 J -12493507.44 -12493507.35 -12493507.27 0.1910 0.1413

Mercury -38918-07-06 13:26 J -12493190.07 -12493189.94 -12493189.82 0.1622 0.0747

Mercury -38909-01-13 07:26 J -12490077.31 -12490077.19 -12490077.06 0.1907 0.0430

Mercury -38909-11-25 19:54 J -12489759.75 -12489759.67 -12489759.60 0.1625 0.1373

Venus -38908-04-20 06:57 J -12489614.38 -12489614.21 -12489614.04 0.1645 0.0106

Mercury -38907-11-01 16:47 J -12489053.90 -12489053.80 -12489053.70 0.1616 0.1116

Venus -38905-01-22 13:26 J -12488607.12 -12488606.94 -12488606.76 0.1880 0.0171

Mercury -38900-06-04 12:14 J -12486647.12 -12486646.99 -12486646.87 0.1904 0.0510

Mercury -38897-03-23 23:59 J -12485623.64 -12485623.50 -12485623.37 0.1618 0.0542

Mercury -38891-10-25 17:02 J -12483216.88 -12483216.79 -12483216.71 0.1901 0.1421

Mercury -38888-08-14 06:57 J -12482193.35 -12482193.21 -12482193.07 0.1620 0.0054

Mercury -38879-02-21 03:21 J -12479080.44 -12479080.36 -12479080.28 0.1909 0.1492

Mercury -38878-01-04 13:40 J -12478763.06 -12478762.93 -12478762.80 0.1622 0.0657

Venus -38876-04-19 01:11 J -12477927.54 -12477927.45 -12477927.35 0.1651 0.1353

Mercury -38870-07-14 07:40 J -12475650.30 -12475650.18 -12475650.05 0.1907 0.0535

Mercury -38869-05-26 20:09 J -12475332.74 -12475332.66 -12475332.57 0.1625 0.1282

Mercury -38867-05-02 17:02 J -12474626.88 -12474626.79 -12474626.70 0.1616 0.1203

Mercury -38861-12-03 12:14 J -12472220.11 -12472219.99 -12472219.86 0.1904 0.0415

Earth -38860-08-24 13:26 J -12471956.12 -12471955.94 -12471955.77 0.1669 0.0688

Moon -38860-08-24 19:40 J -12471955.84 -12471955.68 -12471955.51 0.1669 0.0766 *

Mercury -38858-09-23 00:14 J -12471196.62 -12471196.49 -12471196.36 0.1618 0.0624

Mercury -38851-04-25 17:02 J -12468789.88 -12468789.79 -12468789.70 0.1901 0.1326

Mercury -38848-02-12 07:11 J -12467766.34 -12467766.20 -12467766.05 0.1620 0.0043

Venus -38842-02-15 18:57 J -12465571.88 -12465571.71 -12465571.54 0.1643 0.0278

Mercury -38840-08-22 03:35 J -12464653.42 -12464653.35 -12464653.27 0.1910 0.1598
 Venus -38840-11-18 15:50 J -12464565.01 -12464564.84 -12464564.67 0.1883 0.0359
 Mercury -38839-07-05 13:54 J -12464336.05 -12464335.92 -12464335.78 0.1622 0.0574
 Mercury -38830-01-12 07:54 J -12461223.30 -12461223.17 -12461223.05 0.1907 0.0620
 Mercury -38830-11-25 20:23 J -12460905.74 -12460905.65 -12460905.55 0.1625 0.1198
 Mercury -38828-10-31 17:16 J -12460199.87 -12460199.78 -12460199.70 0.1617 0.1279
 Mercury -38821-06-03 12:14 J -12457793.12 -12457792.99 -12457792.86 0.1904 0.0331
 Mercury -38818-03-24 00:28 J -12456769.61 -12456769.48 -12456769.35 0.1618 0.0708
 Mercury -38812-10-24 17:16 J -12454362.87 -12454362.78 -12454362.68 0.1901 0.1228
 Venus -38810-02-14 12:57 J -12453885.08 -12453884.96 -12453884.84 0.1649 0.1171
 Mercury -38809-08-13 07:40 J -12453339.33 -12453339.18 -12453339.04 0.1620 0.0126
 Mercury -38800-02-20 04:04 J -12450226.39 -12450226.33 -12450226.28 0.1909 0.1701
 Mercury -38799-01-03 14:23 J -12449909.04 -12449908.90 -12449908.77 0.1622 0.0486
 Mercury -38791-07-13 07:54 J -12446796.29 -12446796.17 -12446796.05 0.1907 0.0715
 Mercury -38790-05-26 20:52 J -12446478.74 -12446478.63 -12446478.53 0.1625 0.1109
 Mercury -38788-05-01 17:30 J -12445772.84 -12445772.77 -12445772.70 0.1616 0.1360
 Moon -38787-02-21 23:16 J -12445476.74 -12445476.53 -12445476.32 0.1856 0.0329
 Earth -38787-02-21 23:16 J -12445476.72 -12445476.53 -12445476.34 0.1856 0.0422 *
 Mercury -38782-12-03 12:28 J -12443366.11 -12443365.98 -12443365.85 0.1904 0.0233
 Earth -38781-08-26 21:06 J -12443098.79 -12443098.62 -12443098.45 0.1666 0.0795
 Moon -38781-08-26 20:38 J -12443098.78 -12443098.64 -12443098.49 0.1666 0.1007 *
 Mercury -38779-09-22 00:42 J -12442342.59 -12442342.47 -12442342.34 0.1618 0.0790
 Venus -38777-12-13 06:57 J -12441529.38 -12441529.21 -12441529.05 0.1641 0.0446
 Venus -38774-09-15 18:42 J -12440522.87 -12440522.72 -12440522.56 0.1886 0.0871
 Mercury -38772-04-24 17:16 J -12439935.88 -12439935.78 -12439935.68 0.1900 0.1145
 Mercury -38769-02-12 07:54 J -12438912.31 -12438912.17 -12438912.03 0.1620 0.0205
 Mercury -38761-08-21 03:50 J -12435799.38 -12435799.34 -12435799.29 0.1909 0.1782
 Mercury -38760-07-04 14:38 J -12435482.03 -12435481.89 -12435481.75 0.1622 0.0398
 Mercury -38751-01-11 08:09 J -12432369.28 -12432369.16 -12432369.04 0.1907 0.0812
 Mercury -38751-11-24 21:06 J -12432051.73 -12432051.62 -12432051.51 0.1625 0.1021

Mercury -38749-10-30 17:45 J -12431345.82 -12431345.76 -12431345.70 0.1617 0.1445
 Venus -38745-12-12 01:11 J -12429842.59 -12429842.45 -12429842.32 0.1647 0.1002
 Mercury -38742-06-03 12:42 J -12428939.10 -12428938.97 -12428938.84 0.1904 0.0133
 Mercury -38739-03-23 01:11 J -12427915.57 -12427915.45 -12427915.33 0.1618 0.0875
 Mercury -38733-10-23 17:30 J -12425508.88 -12425508.77 -12425508.67 0.1901 0.1055
 Mercury -38730-08-13 08:09 J -12424485.30 -12424485.16 -12424485.02 0.1620 0.0288
 Mercury -38721-02-20 04:04 J -12421372.34 -12421372.33 -12421372.31 0.1909 0.1883
 Mercury -38720-01-02 14:52 J -12421055.02 -12421054.88 -12421054.74 0.1623 0.0316
 Mercury -38712-07-12 08:23 J -12417942.27 -12417942.15 -12417942.04 0.1906 0.0906
 Mercury -38711-05-25 21:21 J -12417624.72 -12417624.61 -12417624.49 0.1625 0.0936
 Venus -38711-10-10 19:11 J -12417486.86 -12417486.70 -12417486.54 0.1639 0.0600
 Mercury -38709-04-30 17:59 J -12416918.79 -12416918.75 -12416918.70 0.1617 0.1522
 Venus -38708-07-12 21:06 J -12416480.73 -12416480.62 -12416480.50 0.1888 0.1400
 Mercury -38703-12-02 12:42 J -12414512.10 -12414511.97 -12414511.84 0.1904 0.0069
 Mercury -38702-10-16 03:50 J -12414194.37 -12414194.34 -12414194.30 0.1627 0.1565
 Mercury -38700-09-21 01:26 J -12413488.56 -12413488.44 -12413488.33 0.1619 0.0957
 Mercury -38693-04-23 17:45 J -12411081.87 -12411081.76 -12411081.65 0.1901 0.0953
 Mercury -38690-02-11 08:23 J -12410058.28 -12410058.15 -12410058.01 0.1620 0.0379
 Mercury -38684-09-13 22:47 J -12407651.58 -12407651.55 -12407651.52 0.1897 0.1840
 Mercury -38681-07-03 15:06 J -12406628.01 -12406627.87 -12406627.72 0.1623 0.0235
 Venus -38679-10-09 13:11 J -12405800.09 -12405799.95 -12405799.80 0.1645 0.0833
 Venus -38676-07-12 19:40 J -12404792.80 -12404792.68 -12404792.56 0.1879 0.1378
 Mercury -38672-01-10 08:23 J -12403515.26 -12403515.15 -12403515.04 0.1906 0.0996
 Mercury -38672-11-23 21:50 J -12403197.71 -12403197.59 -12403197.47 0.1625 0.0847
 Mercury -38670-10-30 18:14 J -12402491.75 -12402491.74 -12402491.72 0.1617 0.1603
 Mercury -38663-06-02 12:57 J -12400085.09 -12400084.96 -12400084.83 0.1904 0.0054
 Mercury -38662-04-16 04:04 J -12399767.39 -12399767.33 -12399767.27 0.1628 0.1482
 Mercury -38660-03-22 01:40 J -12399061.54 -12399061.43 -12399061.32 0.1618 0.1038
 Mercury -38654-10-23 17:30 J -12396654.88 -12396654.77 -12396654.65 0.1900 0.0877
 Mercury -38651-08-12 08:38 J -12395631.27 -12395631.14 -12395631.00 0.1621 0.0454

Venus -38645-08-07 06:57 J -12393444.36 -12393444.21 -12393444.05 0.1637 0.0770
 Mercury -38644-03-14 22:47 J -12393224.59 -12393224.55 -12393224.50 0.1897 0.1751
 Mercury -38641-01-02 15:35 J -12392200.99 -12392200.85 -12392200.71 0.1623 0.0140
 Mercury -38633-07-11 08:38 J -12389088.24 -12389088.14 -12389088.03 0.1907 0.1102
 Mercury -38632-05-24 22:04 J -12388770.70 -12388770.58 -12388770.45 0.1625 0.0759
 Mercury -38624-12-01 12:57 J -12385658.09 -12385657.96 -12385657.83 0.1903 0.0146
 Mercury -38623-10-15 04:33 J -12385340.39 -12385340.31 -12385340.24 0.1628 0.1395
 Mercury -38621-09-20 01:54 J -12384634.52 -12384634.42 -12384634.32 0.1619 0.1119
 Mercury -38614-04-23 17:45 J -12382227.87 -12382227.76 -12382227.64 0.1900 0.0778
 Venus -38613-08-06 01:11 J -12381757.61 -12381757.45 -12381757.29 0.1643 0.0659
 Mercury -38611-02-10 09:06 J -12381204.26 -12381204.12 -12381203.99 0.1621 0.0541
 Venus -38610-05-09 22:47 J -12380750.71 -12380750.55 -12380750.39 0.1882 0.0874
 Mercury -38605-09-12 23:02 J -12378797.60 -12378797.54 -12378797.48 0.1897 0.1661
 Mercury -38602-07-03 15:50 J -12377773.98 -12377773.84 -12377773.70 0.1623 0.0059
 Mercury -38593-01-10 08:38 J -12374661.24 -12374661.14 -12374661.04 0.1906 0.1185
 Mercury -38593-11-22 22:18 J -12374343.70 -12374343.57 -12374343.43 0.1625 0.0676
 Mercury -38584-06-01 13:11 J -12371231.08 -12371230.95 -12371230.83 0.1904 0.0240
 Mercury -38583-04-15 04:47 J -12370913.38 -12370913.30 -12370913.21 0.1628 0.1301
 Mercury -38581-03-21 02:09 J -12370207.50 -12370207.41 -12370207.31 0.1619 0.1203
 Venus -38579-06-04 19:26 J -12369401.83 -12369401.69 -12369401.55 0.1636 0.0924
 Earth -38576-08-25 09:35 J -12368224.28 -12368224.10 -12368223.92 0.1675 0.0587
 Moon -38576-08-25 10:04 J -12368224.26 -12368224.08 -12368223.89 0.1675 0.0761 *
 Mercury -38575-10-22 17:59 J -12367800.87 -12367800.75 -12367800.63 0.1900 0.0680
 Mercury -38572-08-11 09:21 J -12366777.24 -12366777.11 -12366776.98 0.1621 0.0626
 Mercury -38565-03-13 23:02 J -12364370.61 -12364370.54 -12364370.47 0.1896 0.1571
 Mercury -38562-01-01 16:04 J -12363346.97 -12363346.83 -12363346.68 0.1623 0.0045
 Mercury -38554-07-11 08:52 J -12360234.23 -12360234.13 -12360234.03 0.1906 0.1283
 Mercury -38553-05-23 22:47 J -12359916.69 -12359916.55 -12359916.42 0.1625 0.0587
 Venus -38547-06-03 13:11 J -12357715.11 -12357714.95 -12357714.78 0.1641 0.0495
 Mercury -38545-11-30 13:11 J -12356804.08 -12356803.95 -12356803.82 0.1903 0.0329

Venus -38544-03-06 01:26 J -12356708.62 -12356708.44 -12356708.27 0.1885 0.0354
 Mercury -38544-10-14 05:02 J -12356486.38 -12356486.29 -12356486.19 0.1628 0.1218
 Mercury -38542-09-20 02:23 J -12355780.48 -12355780.40 -12355780.31 0.1619 0.1284
 Mercury -38535-04-22 17:59 J -12353373.87 -12353373.75 -12353373.63 0.1900 0.0598
 Mercury -38532-02-09 09:35 J -12352350.23 -12352350.10 -12352349.97 0.1621 0.0706
 Mercury -38526-09-12 23:16 J -12349943.61 -12349943.53 -12349943.46 0.1897 0.1483
 Mercury -38523-07-02 16:33 J -12348919.95 -12348919.81 -12348919.67 0.1623 0.0116
 Mercury -38514-01-09 09:06 J -12345807.21 -12345807.12 -12345807.03 0.1906 0.1384
 Mercury -38514-11-22 23:02 J -12345489.67 -12345489.54 -12345489.40 0.1625 0.0500
 Venus -38513-04-01 07:26 J -12345359.31 -12345359.19 -12345359.06 0.1634 0.1084
 Mercury -38505-05-31 13:26 J -12342377.06 -12342376.94 -12342376.81 0.1903 0.0428
 Mercury -38504-04-14 05:30 J -12342059.37 -12342059.27 -12342059.17 0.1628 0.1127
 Moon -38503-02-21 11:59 J -12341746.14 -12341746.00 -12341745.85 0.1847 0.1080
 Earth -38503-02-21 18:14 J -12341745.89 -12341745.74 -12341745.59 0.1848 0.1182 *
 Mercury -38502-03-21 02:38 J -12341353.46 -12341353.39 -12341353.31 0.1619 0.1367
 Earth -38497-08-27 17:30 J -12339366.92 -12339366.77 -12339366.60 0.1672 0.0921
 Moon -38497-08-28 00:42 J -12339366.60 -12339366.47 -12339366.34 0.1672 0.1222 *
 Mercury -38496-10-21 17:59 J -12338946.87 -12338946.75 -12338946.62 0.1900 0.0510
 Mercury -38493-08-10 09:50 J -12337923.21 -12337923.09 -12337922.96 0.1621 0.0789
 Mercury -38486-03-13 23:16 J -12335516.61 -12335516.53 -12335516.44 0.1896 0.1392
 Mercury -38484-12-31 16:47 J -12334492.94 -12334492.80 -12334492.66 0.1623 0.0197
 Venus -38481-03-31 01:26 J -12333672.61 -12333672.44 -12333672.27 0.1640 0.0326
 Venus -38478-01-01 04:18 J -12332666.49 -12332666.32 -12332666.14 0.1888 0.0156
 Mercury -38475-07-10 09:06 J -12331380.20 -12331380.12 -12331380.04 0.1906 0.1476
 Mercury -38474-05-23 23:30 J -12331062.66 -12331062.52 -12331062.38 0.1625 0.0413
 Mercury -38466-11-30 13:26 J -12327950.06 -12327949.94 -12327949.81 0.1903 0.0510
 Mercury -38465-10-13 05:45 J -12327632.37 -12327632.26 -12327632.14 0.1628 0.1038
 Mercury -38463-09-19 03:06 J -12326926.43 -12326926.37 -12326926.31 0.1619 0.1447
 Mercury -38456-04-21 18:28 J -12324519.86 -12324519.73 -12324519.61 0.1900 0.0405
 Mercury -38453-02-09 10:18 J -12323496.19 -12323496.07 -12323495.95 0.1621 0.0876

Venus -38447-01-27 19:40 J -12321316.79 -12321316.68 -12321316.57 0.1633 0.1240

Mercury -38447-09-11 23:16 J -12321089.62 -12321089.53 -12321089.43 0.1896 0.1304

Mercury -38444-07-01 17:02 J -12320065.93 -12320065.79 -12320065.65 0.1623 0.0282

Mercury -38435-01-08 09:21 J -12316953.19 -12316953.11 -12316953.04 0.1906 0.1568

Mercury -38435-11-21 23:45 J -12316635.65 -12316635.51 -12316635.37 0.1625 0.0327

Mercury -38426-05-31 13:40 J -12313523.05 -12313522.93 -12313522.80 0.1903 0.0612

Mercury -38425-04-13 06:14 J -12313205.36 -12313205.24 -12313205.13 0.1628 0.0954

Moon -38424-02-24 11:30 J -12312888.19 -12312888.02 -12312887.84 0.1852 0.0970

Earth -38424-02-24 17:02 J -12312887.92 -12312887.79 -12312887.65 0.1852 0.1324 *

Mercury -38423-03-20 03:21 J -12312499.41 -12312499.36 -12312499.32 0.1619 0.1527

Mercury -38417-10-20 18:14 J -12310092.86 -12310092.74 -12310092.61 0.1900 0.0328

Mercury -38416-09-03 12:14 J -12309775.01 -12309774.99 -12309774.96 0.1631 0.1594

Venus -38415-01-26 13:26 J -12309630.11 -12309629.94 -12309629.76 0.1638 0.0166

Mercury -38414-08-10 10:18 J -12309069.18 -12309069.07 -12309068.95 0.1621 0.0956

Venus -38413-10-28 06:57 J -12308624.38 -12308624.21 -12308624.05 0.1890 0.0683

Mercury -38407-03-12 23:30 J -12306662.61 -12306662.52 -12306662.42 0.1896 0.1209

Mercury -38405-12-30 17:30 J -12305638.91 -12305638.77 -12305638.63 0.1623 0.0372

Mercury -38396-07-09 09:35 J -12302526.16 -12302526.10 -12302526.04 0.1906 0.1674

Mercury -38395-05-22 23:59 J -12302208.64 -12302208.50 -12302208.35 0.1625 0.0243

Mercury -38387-11-29 13:54 J -12299096.04 -12299095.92 -12299095.80 0.1903 0.0706

Mercury -38386-10-13 06:28 J -12298778.35 -12298778.23 -12298778.11 0.1628 0.0866

Mercury -38384-09-18 03:35 J -12298072.36 -12298072.35 -12298072.34 0.1619 0.1608

Venus -38383-01-25 07:11 J -12297943.24 -12297943.20 -12297943.15 0.1644 0.1577

Venus -38382-11-25 08:09 J -12297274.25 -12297274.16 -12297274.08 0.1631 0.1394

Mercury -38377-04-20 18:28 J -12295665.85 -12295665.73 -12295665.60 0.1900 0.0231

Mercury -38376-03-04 12:42 J -12295348.03 -12295347.97 -12295347.92 0.1631 0.1505

Mercury -38374-02-08 10:47 J -12294642.16 -12294642.05 -12294641.94 0.1621 0.1040

Mercury -38368-09-10 23:30 J -12292235.62 -12292235.52 -12292235.41 0.1896 0.1124

Mercury -38365-06-30 17:45 J -12291211.90 -12291211.76 -12291211.63 0.1623 0.0451

Mercury -38356-01-07 09:35 J -12288099.15 -12288099.10 -12288099.05 0.1905 0.1757

Mercury -38356-11-21 00:28 J -12287781.63 -12287781.48 -12287781.34 0.1626 0.0161
 Venus -38350-11-24 01:40 J -12285587.61 -12285587.43 -12285587.26 0.1636 0.0023
 Mercury -38347-05-30 13:54 J -12284669.04 -12284668.92 -12284668.80 0.1903 0.0798
 Venus -38347-08-25 09:35 J -12284582.23 -12284582.10 -12284581.96 0.1893 0.1193
 Mercury -38346-04-13 06:57 J -12284351.34 -12284351.21 -12284351.08 0.1628 0.0772
 Mercury -38338-10-20 18:42 J -12281238.85 -12281238.72 -12281238.59 0.1900 0.0131
 Mercury -38337-09-02 12:57 J -12280921.03 -12280920.96 -12280920.89 0.1631 0.1417
 Mercury -38335-08-09 11:02 J -12280215.14 -12280215.04 -12280214.94 0.1621 0.1123
 Mercury -38328-03-11 23:45 J -12277808.62 -12277808.51 -12277808.40 0.1896 0.1032
 Mercury -38326-12-30 17:59 J -12276784.89 -12276784.75 -12276784.62 0.1623 0.0535
 Venus -38318-11-22 19:40 J -12273900.77 -12273900.68 -12273900.60 0.1642 0.1414
 Mercury -38317-07-08 09:50 J -12273672.12 -12273672.09 -12273672.07 0.1906 0.1858
 Mercury -38316-05-22 00:42 J -12273354.61 -12273354.47 -12273354.33 0.1626 0.0068
 Venus -38316-09-21 20:23 J -12273231.70 -12273231.65 -12273231.60 0.1630 0.1547
 Venus -38315-08-25 08:23 J -12272894.24 -12272894.15 -12272894.06 0.1884 0.1576
 Mercury -38308-11-28 14:09 J -12270242.03 -12270241.91 -12270241.80 0.1903 0.0892
 Mercury -38307-10-12 07:11 J -12269924.33 -12269924.20 -12269924.07 0.1628 0.0690
 Mercury -38298-04-20 18:42 J -12266811.85 -12266811.72 -12266811.59 0.1899 0.0049
 Mercury -38297-03-03 13:26 J -12266494.02 -12266493.94 -12266493.86 0.1631 0.1324
 Mercury -38295-02-07 11:16 J -12265788.12 -12265788.03 -12265787.93 0.1621 0.1204
 Moon -38292-08-25 22:04 J -12264492.75 -12264492.58 -12264492.42 0.1681 0.0841
 Earth -38292-08-26 05:16 J -12264492.47 -12264492.28 -12264492.10 0.1681 0.0501 *
 Mercury -38289-09-09 23:59 J -12263381.61 -12263381.50 -12263381.39 0.1896 0.0939
 Mercury -38286-06-30 18:28 J -12262357.87 -12262357.73 -12262357.60 0.1623 0.0625
 Venus -38284-09-20 14:09 J -12261545.09 -12261544.91 -12261544.74 0.1635 0.0157
 Venus -38281-06-21 11:59 J -12260540.07 -12260540.00 -12260539.93 0.1895 0.1723
 Mercury -38279-01-31 05:16 J -12259951.32 -12259951.28 -12259951.25 0.1892 0.1803
 Mercury -38277-11-20 00:57 J -12258927.60 -12258927.46 -12258927.31 0.1626 0.0052
 Mercury -38268-05-29 14:23 J -12255815.01 -12255814.90 -12255814.79 0.1902 0.0991
 Mercury -38267-04-12 07:26 J -12255497.32 -12255497.19 -12255497.05 0.1628 0.0602

Mercury -38259-10-19 18:57 J -12252384.84 -12252384.71 -12252384.58 0.1899 0.0058
 Mercury -38258-09-02 13:40 J -12252067.02 -12252066.93 -12252066.84 0.1631 0.1240
 Mercury -38256-08-08 11:30 J -12251361.10 -12251361.02 -12251360.93 0.1621 0.1285
 Venus -38252-09-19 07:54 J -12249858.28 -12249858.17 -12249858.06 0.1640 0.1248
 Mercury -38249-03-10 23:59 J -12248954.61 -12248954.50 -12248954.39 0.1896 0.0850
 Venus -38249-06-21 11:02 J -12248852.19 -12248852.04 -12248851.90 0.1887 0.1059
 Mercury -38247-12-29 18:42 J -12247930.85 -12247930.72 -12247930.60 0.1623 0.0705
 Mercury -38240-08-01 05:16 J -12245524.33 -12245524.28 -12245524.23 0.1892 0.1722
 Mercury -38237-05-21 01:26 J -12244500.59 -12244500.44 -12244500.30 0.1626 0.0108
 Mercury -38229-11-27 14:23 J -12241388.01 -12241387.90 -12241387.79 0.1903 0.1078
 Mercury -38228-10-11 07:54 J -12241070.31 -12241070.17 -12241070.03 0.1628 0.0511
 Moon -38219-02-21 22:18 J -12238014.68 -12238014.57 -12238014.46 0.1839 0.1439
 Mercury -38219-04-19 19:11 J -12237957.83 -12237957.70 -12237957.57 0.1899 0.0152
 Mercury -38218-03-03 14:09 J -12237640.02 -12237639.91 -12237639.81 0.1631 0.1149
 Venus -38218-07-19 01:54 J -12237502.59 -12237502.42 -12237502.25 0.1633 0.0319
 Mercury -38216-02-06 11:59 J -12236934.07 -12236934.00 -12236933.93 0.1621 0.1371
 Moon -38213-08-28 10:04 J -12235635.22 -12235635.08 -12235634.94 0.1678 0.1200
 Earth -38213-08-28 14:09 J -12235635.06 -12235634.91 -12235634.76 0.1678 0.1042 *
 Mercury -38210-09-09 23:59 J -12234527.61 -12234527.50 -12234527.38 0.1896 0.0761
 Mercury -38207-06-29 18:57 J -12233503.84 -12233503.71 -12233503.59 0.1623 0.0788
 Mercury -38200-01-30 05:30 J -12231097.34 -12231097.27 -12231097.21 0.1892 0.1631
 Mercury -38198-11-20 01:40 J -12230073.57 -12230073.43 -12230073.29 0.1626 0.0189
 Mercury -38189-05-28 14:38 J -12226960.99 -12226960.89 -12226960.79 0.1902 0.1178
 Mercury -38188-04-11 08:09 J -12226643.30 -12226643.16 -12226643.02 0.1628 0.0427
 Venus -38186-07-17 19:54 J -12225815.80 -12225815.67 -12225815.54 0.1639 0.1082
 Venus -38183-04-18 13:54 J -12224810.09 -12224809.92 -12224809.75 0.1889 0.0554
 Mercury -38180-10-18 19:11 J -12223530.83 -12223530.70 -12223530.58 0.1899 0.0239
 Mercury -38179-09-01 14:23 J -12223213.01 -12223212.90 -12223212.79 0.1631 0.1058
 Mercury -38177-08-07 12:14 J -12222507.05 -12222506.99 -12222506.93 0.1621 0.1450
 Mercury -38170-03-11 00:14 J -12220100.61 -12220100.49 -12220100.37 0.1896 0.0664

Mercury -38168-12-28 19:11 J -12219076.81 -12219076.70 -12219076.58 0.1623 0.0878
 Mercury -38161-07-31 05:30 J -12216670.34 -12216670.27 -12216670.19 0.1892 0.1536
 Mercury -38158-05-21 01:54 J -12215646.56 -12215646.42 -12215646.27 0.1626 0.0279
 Venus -38152-05-15 14:38 J -12213460.06 -12213459.89 -12213459.73 0.1632 0.0467
 Mercury -38150-11-27 14:38 J -12212533.98 -12212533.89 -12212533.79 0.1902 0.1273
 Mercury -38149-10-10 08:23 J -12212216.29 -12212216.15 -12212216.00 0.1628 0.0343
 Moon -38140-02-24 11:30 J -12209157.19 -12209157.02 -12209156.84 0.1844 0.0275
 Earth -38140-02-24 13:11 J -12209157.13 -12209156.95 -12209156.76 0.1844 0.0587 *
 Mercury -38140-04-18 19:26 J -12209103.82 -12209103.69 -12209103.56 0.1899 0.0333
 Mercury -38139-03-02 14:52 J -12208786.00 -12208785.88 -12208785.77 0.1631 0.0972
 Mercury -38137-02-06 12:28 J -12208080.02 -12208079.98 -12208079.94 0.1621 0.1533
 Mercury -38131-09-09 00:14 J -12205673.61 -12205673.49 -12205673.36 0.1895 0.0580
 Mercury -38130-07-23 20:38 J -12205355.65 -12205355.64 -12205355.62 0.1634 0.1624
 Mercury -38128-06-28 19:26 J -12204649.80 -12204649.69 -12204649.57 0.1624 0.0955
 Mercury -38121-01-30 05:30 J -12202243.35 -12202243.27 -12202243.19 0.1892 0.1456
 Venus -38120-05-14 08:23 J -12201773.29 -12201773.15 -12201773.01 0.1637 0.0923
 Mercury -38119-11-19 02:23 J -12201219.54 -12201219.40 -12201219.26 0.1626 0.0362
 Venus -38117-02-13 16:33 J -12200767.99 -12200767.81 -12200767.63 0.1892 0.0037
 Mercury -38110-05-28 14:52 J -12198106.97 -12198106.88 -12198106.79 0.1903 0.1370
 Mercury -38109-04-10 08:52 J -12197789.27 -12197789.13 -12197788.98 0.1628 0.0249
 Mercury -38101-10-17 19:26 J -12194676.81 -12194676.69 -12194676.56 0.1899 0.0434
 Mercury -38100-08-31 15:06 J -12194358.99 -12194358.87 -12194358.75 0.1631 0.0883
 Mercury -38098-08-07 12:42 J -12193652.97 -12193652.97 -12193652.96 0.1621 0.1616
 Mercury -38091-03-10 00:28 J -12191246.60 -12191246.48 -12191246.36 0.1895 0.0486
 Mercury -38090-01-21 21:06 J -12190928.67 -12190928.62 -12190928.57 0.1634 0.1531
 Mercury -38089-12-27 19:54 J -12190222.78 -12190222.67 -12190222.56 0.1624 0.1039
 Venus -38086-03-13 02:38 J -12189417.55 -12189417.39 -12189417.22 0.1630 0.0625
 Mercury -38082-07-31 05:45 J -12187816.35 -12187816.26 -12187816.17 0.1892 0.1358
 Mercury -38079-05-20 02:38 J -12186792.53 -12186792.39 -12186792.25 0.1626 0.0447
 Mercury -38071-11-26 15:06 J -12183679.96 -12183679.87 -12183679.79 0.1902 0.1460

Mercury -38070-10-10 09:06 J -12183362.26 -12183362.12 -12183361.97 0.1629 0.0167

Mercury -38061-04-17 19:26 J -12180249.81 -12180249.69 -12180249.56 0.1899 0.0514

Mercury -38060-03-01 15:35 J -12179931.98 -12179931.85 -12179931.72 0.1631 0.0790

Venus -38054-03-11 20:23 J -12177730.80 -12177730.65 -12177730.50 0.1635 0.0761

Mercury -38052-09-08 00:42 J -12176819.60 -12176819.47 -12176819.35 0.1896 0.0388

Venus -38052-12-10 19:26 J -12176725.86 -12176725.69 -12176725.51 0.1894 0.0469

Mercury -38051-07-22 21:35 J -12176501.67 -12176501.60 -12176501.54 0.1634 0.1441

Mercury -38049-06-27 20:09 J -12175795.76 -12175795.66 -12175795.55 0.1624 0.1128

Mercury -38042-01-29 05:59 J -12173389.35 -12173389.25 -12173389.16 0.1891 0.1269

Mercury -38040-11-18 02:52 J -12172365.51 -12172365.38 -12172365.24 0.1626 0.0533

Mercury -38031-05-27 15:21 J -12169252.94 -12169252.86 -12169252.79 0.1902 0.1560

Mercury -38030-04-10 09:35 J -12168935.25 -12168935.10 -12168934.96 0.1629 0.0086

Mercury -38022-10-17 19:40 J -12165822.80 -12165822.68 -12165822.55 0.1899 0.0613

Mercury -38021-08-30 15:50 J -12165504.97 -12165504.84 -12165504.71 0.1631 0.0707

Venus -38020-01-07 15:06 J -12165375.02 -12165374.87 -12165374.72 0.1629 0.0773

Mercury -38012-03-09 00:42 J -12162392.60 -12162392.47 -12162392.34 0.1895 0.0302

Mercury -38011-01-20 21:50 J -12162074.67 -12162074.59 -12162074.51 0.1634 0.1350

Mercury -38010-12-27 20:23 J -12161368.74 -12161368.65 -12161368.55 0.1624 0.1207

Earth -38008-08-27 00:28 J -12160760.66 -12160760.48 -12160760.29 0.1687 0.0422

Moon -38008-08-27 03:21 J -12160760.53 -12160760.36 -12160760.19 0.1687 0.0606 *

Mercury -38003-07-30 05:59 J -12158962.35 -12158962.25 -12158962.15 0.1892 0.1185

38TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 38th millennium BCE.

| | | | | | | | | |
|--------|------|---|-------|-----|-----|--------|-------|---|
| PLANET | MAX- | C | START | MAX | END | SUNRAD | DEPTH | S |
|--------|------|---|-------|-----|-----|--------|-------|---|

TRANSIT

TIME

Mercury -38000-05-19 03:21 J -12157938.49 -12157938.36 -12157938.23 0.1626 0.0618

Mercury -37992-11-25 15:21 J -12154825.92 -12154825.86 -12154825.80 0.1902 0.1652

Mercury -37991-10-09 09:50 J -12154508.23 -12154508.09 -12154507.94 0.1629 0.0027

Venus -37988-01-06 08:52 J -12153688.29 -12153688.13 -12153687.97 0.1634 0.0606

Venus -37986-10-07 22:04 J -12152683.73 -12152683.58 -12152683.43 0.1896 0.0994

Mercury -37982-04-17 20:09 J -12151395.78 -12151395.66 -12151395.54 0.1899 0.0715

Mercury -37981-02-29 16:18 J -12151077.96 -12151077.82 -12151077.69 0.1631 0.0617

Mercury -37973-09-07 00:42 J -12147965.59 -12147965.47 -12147965.34 0.1895 0.0222

Mercury -37972-07-21 22:18 J -12147647.67 -12147647.57 -12147647.48 0.1634 0.1263

Mercury -37970-06-27 20:38 J -12146941.72 -12146941.64 -12146941.55 0.1624 0.1290

Mercury -37963-01-28 05:59 J -12144535.35 -12144535.25 -12144535.14 0.1891 0.1094

Mercury -37961-11-17 03:35 J -12143511.48 -12143511.35 -12143511.22 0.1626 0.0701

Venus -37955-11-05 03:35 J -12141332.49 -12141332.35 -12141332.20 0.1628 0.0921

Venus -37954-10-07 20:52 J -12140995.69 -12140995.63 -12140995.57 0.1889 0.1762

Mercury -37952-05-26 15:35 J -12140398.90 -12140398.85 -12140398.80 0.1902 0.1751

Mercury -37951-04-09 10:18 J -12140081.22 -12140081.07 -12140080.93 0.1629 0.0108

Mercury -37943-10-16 19:54 J -12136968.79 -12136968.67 -12136968.55 0.1899 0.0790

Mercury -37942-08-30 16:33 J -12136650.95 -12136650.81 -12136650.67 0.1631 0.0525

Mercury -37933-03-08 01:11 J -12133538.58 -12133538.45 -12133538.33 0.1895 0.0130

Mercury -37932-01-19 22:33 J -12133220.66 -12133220.56 -12133220.46 0.1634 0.1170

Mercury -37931-12-26 21:06 J -12132514.69 -12132514.62 -12132514.55 0.1624 0.1376

Moon -37929-08-29 04:33 J -12131903.42 -12131903.31 -12131903.20 0.1684 0.1326

Earth -37929-08-29 09:50 J -12131903.23 -12131903.09 -12131902.95 0.1684 0.1153 *

Mercury -37924-07-29 06:14 J -12130108.35 -12130108.24 -12130108.13 0.1891 0.0997

Venus -37923-11-03 21:06 J -12129645.79 -12129645.62 -12129645.45 0.1632 0.0449

Mercury -37921-05-18 03:50 J -12129084.46 -12129084.34 -12129084.21 0.1626 0.0789

Venus -37920-08-04 00:57 J -12128641.57 -12128641.46 -12128641.36 0.1898 0.1502

Mercury -37915-12-19 11:45 J -12126678.03 -12126678.01 -12126677.98 0.1887 0.1849

Mercury -37913-11-24 15:50 J -12125971.87 -12125971.84 -12125971.82 0.1902 0.1844
 Mercury -37912-10-08 10:33 J -12125654.20 -12125654.06 -12125653.92 0.1629 0.0182
 Mercury -37903-04-16 20:09 J -12122541.77 -12122541.66 -12122541.54 0.1899 0.0896
 Mercury -37902-02-28 16:47 J -12122223.94 -12122223.80 -12122223.66 0.1632 0.0443
 Mercury -37894-09-07 01:11 J -12119111.58 -12119111.45 -12119111.33 0.1895 0.0062
 Mercury -37893-07-20 23:02 J -12118793.65 -12118793.54 -12118793.43 0.1635 0.1083
 Mercury -37891-06-26 21:21 J -12118087.67 -12118087.61 -12118087.55 0.1624 0.1455
 Venus -37889-09-01 16:04 J -12117289.96 -12117289.83 -12117289.70 0.1627 0.1070
 Venus -37888-08-03 23:59 J -12116953.63 -12116953.50 -12116953.37 0.1891 0.1267
 Mercury -37884-01-27 06:14 J -12115681.35 -12115681.24 -12115681.13 0.1891 0.0915
 Mercury -37882-11-17 04:18 J -12114657.44 -12114657.32 -12114657.20 0.1626 0.0873
 Mercury -37875-06-19 11:59 J -12112251.04 -12112251.00 -12112250.95 0.1887 0.1752
 Mercury -37872-04-08 11:02 J -12111227.19 -12111227.04 -12111226.90 0.1629 0.0276
 Mercury -37864-10-15 20:23 J -12108114.76 -12108114.65 -12108114.54 0.1898 0.0992
 Mercury -37863-08-29 17:16 J -12107796.92 -12107796.78 -12107796.64 0.1632 0.0354
 Venus -37857-08-31 09:35 J -12105603.27 -12105603.10 -12105602.93 0.1631 0.0299
 Earth -37856-02-24 12:14 J -12105426.19 -12105425.99 -12105425.80 0.1836 0.0065
 Moon -37856-02-24 20:38 J -12105425.83 -12105425.64 -12105425.45 0.1836 0.0189 *
 Mercury -37854-03-08 01:11 J -12104684.58 -12104684.45 -12104684.32 0.1895 0.0075
 Mercury -37853-01-19 23:16 J -12104366.64 -12104366.53 -12104366.41 0.1635 0.0991
 Mercury -37852-12-25 21:35 J -12103660.64 -12103660.60 -12103660.55 0.1624 0.1539
 Mercury -37845-07-28 06:28 J -12101254.34 -12101254.23 -12101254.11 0.1891 0.0818
 Mercury -37842-05-18 04:33 J -12100230.42 -12100230.31 -12100230.19 0.1626 0.0955
 Mercury -37836-12-18 11:59 J -12097824.06 -12097824.00 -12097823.95 0.1887 0.1678
 Mercury -37833-10-07 11:16 J -12096800.17 -12096800.03 -12096799.89 0.1629 0.0356
 Mercury -37824-04-15 20:23 J -12093687.75 -12093687.65 -12093687.54 0.1898 0.1076
 Mercury -37823-02-27 17:45 J -12093369.91 -12093369.76 -12093369.62 0.1632 0.0259
 Venus -37823-06-30 04:18 J -12093247.43 -12093247.32 -12093247.21 0.1625 0.1218
 Venus -37822-06-01 02:23 J -12092911.57 -12092911.40 -12092911.24 0.1893 0.0743
 Mercury -37815-09-06 01:26 J -12090257.56 -12090257.44 -12090257.31 0.1895 0.0176

Mercury -37814-07-20 23:45 J -12089939.63 -12089939.51 -12089939.39 0.1635 0.0901
 Mercury -37805-01-27 06:42 J -12086827.34 -12086827.22 -12086827.11 0.1891 0.0731
 Mercury -37805-12-10 05:30 J -12086509.31 -12086509.27 -12086509.23 0.1638 0.1560
 Mercury -37803-11-16 04:47 J -12085803.41 -12085803.30 -12085803.19 0.1626 0.1040
 Mercury -37796-06-18 12:14 J -12083397.06 -12083396.99 -12083396.92 0.1887 0.1581
 Mercury -37793-04-07 11:30 J -12082373.16 -12082373.02 -12082372.88 0.1629 0.0441
 Venus -37791-06-28 21:35 J -12081560.77 -12081560.60 -12081560.43 0.1630 0.0140
 Mercury -37785-10-14 20:38 J -12079260.74 -12079260.64 -12079260.53 0.1898 0.1177
 Mercury -37784-08-28 17:59 J -12078942.90 -12078942.75 -12078942.61 0.1632 0.0178
 Mercury -37775-03-07 01:26 J -12075830.57 -12075830.44 -12075830.31 0.1894 0.0251
 Mercury -37774-01-18 23:59 J -12075512.62 -12075512.50 -12075512.37 0.1635 0.0813
 Mercury -37766-07-28 06:42 J -12072400.34 -12072400.22 -12072400.10 0.1891 0.0639
 Mercury -37765-06-10 05:59 J -12072082.31 -12072082.25 -12072082.19 0.1638 0.1465
 Mercury -37763-05-17 05:16 J -12071376.38 -12071376.28 -12071376.18 0.1627 0.1126
 Venus -37759-06-27 15:21 J -12069873.92 -12069873.86 -12069873.80 0.1634 0.1514
 Venus -37757-04-26 16:47 J -12069204.89 -12069204.80 -12069204.71 0.1625 0.1366
 Mercury -37757-12-17 12:28 J -12068970.06 -12068969.98 -12068969.91 0.1887 0.1488
 Venus -37756-03-28 05:16 J -12068869.45 -12068869.28 -12068869.10 0.1895 0.0247
 Mercury -37754-10-07 11:59 J -12067946.14 -12067946.00 -12067945.87 0.1629 0.0530
 Mercury -37745-04-14 20:52 J -12064833.72 -12064833.63 -12064833.53 0.1898 0.1277
 Mercury -37744-02-26 18:14 J -12064515.88 -12064515.74 -12064515.59 0.1632 0.0095
 Mercury -37736-09-05 01:40 J -12061403.56 -12061403.43 -12061403.30 0.1895 0.0343
 Mercury -37735-07-20 00:28 J -12061085.61 -12061085.48 -12061085.35 0.1635 0.0725
 Mercury -37726-01-26 06:57 J -12057973.34 -12057973.21 -12057973.09 0.1891 0.0548
 Mercury -37726-12-10 06:14 J -12057655.32 -12057655.24 -12057655.16 0.1638 0.1380
 Venus -37725-04-25 10:18 J -12057518.24 -12057518.07 -12057517.90 0.1628 0.0011
 Earth -37724-08-27 18:57 J -12057028.90 -12057028.71 -12057028.52 0.1693 0.0366
 Moon -37724-08-27 23:45 J -12057028.71 -12057028.51 -12057028.32 0.1693 0.0528 *
 Mercury -37724-11-15 05:30 J -12056949.36 -12056949.27 -12056949.18 0.1627 0.1207
 Mercury -37717-06-17 12:14 J -12054543.07 -12054542.99 -12054542.90 0.1886 0.1410

Mercury -37714-04-07 12:14 J -12053519.12 -12053518.99 -12053518.86 0.1629 0.0612

Mercury -37706-10-14 20:52 J -12050406.72 -12050406.63 -12050406.54 0.1898 0.1355

Mercury -37705-08-27 18:42 J -12050088.86 -12050088.72 -12050088.57 0.1632 0.0005

Mercury -37696-03-06 01:54 J -12046976.54 -12046976.42 -12046976.29 0.1895 0.0444

Mercury -37695-01-18 00:42 J -12046658.60 -12046658.47 -12046658.33 0.1635 0.0635

Venus -37693-04-24 03:50 J -12045831.43 -12045831.34 -12045831.24 0.1633 0.1358

Venus -37691-02-22 05:16 J -12045162.34 -12045162.28 -12045162.22 0.1623 0.1508

Venus -37690-01-23 07:54 J -12044827.35 -12044827.17 -12044827.00 0.1897 0.0277

Mercury -37687-07-27 06:57 J -12043546.33 -12043546.21 -12043546.08 0.1890 0.0456

Mercury -37686-06-10 06:42 J -12043228.31 -12043228.22 -12043228.13 0.1638 0.1287

Mercury -37684-05-16 05:45 J -12042522.34 -12042522.26 -12042522.17 0.1627 0.1293

Mercury -37678-12-17 12:28 J -12040116.07 -12040115.98 -12040115.89 0.1886 0.1318

Mercury -37675-10-06 12:28 J -12039092.11 -12039091.98 -12039091.85 0.1629 0.0697

Mercury -37666-04-14 21:06 J -12035979.70 -12035979.62 -12035979.53 0.1898 0.1462

Mercury -37665-02-26 18:57 J -12035661.85 -12035661.71 -12035661.56 0.1632 0.0085

Venus -37659-02-20 22:33 J -12033475.74 -12033475.56 -12033475.39 0.1627 0.0165

Mercury -37657-09-04 01:54 J -12032549.54 -12032549.42 -12032549.30 0.1894 0.0527

Mercury -37656-07-19 01:11 J -12032231.59 -12032231.45 -12032231.31 0.1635 0.0545

Mercury -37647-01-25 07:11 J -12029119.33 -12029119.20 -12029119.08 0.1891 0.0372

Mercury -37647-12-09 07:11 J -12028801.30 -12028801.20 -12028801.10 0.1638 0.1194

Earth -37645-08-30 05:16 J -12028171.40 -12028171.28 -12028171.15 0.1690 0.1259

Moon -37645-08-30 11:16 J -12028171.10 -12028171.03 -12028170.96 0.1690 0.1558

Mercury -37645-11-14 06:14 J -12028095.32 -12028095.24 -12028095.17 0.1627 0.1377

Mercury -37638-06-17 12:42 J -12025689.06 -12025688.97 -12025688.87 0.1886 0.1219

Mercury -37635-04-06 12:57 J -12024665.09 -12024664.96 -12024664.84 0.1629 0.0785

Venus -37627-02-19 16:04 J -12021788.95 -12021788.83 -12021788.72 0.1632 0.1200

Mercury -37627-10-13 21:21 J -12021552.68 -12021552.61 -12021552.54 0.1898 0.1557

Mercury -37626-08-27 19:26 J -12021234.84 -12021234.69 -12021234.55 0.1632 0.0179

Venus -37625-11-19 11:02 J -12020785.20 -12020785.04 -12020784.88 0.1899 0.0776

Mercury -37617-03-05 02:09 J -12018122.53 -12018122.41 -12018122.29 0.1894 0.0622

Mercury -37616-01-17 01:26 J -12017804.58 -12017804.44 -12017804.30 0.1635 0.0458
 Mercury -37608-07-26 07:11 J -12014692.32 -12014692.20 -12014692.07 0.1890 0.0278
 Mercury -37607-06-09 07:26 J -12014374.30 -12014374.19 -12014374.09 0.1638 0.1110
 Mercury -37605-05-15 06:28 J -12013668.29 -12013668.23 -12013668.17 0.1627 0.1457
 Mercury -37599-12-16 12:42 J -12011262.07 -12011261.97 -12011261.87 0.1886 0.1148
 Mercury -37596-10-05 13:11 J -12010238.07 -12010237.95 -12010237.83 0.1629 0.0867
 Venus -37594-12-19 11:02 J -12009433.21 -12009433.04 -12009432.87 0.1626 0.0307
 Mercury -37587-04-13 21:21 J -12007125.67 -12007125.61 -12007125.54 0.1898 0.1643
 Mercury -37586-02-25 19:54 J -12006807.82 -12006807.67 -12006807.53 0.1632 0.0270
 Mercury -37578-09-04 02:23 J -12003695.52 -12003695.40 -12003695.28 0.1894 0.0723
 Mercury -37577-07-18 01:54 J -12003377.56 -12003377.42 -12003377.28 0.1635 0.0370
 Moon -37572-02-24 07:26 J -12001695.37 -12001695.19 -12001695.01 0.1827 0.0886
 Earth -37572-02-24 12:42 J -12001695.15 -12001694.97 -12001694.79 0.1827 0.0610 *
 Mercury -37568-01-24 07:26 J -12000265.32 -12000265.19 -12000265.07 0.1890 0.0188
 Mercury -37568-12-08 07:40 J -11999947.29 -11999947.18 -11999947.06 0.1638 0.1019
 Mercury -37566-11-14 06:42 J -11999241.26 -11999241.22 -11999241.18 0.1627 0.1540
 Venus -37562-12-18 04:33 J -11997746.45 -11997746.31 -11997746.18 0.1630 0.1048
 Mercury -37559-06-16 12:57 J -11996835.07 -11996834.96 -11996834.86 0.1886 0.1048
 Venus -37559-09-16 13:11 J -11996743.07 -11996742.95 -11996742.82 0.1901 0.1300
 Mercury -37556-04-05 13:26 J -11995811.05 -11995810.94 -11995810.82 0.1629 0.0955
 Mercury -37550-11-06 18:42 J -11993404.72 -11993404.72 -11993404.72 0.1882 0.1879
 Mercury -37548-10-12 21:35 J -11992698.65 -11992698.60 -11992698.55 0.1898 0.1742
 Mercury -37547-08-26 19:54 J -11992380.81 -11992380.67 -11992380.53 0.1632 0.0345
 Mercury -37538-03-05 02:23 J -11989268.52 -11989268.40 -11989268.29 0.1894 0.0804
 Mercury -37537-01-17 02:09 J -11988950.55 -11988950.41 -11988950.26 0.1635 0.0284
 Mercury -37529-07-25 07:26 J -11985838.31 -11985838.19 -11985838.06 0.1891 0.0112
 Mercury -37528-06-08 08:09 J -11985520.28 -11985520.16 -11985520.04 0.1638 0.0924
 Venus -37528-10-15 23:30 J -11985390.68 -11985390.52 -11985390.35 0.1625 0.0450
 Venus -37527-09-16 12:14 J -11985055.10 -11985054.99 -11985054.88 0.1895 0.1446
 Mercury -37526-05-15 07:11 J -11984814.20 -11984814.20 -11984814.20 0.1627 0.1627

Mercury -37520-12-15 12:57 J -11982408.06 -11982407.96 -11982407.85 0.1886 0.0956

Mercury -37519-10-29 13:40 J -11982089.96 -11982089.93 -11982089.89 0.1641 0.1594

Mercury -37517-10-04 13:54 J -11981384.03 -11981383.92 -11981383.81 0.1629 0.1038

Mercury -37510-05-07 18:42 J -11978977.75 -11978977.72 -11978977.68 0.1882 0.1792

Mercury -37508-04-12 21:50 J -11978271.62 -11978271.59 -11978271.56 0.1897 0.1841

Mercury -37507-02-24 20:23 J -11977953.79 -11977953.65 -11977953.51 0.1632 0.0432

Mercury -37499-09-03 02:38 J -11974841.51 -11974841.39 -11974841.28 0.1894 0.0901

Mercury -37498-07-18 02:38 J -11974523.54 -11974523.39 -11974523.25 0.1635 0.0197

Venus -37496-10-14 16:47 J -11973703.94 -11973703.80 -11973703.65 0.1629 0.0897

Earth -37493-02-28 09:35 J -11972837.15 -11972837.10 -11972837.04 0.1832 0.1752

Venus -37493-07-13 16:04 J -11972700.88 -11972700.83 -11972700.78 0.1903 0.1804

Mercury -37489-01-24 07:40 J -11971411.31 -11971411.18 -11971411.05 0.1890 0.0010

Mercury -37489-12-07 08:23 J -11971093.27 -11971093.15 -11971093.02 0.1638 0.0841

Mercury -37480-06-15 12:57 J -11967981.07 -11967980.96 -11967980.85 0.1886 0.0877

Mercury -37479-04-29 14:09 J -11967662.96 -11967662.91 -11967662.85 0.1642 0.1498

Mercury -37477-04-04 14:09 J -11966957.01 -11966956.91 -11966956.81 0.1630 0.1121

Mercury -37471-11-05 18:57 J -11964550.76 -11964550.71 -11964550.66 0.1882 0.1701

Mercury -37468-08-25 20:38 J -11963526.77 -11963526.64 -11963526.50 0.1632 0.0524

Venus -37462-08-13 11:45 J -11961348.17 -11961348.01 -11961347.84 0.1624 0.0600

Venus -37461-07-13 15:21 J -11961013.01 -11961012.86 -11961012.71 0.1896 0.0950

Mercury -37459-03-04 02:52 J -11960414.49 -11960414.38 -11960414.27 0.1894 0.1001

Mercury -37458-01-16 02:52 J -11960096.52 -11960096.38 -11960096.23 0.1635 0.0110

Mercury -37450-07-25 07:40 J -11956984.30 -11956984.18 -11956984.05 0.1890 0.0115

Mercury -37449-06-07 08:52 J -11956666.26 -11956666.13 -11956666.00 0.1638 0.0748

Mercury -37441-12-14 13:11 J -11953554.07 -11953553.95 -11953553.84 0.1886 0.0784

Moon -37440-08-28 05:16 J -11953297.46 -11953297.28 -11953297.09 0.1700 0.0670

Earth -37440-08-28 12:14 J -11953297.18 -11953296.99 -11953296.80 0.1700 0.0339 *

Mercury -37440-10-28 14:38 J -11953235.97 -11953235.89 -11953235.82 0.1642 0.1414

Mercury -37438-10-04 14:23 J -11952529.99 -11952529.90 -11952529.80 0.1630 0.1204

Mercury -37431-05-06 18:57 J -11950123.77 -11950123.71 -11950123.64 0.1881 0.1616

Venus -37430-08-12 05:16 J -11949661.44 -11949661.28 -11949661.13 0.1628 0.0747

Mercury -37428-02-23 21:06 J -11949099.76 -11949099.62 -11949099.49 0.1632 0.0605

Mercury -37420-09-02 02:52 J -11945987.49 -11945987.38 -11945987.28 0.1894 0.1083

Mercury -37419-07-17 03:21 J -11945669.51 -11945669.36 -11945669.22 0.1635 0.0026

Mercury -37410-01-23 07:54 J -11942557.30 -11942557.17 -11942557.04 0.1890 0.0180

Mercury -37410-12-07 09:21 J -11942239.25 -11942239.11 -11942238.98 0.1638 0.0657

Mercury -37401-06-14 13:26 J -11939127.06 -11939126.94 -11939126.82 0.1886 0.0685

Mercury -37400-04-28 14:52 J -11938808.96 -11938808.88 -11938808.79 0.1642 0.1321

Mercury -37398-04-04 14:52 J -11938102.97 -11938102.88 -11938102.80 0.1630 0.1290

Venus -37396-06-10 00:14 J -11937305.64 -11937305.49 -11937305.33 0.1623 0.0742

Venus -37395-05-10 17:16 J -11936970.95 -11936970.78 -11936970.60 0.1898 0.0424

Mercury -37392-11-04 18:57 J -11935696.78 -11935696.71 -11935696.63 0.1881 0.1533

Mercury -37389-08-24 21:21 J -11934672.74 -11934672.61 -11934672.48 0.1632 0.0689

Mercury -37380-03-03 02:52 J -11931560.48 -11931560.38 -11931560.28 0.1894 0.1176

Mercury -37379-01-15 03:35 J -11931242.49 -11931242.35 -11931242.20 0.1635 0.0070

Mercury -37371-07-24 08:09 J -11928130.29 -11928130.16 -11928130.04 0.1890 0.0278

Mercury -37370-06-07 09:35 J -11927812.24 -11927812.10 -11927811.96 0.1639 0.0573

Venus -37364-06-08 17:30 J -11925618.94 -11925618.77 -11925618.61 0.1626 0.0594

Mercury -37362-12-14 13:11 J -11924700.07 -11924699.95 -11924699.83 0.1886 0.0614

Earth -37361-08-30 23:45 J -11924439.62 -11924439.51 -11924439.39 0.1696 0.1340

Moon -37361-08-31 00:42 J -11924439.55 -11924439.47 -11924439.38 0.1696 0.1528 *

Mercury -37361-10-27 15:21 J -11924381.95 -11924381.86 -11924381.76 0.1642 0.1225

Mercury -37359-10-03 15:06 J -11923675.95 -11923675.87 -11923675.80 0.1630 0.1372

Mercury -37352-05-05 19:26 J -11921269.77 -11921269.69 -11921269.61 0.1882 0.1438

Mercury -37349-02-23 21:50 J -11920245.72 -11920245.59 -11920245.47 0.1632 0.0780

Mercury -37341-09-01 03:06 J -11917133.46 -11917133.37 -11917133.27 0.1894 0.1279

Mercury -37340-07-16 03:50 J -11916815.48 -11916815.34 -11916815.19 0.1635 0.0163

Mercury -37331-01-22 08:09 J -11913703.29 -11913703.16 -11913703.04 0.1890 0.0361

Mercury -37331-12-06 10:04 J -11913385.22 -11913385.08 -11913384.94 0.1638 0.0483

Venus -37330-04-07 12:42 J -11913263.12 -11913262.97 -11913262.83 0.1622 0.0890

Venus -37329-03-06 20:23 J -11912928.82 -11912928.65 -11912928.47 0.1900 0.0083

Mercury -37322-06-14 13:40 J -11910273.06 -11910272.93 -11910272.81 0.1886 0.0516

Mercury -37321-04-27 15:35 J -11909954.95 -11909954.85 -11909954.74 0.1642 0.1141

Mercury -37319-04-03 15:21 J -11909248.92 -11909248.86 -11909248.80 0.1630 0.1456

Mercury -37313-11-03 19:11 J -11906842.78 -11906842.70 -11906842.61 0.1881 0.1359

Mercury -37310-08-24 21:50 J -11905818.71 -11905818.59 -11905818.46 0.1633 0.0859

Mercury -37301-03-02 03:06 J -11902706.46 -11902706.37 -11902706.28 0.1893 0.1356

Mercury -37300-01-14 04:18 J -11902388.46 -11902388.32 -11902388.17 0.1636 0.0246

Venus -37298-04-06 05:59 J -11901576.42 -11901576.25 -11901576.08 0.1626 0.0448

Mercury -37292-07-23 08:23 J -11899276.28 -11899276.15 -11899276.03 0.1890 0.0457

Mercury -37291-06-06 10:18 J -11898958.21 -11898958.07 -11898957.92 0.1638 0.0392

Moon -37288-02-24 11:02 J -11897964.16 -11897964.04 -11897963.92 0.1819 0.1325

Earth -37288-02-24 14:38 J -11897964.04 -11897963.89 -11897963.74 0.1819 0.1107 *

Mercury -37283-12-13 13:40 J -11895846.05 -11895845.93 -11895845.81 0.1885 0.0422

Mercury -37282-10-27 16:04 J -11895527.94 -11895527.83 -11895527.72 0.1642 0.1051

Mercury -37280-10-02 15:50 J -11894821.89 -11894821.84 -11894821.80 0.1630 0.1539

Mercury -37273-05-04 19:26 J -11892415.78 -11892415.69 -11892415.60 0.1881 0.1270

Mercury -37270-02-22 22:18 J -11891391.69 -11891391.57 -11891391.45 0.1632 0.0944

Venus -37264-02-02 00:57 J -11889220.59 -11889220.46 -11889220.33 0.1621 0.1032

Venus -37263-01-01 22:33 J -11888886.72 -11888886.56 -11888886.39 0.1902 0.0601

Mercury -37262-09-01 03:21 J -11888279.44 -11888279.36 -11888279.28 0.1893 0.1455

Mercury -37261-07-15 04:33 J -11887961.45 -11887961.31 -11887961.16 0.1636 0.0332

Mercury -37252-01-21 08:23 J -11884849.27 -11884849.15 -11884849.03 0.1889 0.0542

Mercury -37252-12-05 10:33 J -11884531.20 -11884531.06 -11884530.91 0.1639 0.0310

Mercury -37243-06-13 13:40 J -11881419.06 -11881418.93 -11881418.81 0.1885 0.0344

Mercury -37242-04-27 16:33 J -11881100.93 -11881100.81 -11881100.69 0.1642 0.0955

Mercury -37240-04-02 16:04 J -11880394.84 -11880394.83 -11880394.82 0.1630 0.1621

Mercury -37234-11-03 19:40 J -11877988.78 -11877988.68 -11877988.59 0.1881 0.1179

Mercury -37233-09-16 21:50 J -11877670.60 -11877670.59 -11877670.58 0.1645 0.1635

Venus -37232-01-31 18:14 J -11877533.92 -11877533.74 -11877533.57 0.1624 0.0299

Mercury -37231-08-23 22:47 J -11876964.66 -11876964.55 -11876964.44 0.1633 0.1033
 Mercury -37222-03-02 03:35 J -11873852.42 -11873852.35 -11873852.28 0.1893 0.1555
 Mercury -37221-01-14 05:02 J -11873534.43 -11873534.29 -11873534.15 0.1635 0.0417
 Mercury -37213-07-22 08:23 J -11870422.27 -11870422.15 -11870422.02 0.1889 0.0637
 Mercury -37212-06-05 11:02 J -11870104.18 -11870104.04 -11870103.89 0.1639 0.0218
 Moon -37209-02-28 02:23 J -11869106.56 -11869106.40 -11869106.24 0.1824 0.1084
 Earth -37209-02-28 10:18 J -11869106.22 -11869106.07 -11869105.93 0.1824 0.1176
 Mercury -37204-12-12 13:54 J -11866992.05 -11866991.92 -11866991.80 0.1885 0.0252
 Mercury -37203-10-26 16:47 J -11866673.93 -11866673.80 -11866673.68 0.1642 0.0872
 Venus -37199-11-30 13:11 J -11865178.07 -11865177.95 -11865177.83 0.1620 0.1179
 Venus -37198-10-30 01:54 J -11864844.56 -11864844.42 -11864844.28 0.1903 0.1096
 Mercury -37194-05-04 19:40 J -11863561.79 -11863561.68 -11863561.58 0.1881 0.1096
 Mercury -37193-03-17 22:18 J -11863243.62 -11863243.57 -11863243.52 0.1646 0.1543
 Mercury -37191-02-21 23:02 J -11862537.65 -11862537.54 -11862537.44 0.1633 0.1114
 Mercury -37183-08-31 03:35 J -11859425.42 -11859425.35 -11859425.29 0.1893 0.1633
 Mercury -37182-07-15 05:16 J -11859107.41 -11859107.28 -11859107.14 0.1636 0.0505
 Mercury -37173-01-21 08:38 J -11855995.26 -11855995.14 -11855995.02 0.1890 0.0725
 Mercury -37173-12-04 11:30 J -11855677.17 -11855677.02 -11855676.88 0.1639 0.0139
 Venus -37167-11-29 06:42 J -11853491.40 -11853491.22 -11853491.05 0.1624 0.0154
 Venus -37166-10-30 00:57 J -11853156.55 -11853156.46 -11853156.38 0.1898 0.1632
 Mercury -37164-06-12 14:09 J -11852565.04 -11852564.91 -11852564.79 0.1885 0.0162
 Mercury -37163-04-26 17:16 J -11852246.91 -11852246.78 -11852246.65 0.1642 0.0782
 Moon -37156-08-29 03:06 J -11849565.54 -11849565.37 -11849565.20 0.1707 0.0553
 Earth -37156-08-29 04:04 J -11849565.52 -11849565.33 -11849565.14 0.1707 0.0354 *
 Mercury -37155-11-02 19:40 J -11849134.79 -11849134.68 -11849134.58 0.1881 0.1011
 Mercury -37154-09-16 22:33 J -11848816.62 -11848816.56 -11848816.49 0.1646 0.1454
 Mercury -37152-08-22 23:16 J -11848110.63 -11848110.53 -11848110.44 0.1633 0.1195
 Mercury -37145-03-25 01:40 J -11845704.45 -11845704.43 -11845704.40 0.1876 0.1824
 Mercury -37143-03-01 03:50 J -11844998.39 -11844998.34 -11844998.29 0.1893 0.1729
 Mercury -37142-01-13 05:30 J -11844680.40 -11844680.27 -11844680.13 0.1636 0.0589

Venus -37135-11-27 23:59 J -11841804.57 -11841804.50 -11841804.43 0.1627 0.1480

Mercury -37134-07-22 08:52 J -11841568.25 -11841568.13 -11841568.02 0.1889 0.0818

Mercury -37133-06-04 11:45 J -11841250.16 -11841250.01 -11841249.87 0.1639 0.0047

Venus -37133-09-27 01:54 J -11841135.52 -11841135.42 -11841135.32 0.1620 0.1314

Venus -37132-08-26 03:50 J -11840802.43 -11840802.34 -11840802.25 0.1904 0.1621

Mercury -37125-12-11 13:54 J -11838138.05 -11838137.92 -11838137.79 0.1885 0.0080

Mercury -37124-10-25 17:30 J -11837819.90 -11837819.77 -11837819.63 0.1642 0.0688

Mercury -37115-05-03 19:54 J -11834707.78 -11834707.67 -11834707.56 0.1881 0.0915

Mercury -37114-03-17 23:02 J -11834389.62 -11834389.54 -11834389.46 0.1645 0.1361

Mercury -37112-02-20 23:30 J -11833683.60 -11833683.52 -11833683.43 0.1633 0.1286

Mercury -37106-09-24 01:40 J -11831277.47 -11831277.43 -11831277.38 0.1876 0.1740

Mercury -37104-08-30 04:04 J -11830571.36 -11830571.33 -11830571.30 0.1893 0.1832

Mercury -37103-07-14 05:59 J -11830253.38 -11830253.25 -11830253.12 0.1636 0.0673

Venus -37101-09-25 19:11 J -11829448.88 -11829448.70 -11829448.53 0.1622 0.0015

Venus -37100-08-26 02:52 J -11829114.52 -11829114.38 -11829114.24 0.1900 0.1105

Mercury -37094-01-20 08:52 J -11827141.24 -11827141.13 -11827141.02 0.1889 0.0904

Mercury -37094-12-04 11:59 J -11826823.14 -11826823.00 -11826822.85 0.1639 0.0061

Mercury -37085-06-11 14:09 J -11823711.04 -11823710.91 -11823710.78 0.1885 0.0032

Mercury -37084-04-25 17:45 J -11823392.89 -11823392.76 -11823392.62 0.1642 0.0606

Moon -37077-08-31 08:52 J -11820708.23 -11820708.13 -11820708.03 0.1703 0.1438

Earth -37077-08-31 16:18 J -11820707.93 -11820707.82 -11820707.70 0.1702 0.1367

Mercury -37076-11-01 19:40 J -11820280.79 -11820280.68 -11820280.56 0.1880 0.0841

Mercury -37075-09-15 23:30 J -11819962.62 -11819962.52 -11819962.43 0.1646 0.1273

Mercury -37073-08-21 23:45 J -11819256.58 -11819256.51 -11819256.43 0.1633 0.1362

Venus -37069-09-24 12:14 J -11817762.08 -11817761.99 -11817761.89 0.1626 0.1329

Venus -37067-07-25 13:54 J -11817092.99 -11817092.92 -11817092.84 0.1619 0.1460

Mercury -37066-03-25 01:54 J -11816850.48 -11816850.42 -11816850.37 0.1876 0.1655

Mercury -37063-01-12 06:28 J -11815826.36 -11815826.23 -11815826.11 0.1636 0.0764

Mercury -37055-07-21 09:06 J -11812714.23 -11812714.12 -11812714.01 0.1889 0.1001

Mercury -37054-06-04 12:28 J -11812396.13 -11812395.98 -11812395.84 0.1639 0.0135

Mercury -37046-12-11 14:23 J -11809284.03 -11809283.90 -11809283.78 0.1885 0.0120

Mercury -37045-10-24 18:14 J -11808965.88 -11808965.74 -11808965.60 0.1642 0.0516

Mercury -37036-05-02 19:54 J -11805853.78 -11805853.67 -11805853.55 0.1881 0.0747

Mercury -37035-03-16 23:45 J -11805535.61 -11805535.51 -11805535.41 0.1646 0.1180

Venus -37035-07-24 07:26 J -11805406.37 -11805406.19 -11805406.02 0.1622 0.0147

Venus -37034-06-23 05:45 J -11805072.42 -11805072.26 -11805072.09 0.1901 0.0606

Mercury -37033-02-21 00:14 J -11804829.55 -11804829.49 -11804829.43 0.1633 0.1448

Mercury -37027-09-23 01:54 J -11802423.49 -11802423.42 -11802423.35 0.1876 0.1569

Mercury -37024-07-13 06:28 J -11801399.35 -11801399.23 -11801399.10 0.1636 0.0844

Mercury -37015-01-19 09:06 J -11798287.23 -11798287.12 -11798287.02 0.1889 0.1084

Mercury -37015-12-03 12:42 J -11797969.11 -11797968.97 -11797968.83 0.1639 0.0217

Mercury -37006-06-11 14:23 J -11794857.03 -11794856.90 -11794856.78 0.1885 0.0197

Mercury -37005-04-24 18:42 J -11794538.86 -11794538.72 -11794538.58 0.1642 0.0420

Earth -37004-02-24 17:02 J -11794232.88 -11794232.79 -11794232.69 0.1810 0.1569

Moon -37004-02-25 00:42 J -11794232.57 -11794232.47 -11794232.37 0.1811 0.1529

Venus -37003-07-23 00:28 J -11793719.59 -11793719.48 -11793719.36 0.1625 0.1181

Venus -37001-05-22 02:38 J -11793050.42 -11793050.39 -11793050.37 0.1618 0.1597

37TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 37th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -36997-10-31 20:09 J | -11791426.78 | -11791426.66 | -11791426.54 | 0.1881 | 0.0655 | | |
| Mercury | -36996-09-15 00:14 J | -11791108.60 | -11791108.49 | -11791108.38 | 0.1646 | 0.1091 | | |

Mercury -36994-08-22 00:28 J -11790402.52 -11790402.48 -11790402.43 0.1633 0.1534

Mercury -36987-03-24 01:54 J -11787996.49 -11787996.42 -11787996.34 0.1876 0.1484

Mercury -36984-01-11 06:57 J -11786972.33 -11786972.21 -11786972.09 0.1636 0.0928

Mercury -36976-07-20 09:21 J -11783860.21 -11783860.11 -11783860.01 0.1889 0.1179

Mercury -36975-06-03 12:57 J -11783542.10 -11783541.96 -11783541.81 0.1639 0.0310

Venus -36969-05-20 19:54 J -11781363.84 -11781363.67 -11781363.50 0.1621 0.0283

Venus -36968-04-19 07:40 J -11781030.35 -11781030.18 -11781030.00 0.1902 0.0081

Mercury -36967-12-10 14:23 J -11780430.02 -11780429.90 -11780429.77 0.1885 0.0291

Mercury -36966-10-24 18:57 J -11780111.85 -11780111.71 -11780111.57 0.1642 0.0339

Mercury -36957-05-01 20:09 J -11776999.78 -11776999.66 -11776999.54 0.1880 0.0575

Mercury -36956-03-16 00:28 J -11776681.59 -11776681.48 -11776681.36 0.1646 0.1000

Mercury -36954-02-20 00:42 J -11775975.49 -11775975.47 -11775975.45 0.1633 0.1612

Mercury -36948-09-22 02:09 J -11773569.50 -11773569.41 -11773569.33 0.1876 0.1402

Mercury -36945-07-12 07:11 J -11772545.31 -11772545.20 -11772545.08 0.1636 0.1017

Venus -36937-05-19 12:57 J -11769677.09 -11769676.96 -11769676.83 0.1624 0.1029

Mercury -36936-01-18 09:21 J -11769433.20 -11769433.11 -11769433.01 0.1889 0.1271

Mercury -36936-12-02 13:26 J -11769115.08 -11769114.94 -11769114.80 0.1639 0.0393

Mercury -36927-06-10 14:38 J -11766003.01 -11766002.89 -11766002.76 0.1885 0.0383

Mercury -36926-04-24 19:11 J -11765684.84 -11765684.70 -11765684.55 0.1642 0.0254

Earth -36925-02-28 12:14 J -11765375.17 -11765374.99 -11765374.81 0.1816 0.0657

Moon -36925-02-28 12:57 J -11765375.12 -11765374.96 -11765374.79 0.1816 0.0691 *

Mercury -36918-10-31 20:09 J -11762572.78 -11762572.66 -11762572.54 0.1880 0.0489

Mercury -36917-09-14 00:57 J -11762254.59 -11762254.46 -11762254.34 0.1646 0.0913

Mercury -36908-03-23 02:09 J -11759142.50 -11759142.41 -11759142.32 0.1876 0.1312

Mercury -36907-02-04 06:14 J -11758824.28 -11758824.24 -11758824.21 0.1650 0.1595

Mercury -36905-01-11 07:40 J -11758118.29 -11758118.18 -11758118.08 0.1636 0.1098

Venus -36903-03-18 08:09 J -11757321.33 -11757321.16 -11757321.00 0.1620 0.0432

Venus -36902-02-14 10:47 J -11756988.22 -11756988.05 -11756987.88 0.1904 0.0421

Mercury -36897-07-19 09:35 J -11755006.19 -11755006.10 -11755006.02 0.1889 0.1360

Mercury -36896-06-02 13:40 J -11754688.07 -11754687.93 -11754687.79 0.1639 0.0480

Mercury -36888-12-09 14:38 J -11751576.02 -11751575.89 -11751575.77 0.1885 0.0457
 Mercury -36887-10-23 19:40 J -11751257.82 -11751257.68 -11751257.53 0.1642 0.0159
 Mercury -36878-05-01 20:23 J -11748145.77 -11748145.65 -11748145.52 0.1880 0.0392
 Mercury -36877-03-15 01:11 J -11747827.57 -11747827.45 -11747827.32 0.1646 0.0822
 Earth -36872-08-29 17:30 J -11745833.95 -11745833.77 -11745833.58 0.1714 0.0430
 Moon -36872-08-30 01:11 J -11745833.64 -11745833.45 -11745833.26 0.1713 0.0477 *
 Venus -36871-03-17 01:11 J -11745634.59 -11745634.45 -11745634.30 0.1623 0.0886
 Mercury -36869-09-21 02:09 J -11744715.50 -11744715.41 -11744715.31 0.1875 0.1229
 Mercury -36868-08-05 06:28 J -11744397.28 -11744397.23 -11744397.17 0.1650 0.1504
 Mercury -36866-07-12 07:54 J -11743691.27 -11743691.17 -11743691.07 0.1636 0.1181
 Mercury -36857-01-18 09:35 J -11740579.18 -11740579.10 -11740579.02 0.1889 0.1446
 Mercury -36857-12-01 14:09 J -11740261.05 -11740260.91 -11740260.78 0.1639 0.0565
 Mercury -36848-06-09 14:52 J -11737149.00 -11737148.88 -11737148.76 0.1885 0.0554
 Mercury -36847-04-23 19:54 J -11736830.81 -11736830.67 -11736830.52 0.1643 0.0078
 Mercury -36839-10-30 20:23 J -11733718.78 -11733718.65 -11733718.53 0.1880 0.0319
 Mercury -36838-09-14 01:40 J -11733400.56 -11733400.43 -11733400.30 0.1646 0.0731
 Venus -36837-01-13 20:23 J -11733278.81 -11733278.65 -11733278.48 0.1619 0.0571
 Venus -36837-12-11 12:57 J -11732946.11 -11732945.96 -11732945.81 0.1905 0.0936
 Mercury -36829-03-22 02:23 J -11730288.50 -11730288.40 -11730288.30 0.1876 0.1142
 Mercury -36828-02-03 06:57 J -11729970.28 -11729970.21 -11729970.13 0.1649 0.1407
 Mercury -36826-01-10 08:23 J -11729264.24 -11729264.15 -11729264.07 0.1636 0.1271
 Mercury -36818-07-19 09:50 J -11726152.16 -11726152.09 -11726152.02 0.1889 0.1545
 Mercury -36817-06-01 14:23 J -11725834.03 -11725833.90 -11725833.77 0.1639 0.0651
 Mercury -36809-12-08 14:52 J -11722722.00 -11722721.88 -11722721.76 0.1884 0.0646
 Mercury -36808-10-22 20:23 J -11722403.80 -11722403.65 -11722403.51 0.1643 0.0035
 Venus -36805-01-12 13:26 J -11721592.09 -11721591.94 -11721591.78 0.1622 0.0738
 Venus -36805-12-11 12:28 J -11721258.03 -11721257.98 -11721257.92 0.1901 0.1795
 Mercury -36799-04-30 20:38 J -11719291.77 -11719291.64 -11719291.52 0.1880 0.0231
 Mercury -36798-03-15 01:54 J -11718973.55 -11718973.42 -11718973.28 0.1646 0.0643
 Earth -36793-09-01 07:11 J -11716976.32 -11716976.20 -11716976.09 0.1709 0.1342

Moon -36793-09-01 10:18 J -11716976.15 -11716976.07 -11716975.98 0.1709 0.1489 *
 Mercury -36790-09-21 02:23 J -11715861.50 -11715861.40 -11715861.30 0.1875 0.1058
 Mercury -36789-08-04 07:11 J -11715543.28 -11715543.20 -11715543.11 0.1650 0.1324
 Mercury -36787-07-11 08:23 J -11714837.23 -11714837.15 -11714837.07 0.1636 0.1349
 Mercury -36780-02-10 08:23 J -11712431.15 -11712431.15 -11712431.14 0.1870 0.1868
 Mercury -36778-01-17 09:50 J -11711725.15 -11711725.09 -11711725.03 0.1888 0.1627
 Mercury -36778-12-01 14:38 J -11711407.02 -11711406.89 -11711406.76 0.1640 0.0735
 Venus -36772-11-10 08:38 J -11709236.29 -11709236.14 -11709235.98 0.1619 0.0716
 Venus -36771-10-08 16:04 J -11708903.94 -11708903.83 -11708903.72 0.1906 0.1429
 Mercury -36769-06-08 15:06 J -11708294.99 -11708294.87 -11708294.76 0.1885 0.0731
 Mercury -36768-04-22 20:52 J -11707976.78 -11707976.63 -11707976.49 0.1643 0.0112
 Mercury -36760-10-29 20:38 J -11704864.76 -11704864.64 -11704864.51 0.1880 0.0135
 Mercury -36759-09-13 02:23 J -11704546.54 -11704546.40 -11704546.26 0.1646 0.0555
 Mercury -36750-03-22 02:23 J -11701434.50 -11701434.40 -11701434.29 0.1875 0.0973
 Mercury -36749-02-03 07:40 J -11701116.28 -11701116.18 -11701116.08 0.1650 0.1229
 Mercury -36747-01-09 08:52 J -11700410.20 -11700410.13 -11700410.07 0.1636 0.1433
 Mercury -36741-08-11 08:38 J -11698004.17 -11698004.14 -11698004.10 0.1870 0.1775
 Venus -36740-11-09 02:09 J -11697549.57 -11697549.41 -11697549.25 0.1621 0.0596
 Mercury -36739-07-18 10:04 J -11697298.13 -11697298.08 -11697298.03 0.1888 0.1722
 Venus -36739-10-08 15:06 J -11697216.00 -11697215.87 -11697215.74 0.1902 0.1276
 Mercury -36738-06-01 15:06 J -11696980.00 -11696979.87 -11696979.75 0.1639 0.0822
 Mercury -36730-12-08 15:06 J -11693867.98 -11693867.87 -11693867.75 0.1884 0.0820
 Mercury -36729-10-21 20:52 J -11693549.77 -11693549.63 -11693549.48 0.1643 0.0194
 Mercury -36720-04-29 20:38 J -11690437.77 -11690437.64 -11690437.51 0.1880 0.0053
 Mercury -36719-03-14 02:52 J -11690119.53 -11690119.38 -11690119.24 0.1646 0.0464
 Mercury -36711-09-20 02:38 J -11687007.50 -11687007.39 -11687007.28 0.1875 0.0885
 Mercury -36710-08-04 08:09 J -11686689.27 -11686689.16 -11686689.06 0.1650 0.1138
 Mercury -36708-07-10 09:06 J -11685983.17 -11685983.12 -11685983.07 0.1636 0.1521
 Venus -36706-09-07 21:21 J -11685193.76 -11685193.61 -11685193.46 0.1618 0.0851
 Mercury -36701-02-10 08:52 J -11683577.18 -11683577.13 -11683577.08 0.1870 0.1688

Mercury -36699-01-16 10:04 J -11682871.11 -11682871.08 -11682871.04 0.1888 0.1818

Mercury -36699-11-30 15:21 J -11682552.98 -11682552.86 -11682552.74 0.1639 0.0908

Mercury -36690-06-08 15:21 J -11679440.97 -11679440.86 -11679440.75 0.1884 0.0914

Mercury -36689-04-21 21:21 J -11679122.75 -11679122.61 -11679122.46 0.1643 0.0276

Mercury -36681-10-28 20:52 J -11676010.76 -11676010.63 -11676010.51 0.1880 0.0069

Mercury -36680-09-12 03:06 J -11675692.52 -11675692.37 -11675692.23 0.1646 0.0378

Venus -36674-09-06 14:38 J -11673507.06 -11673506.89 -11673506.73 0.1620 0.0452

Venus -36673-08-04 17:02 J -11673173.95 -11673173.79 -11673173.63 0.1903 0.0753

Mercury -36671-03-21 02:38 J -11672580.50 -11672580.39 -11672580.27 0.1875 0.0799

Mercury -36670-02-02 08:23 J -11672262.26 -11672262.15 -11672262.03 0.1650 0.1049

Mercury -36668-01-08 09:21 J -11671556.13 -11671556.11 -11671556.08 0.1637 0.1601

Mercury -36662-08-11 08:38 J -11669150.20 -11669150.14 -11669150.07 0.1870 0.1614

Mercury -36659-05-31 15:35 J -11668125.96 -11668125.85 -11668125.73 0.1640 0.0993

Mercury -36651-12-07 15:21 J -11665013.97 -11665013.86 -11665013.75 0.1884 0.0995

Mercury -36650-10-21 21:50 J -11664695.73 -11664695.59 -11664695.45 0.1643 0.0367

Earth -36641-02-28 15:35 J -11661644.04 -11661643.85 -11661643.66 0.1807 0.0201

Moon -36641-02-28 22:33 J -11661643.76 -11661643.56 -11661643.37 0.1808 0.0277 *

Mercury -36641-04-28 21:06 J -11661583.75 -11661583.62 -11661583.50 0.1880 0.0143

Mercury -36640-03-13 03:21 J -11661265.50 -11661265.36 -11661265.21 0.1646 0.0290

Venus -36640-07-05 09:21 J -11661151.25 -11661151.11 -11661150.97 0.1617 0.0996

Mercury -36632-09-19 02:38 J -11658153.50 -11658153.39 -11658153.27 0.1875 0.0717

Mercury -36631-08-03 08:52 J -11657835.25 -11657835.13 -11657835.01 0.1650 0.0958

Mercury -36622-02-09 08:52 J -11654723.20 -11654723.13 -11654723.06 0.1870 0.1525

Mercury -36622-12-24 13:54 J -11654404.92 -11654404.92 -11654404.92 0.1654 0.1653

Mercury -36620-11-29 16:04 J -11653698.94 -11653698.83 -11653698.72 0.1640 0.1076

Mercury -36611-06-07 15:35 J -11650586.95 -11650586.85 -11650586.75 0.1884 0.1092

Mercury -36610-04-21 22:04 J -11650268.72 -11650268.58 -11650268.44 0.1643 0.0449

Venus -36608-07-04 02:38 J -11649464.56 -11649464.39 -11649464.22 0.1620 0.0307

Venus -36607-06-01 19:54 J -11649131.84 -11649131.67 -11649131.50 0.1904 0.0253

Mercury -36602-10-28 20:52 J -11647156.76 -11647156.63 -11647156.50 0.1879 0.0209

Mercury -36601-09-11 03:50 J -11646838.48 -11646838.34 -11646838.19 0.1646 0.0195
 Mercury -36592-03-20 02:52 J -11643726.50 -11643726.38 -11643726.26 0.1875 0.0625
 Mercury -36591-02-01 09:21 J -11643408.24 -11643408.11 -11643407.99 0.1650 0.0865
 Moon -36588-08-30 02:52 J -11642102.57 -11642102.38 -11642102.19 0.1721 0.0690
 Earth -36588-08-30 06:28 J -11642102.41 -11642102.23 -11642102.04 0.1721 0.0528 *
 Mercury -36583-08-10 09:06 J -11640296.20 -11640296.12 -11640296.04 0.1870 0.1434
 Mercury -36582-06-24 14:23 J -11639977.95 -11639977.90 -11639977.86 0.1654 0.1561
 Mercury -36580-05-30 16:18 J -11639271.92 -11639271.82 -11639271.72 0.1640 0.1163
 Venus -36576-07-02 19:54 J -11637777.69 -11637777.67 -11637777.65 0.1622 0.1606
 Venus -36574-05-02 22:04 J -11637108.71 -11637108.58 -11637108.46 0.1617 0.1132
 Mercury -36572-12-06 15:35 J -11636159.95 -11636159.85 -11636159.75 0.1884 0.1181
 Mercury -36571-10-20 22:18 J -11635841.70 -11635841.57 -11635841.43 0.1643 0.0539
 Mercury -36562-04-28 21:06 J -11632729.75 -11632729.62 -11632729.49 0.1880 0.0303
 Mercury -36561-03-12 04:04 J -11632411.47 -11632411.33 -11632411.18 0.1646 0.0115
 Mercury -36553-09-18 02:52 J -11629299.50 -11629299.38 -11629299.26 0.1875 0.0542
 Mercury -36552-08-02 09:35 J -11628981.23 -11628981.10 -11628980.97 0.1650 0.0780
 Mercury -36543-02-08 08:52 J -11625869.21 -11625869.13 -11625869.04 0.1870 0.1362
 Mercury -36543-12-23 14:52 J -11625550.95 -11625550.88 -11625550.81 0.1654 0.1461
 Venus -36542-05-01 15:21 J -11625422.03 -11625421.86 -11625421.69 0.1619 0.0166
 Venus -36541-03-28 22:04 J -11625089.76 -11625089.58 -11625089.41 0.1905 0.0272
 Mercury -36541-11-28 16:47 J -11624844.90 -11624844.80 -11624844.71 0.1640 0.1247
 Mercury -36532-06-06 15:50 J -11621732.94 -11621732.84 -11621732.75 0.1884 0.1269
 Mercury -36531-04-20 22:47 J -11621414.68 -11621414.55 -11621414.41 0.1643 0.0629
 Mercury -36523-10-27 21:21 J -11618302.74 -11618302.61 -11618302.49 0.1879 0.0398
 Mercury -36522-09-11 04:33 J -11617984.46 -11617984.31 -11617984.17 0.1646 0.0032
 Mercury -36513-03-19 03:06 J -11614872.50 -11614872.37 -11614872.25 0.1875 0.0457
 Mercury -36512-01-31 10:04 J -11614554.22 -11614554.08 -11614553.95 0.1650 0.0687
 Venus -36510-04-30 08:23 J -11613735.22 -11613735.15 -11613735.08 0.1622 0.1459
 Earth -36509-09-01 20:23 J -11613244.77 -11613244.65 -11613244.52 0.1716 0.1285
 Moon -36509-09-02 02:09 J -11613244.52 -11613244.41 -11613244.30 0.1716 0.1429 *

Venus -36508-02-27 10:18 J -11613066.18 -11613066.07 -11613065.97 0.1617 0.1272
 Mercury -36504-08-09 09:06 J -11611442.21 -11611442.12 -11611442.03 0.1870 0.1268
 Mercury -36503-06-23 15:06 J -11611123.95 -11611123.87 -11611123.79 0.1654 0.1377
 Mercury -36501-05-29 17:02 J -11610417.87 -11610417.79 -11610417.71 0.1640 0.1332
 Mercury -36493-12-05 15:50 J -11607305.93 -11607305.84 -11607305.75 0.1884 0.1358
 Mercury -36492-10-19 23:02 J -11606987.67 -11606987.54 -11606987.41 0.1643 0.0708
 Mercury -36483-04-27 21:21 J -11603875.74 -11603875.61 -11603875.49 0.1879 0.0479
 Mercury -36482-03-12 05:02 J -11603557.44 -11603557.29 -11603557.15 0.1647 0.0079
 Venus -36476-02-26 03:35 J -11601379.53 -11601379.35 -11601379.18 0.1619 0.0034
 Venus -36475-01-24 00:57 J -11601047.62 -11601047.46 -11601047.30 0.1906 0.0756
 Mercury -36474-09-18 03:06 J -11600445.49 -11600445.37 -11600445.24 0.1875 0.0366
 Mercury -36473-08-01 10:18 J -11600127.20 -11600127.07 -11600126.93 0.1650 0.0596
 Mercury -36464-02-07 09:21 J -11597015.21 -11597015.11 -11597015.02 0.1870 0.1183
 Mercury -36464-12-22 15:35 J -11596696.95 -11596696.85 -11596696.76 0.1654 0.1284
 Mercury -36462-11-28 17:16 J -11595990.85 -11595990.78 -11595990.71 0.1640 0.1416
 Mercury -36453-06-05 16:04 J -11592878.91 -11592878.83 -11592878.75 0.1884 0.1452
 Mercury -36452-04-19 23:30 J -11592560.65 -11592560.52 -11592560.40 0.1643 0.0797
 Venus -36444-02-24 20:38 J -11589692.73 -11589692.64 -11589692.54 0.1621 0.1318
 Mercury -36444-10-26 21:21 J -11589448.73 -11589448.61 -11589448.49 0.1879 0.0568
 Mercury -36443-09-10 05:16 J -11589130.43 -11589130.28 -11589130.14 0.1647 0.0157
 Venus -36443-12-25 22:33 J -11589023.64 -11589023.56 -11589023.47 0.1616 0.1410
 Mercury -36434-03-19 03:06 J -11586018.49 -11586018.37 -11586018.24 0.1874 0.0289
 Mercury -36433-01-31 10:47 J -11585700.19 -11585700.05 -11585699.91 0.1650 0.0507
 Mercury -36425-08-08 09:06 J -11582588.22 -11582588.12 -11582588.02 0.1870 0.1106
 Mercury -36424-06-22 16:04 J -11582269.94 -11582269.83 -11582269.73 0.1654 0.1187
 Mercury -36422-05-29 17:45 J -11581563.82 -11581563.76 -11581563.71 0.1640 0.1501
 Mercury -36414-12-05 16:04 J -11578451.90 -11578451.83 -11578451.76 0.1884 0.1538
 Mercury -36413-10-18 23:45 J -11578133.63 -11578133.51 -11578133.38 0.1643 0.0887
 Venus -36411-12-24 16:04 J -11577337.01 -11577336.83 -11577336.66 0.1618 0.0115
 Venus -36410-11-21 03:21 J -11577005.49 -11577005.36 -11577005.23 0.1907 0.1259

Mercury -36404-04-26 21:35 J -11575021.72 -11575021.60 -11575021.48 0.1879 0.0667
 Mercury -36403-03-11 05:30 J -11574703.41 -11574703.27 -11574703.12 0.1647 0.0252
 Mercury -36395-09-17 03:21 J -11571591.49 -11571591.36 -11571591.24 0.1874 0.0201
 Mercury -36394-08-01 11:02 J -11571273.18 -11571273.04 -11571272.89 0.1650 0.0418
 Mercury -36385-02-07 09:21 J -11568161.21 -11568161.11 -11568161.00 0.1870 0.1015
 Mercury -36385-12-21 16:18 J -11567842.93 -11567842.82 -11567842.71 0.1654 0.1102
 Mercury -36383-11-27 17:59 J -11567136.78 -11567136.75 -11567136.72 0.1640 0.1583
 Venus -36379-12-23 09:06 J -11565650.24 -11565650.12 -11565650.00 0.1620 0.1173
 Venus -36378-11-21 03:06 J -11565317.48 -11565317.37 -11565317.26 0.1904 0.1445
 Venus -36377-10-22 11:16 J -11564981.08 -11564981.03 -11564980.98 0.1616 0.1542
 Mercury -36376-06-29 15:50 J -11564730.87 -11564730.84 -11564730.81 0.1864 0.1802
 Mercury -36374-06-05 16:18 J -11564024.88 -11564024.82 -11564024.76 0.1883 0.1634
 Mercury -36373-04-19 00:14 J -11563706.61 -11563706.49 -11563706.38 0.1643 0.0970
 Mercury -36365-10-25 21:35 J -11560594.72 -11560594.60 -11560594.49 0.1879 0.0738
 Mercury -36364-09-09 05:59 J -11560276.39 -11560276.25 -11560276.11 0.1647 0.0336
 Moon -36357-02-28 13:26 J -11557913.12 -11557912.94 -11557912.75 0.1798 0.0521
 Earth -36357-02-28 20:38 J -11557912.83 -11557912.64 -11557912.45 0.1799 0.0192 *
 Mercury -36355-03-18 03:35 J -11557164.48 -11557164.35 -11557164.23 0.1875 0.0120
 Mercury -36354-01-30 11:30 J -11556846.16 -11556846.02 -11556845.87 0.1650 0.0324
 Mercury -36346-08-08 09:35 J -11553734.21 -11553734.10 -11553733.99 0.1869 0.0924
 Mercury -36345-06-21 16:47 J -11553415.92 -11553415.80 -11553415.69 0.1654 0.1009
 Venus -36345-10-21 04:33 J -11553294.49 -11553294.31 -11553294.14 0.1617 0.0258
 Venus -36344-09-17 06:42 J -11552963.29 -11552963.22 -11552963.16 0.1907 0.1740
 Mercury -36337-12-28 15:50 J -11550303.88 -11550303.84 -11550303.79 0.1864 0.1719
 Mercury -36335-12-04 16:18 J -11549597.87 -11549597.82 -11549597.77 0.1883 0.1721
 Mercury -36334-10-19 00:28 J -11549279.59 -11549279.48 -11549279.37 0.1643 0.1055
 Mercury -36325-04-25 21:50 J -11546167.71 -11546167.59 -11546167.48 0.1879 0.0836
 Mercury -36324-03-10 06:14 J -11545849.38 -11545849.24 -11545849.09 0.1647 0.0422
 Mercury -36316-09-16 03:35 J -11542737.48 -11542737.35 -11542737.23 0.1874 0.0048
 Mercury -36315-07-31 11:45 J -11542419.15 -11542419.01 -11542418.86 0.1651 0.0242

Venus -36313-10-19 21:50 J -11541607.72 -11541607.59 -11541607.46 0.1620 0.1037
 Venus -36312-09-17 05:30 J -11541275.42 -11541275.27 -11541275.12 0.1905 0.0934
 Mercury -36306-02-06 09:35 J -11539307.22 -11539307.10 -11539306.99 0.1870 0.0850
 Mercury -36306-12-21 17:16 J -11538988.91 -11538988.78 -11538988.66 0.1654 0.0910
 Moon -36304-08-30 15:06 J -11538371.03 -11538370.87 -11538370.70 0.1728 0.0731
 Earth -36304-08-30 19:11 J -11538370.88 -11538370.70 -11538370.52 0.1728 0.0639 *
 Mercury -36297-06-28 16:04 J -11535876.89 -11535876.83 -11535876.77 0.1865 0.1627
 Mercury -36296-05-12 22:04 J -11535558.61 -11535558.58 -11535558.56 0.1658 0.1621
 Mercury -36295-06-04 16:33 J -11535170.84 -11535170.81 -11535170.78 0.1884 0.1813
 Mercury -36294-04-19 00:57 J -11534852.57 -11534852.46 -11534852.36 0.1643 0.1145
 Mercury -36286-10-25 22:04 J -11531740.69 -11531740.58 -11531740.47 0.1879 0.0931
 Mercury -36285-09-08 06:42 J -11531422.36 -11531422.22 -11531422.08 0.1647 0.0507
 Venus -36279-08-18 17:02 J -11529251.96 -11529251.79 -11529251.62 0.1617 0.0390
 Mercury -36276-03-17 03:35 J -11528310.48 -11528310.35 -11528310.22 0.1874 0.0071
 Mercury -36275-01-29 12:14 J -11527992.13 -11527991.99 -11527991.84 0.1650 0.0148
 Mercury -36267-08-07 09:35 J -11524880.21 -11524880.10 -11524879.98 0.1869 0.0759
 Mercury -36266-06-21 17:30 J -11524561.90 -11524561.77 -11524561.64 0.1654 0.0828
 Mercury -36258-12-28 15:50 J -11521449.90 -11521449.84 -11521449.77 0.1864 0.1556
 Mercury -36257-11-10 22:18 J -11521131.62 -11521131.57 -11521131.51 0.1659 0.1526
 Mercury -36255-10-18 01:11 J -11520425.55 -11520425.45 -11520425.36 0.1644 0.1225
 Venus -36247-08-17 10:18 J -11517565.22 -11517565.07 -11517564.93 0.1619 0.0896
 Mercury -36246-04-25 21:50 J -11517313.69 -11517313.59 -11517313.48 0.1879 0.1009
 Venus -36246-07-15 07:40 J -11517233.35 -11517233.18 -11517233.01 0.1906 0.0421
 Mercury -36245-03-09 07:11 J -11516995.34 -11516995.20 -11516995.07 0.1647 0.0602
 Mercury -36237-09-15 03:50 J -11513883.47 -11513883.34 -11513883.21 0.1874 0.0161
 Mercury -36236-07-30 12:42 J -11513565.12 -11513564.97 -11513564.83 0.1650 0.0069
 Mercury -36227-02-05 09:50 J -11510453.21 -11510453.09 -11510452.97 0.1869 0.0670
 Mercury -36227-12-20 17:59 J -11510134.89 -11510134.75 -11510134.62 0.1654 0.0735
 Moon -36225-09-02 02:38 J -11509513.54 -11509513.39 -11509513.23 0.1724 0.1101
 Earth -36225-09-02 09:21 J -11509513.24 -11509513.11 -11509512.97 0.1723 0.1210 *

Mercury -36218-06-28 16:04 J -11507022.90 -11507022.83 -11507022.75 0.1864 0.1465
 Mercury -36217-05-11 22:47 J -11506704.62 -11506704.55 -11506704.48 0.1658 0.1434
 Mercury -36215-04-18 01:26 J -11505998.52 -11505998.44 -11505998.35 0.1643 0.1314
 Venus -36213-06-15 05:02 J -11505209.45 -11505209.29 -11505209.12 0.1617 0.0532
 Mercury -36207-10-24 22:04 J -11502886.68 -11502886.58 -11502886.47 0.1879 0.1103
 Mercury -36206-09-08 07:26 J -11502568.32 -11502568.19 -11502568.06 0.1647 0.0683
 Mercury -36197-03-16 03:50 J -11499456.47 -11499456.34 -11499456.21 0.1874 0.0242
 Mercury -36196-01-28 12:57 J -11499138.10 -11499137.96 -11499137.81 0.1651 0.0043
 Mercury -36188-08-06 09:50 J -11496026.21 -11496026.09 -11496025.97 0.1869 0.0588
 Mercury -36187-06-20 18:28 J -11495707.87 -11495707.73 -11495707.60 0.1654 0.0639
 Venus -36181-06-13 22:33 J -11493522.71 -11493522.56 -11493522.40 0.1618 0.0756
 Venus -36180-05-11 10:33 J -11493191.24 -11493191.06 -11493190.89 0.1906 0.0075
 Mercury -36179-12-27 16:18 J -11492595.90 -11492595.82 -11492595.74 0.1864 0.1376
 Mercury -36178-11-10 23:16 J -11492277.62 -11492277.53 -11492277.45 0.1658 0.1341
 Mercury -36176-10-17 01:54 J -11491571.49 -11491571.42 -11491571.35 0.1643 0.1401
 Mercury -36167-04-24 22:18 J -11488459.67 -11488459.57 -11488459.47 0.1879 0.1199
 Mercury -36166-03-09 07:40 J -11488141.30 -11488141.18 -11488141.05 0.1647 0.0772
 Mercury -36158-09-15 03:50 J -11485029.46 -11485029.34 -11485029.21 0.1874 0.0335
 Mercury -36157-07-29 13:26 J -11484711.09 -11484710.94 -11484710.80 0.1651 0.0124
 Mercury -36148-02-04 10:04 J -11481599.21 -11481599.08 -11481598.96 0.1869 0.0502
 Mercury -36148-12-19 18:42 J -11481280.86 -11481280.72 -11481280.58 0.1655 0.0553
 Venus -36147-04-12 17:45 J -11481166.92 -11481166.76 -11481166.60 0.1616 0.0663
 Mercury -36139-06-27 16:18 J -11478168.91 -11478168.82 -11478168.73 0.1864 0.1300
 Mercury -36138-05-11 23:45 J -11477850.61 -11477850.51 -11477850.42 0.1659 0.1245
 Mercury -36136-04-17 02:09 J -11477144.47 -11477144.41 -11477144.35 0.1644 0.1483
 Mercury -36128-10-23 22:18 J -11474032.67 -11474032.57 -11474032.48 0.1878 0.1273
 Mercury -36127-09-07 08:09 J -11473714.28 -11473714.16 -11473714.03 0.1647 0.0862
 Mercury -36118-03-16 04:04 J -11470602.45 -11470602.33 -11470602.20 0.1874 0.0430
 Mercury -36117-01-28 13:54 J -11470284.07 -11470283.92 -11470283.78 0.1651 0.0218
 Venus -36115-04-11 11:16 J -11469480.20 -11469480.03 -11469479.87 0.1618 0.0619

Venus -36114-03-08 12:57 J -11469149.13 -11469148.96 -11469148.80 0.1907 0.0580
 Mercury -36109-08-05 10:04 J -11467172.20 -11467172.08 -11467171.95 0.1869 0.0409
 Mercury -36108-06-19 19:11 J -11466853.85 -11466853.70 -11466853.56 0.1655 0.0462
 Mercury -36100-12-26 16:18 J -11463741.91 -11463741.82 -11463741.73 0.1864 0.1215
 Mercury -36099-11-09 23:59 J -11463423.61 -11463423.50 -11463423.39 0.1659 0.1156
 Mercury -36097-10-16 02:38 J -11462717.43 -11462717.39 -11462717.35 0.1644 0.1568
 Mercury -36088-04-23 22:33 J -11459605.65 -11459605.56 -11459605.47 0.1879 0.1373
 Mercury -36087-03-08 08:23 J -11459287.26 -11459287.15 -11459287.03 0.1647 0.0946
 Venus -36081-02-08 05:59 J -11457124.40 -11457124.25 -11457124.10 0.1616 0.0802
 Mercury -36079-09-14 04:04 J -11456175.45 -11456175.33 -11456175.20 0.1874 0.0511
 Mercury -36078-07-29 14:09 J -11455857.05 -11455856.91 -11455856.77 0.1651 0.0299
 Moon -36073-02-29 01:54 J -11454181.58 -11454181.42 -11454181.26 0.1790 0.0741
 Earth -36073-02-29 04:04 J -11454181.52 -11454181.33 -11454181.15 0.1791 0.0504 *
 Mercury -36069-02-04 10:04 J -11452745.20 -11452745.08 -11452744.95 0.1869 0.0331
 Mercury -36069-12-18 19:40 J -11452426.83 -11452426.68 -11452426.54 0.1654 0.0368
 Mercury -36060-06-26 16:33 J -11449314.91 -11449314.81 -11449314.71 0.1864 0.1121
 Mercury -36059-05-11 00:28 J -11448996.59 -11448996.48 -11448996.37 0.1659 0.1062
 Venus -36049-02-06 23:16 J -11445437.69 -11445437.53 -11445437.36 0.1618 0.0479
 Mercury -36049-10-22 22:47 J -11445178.63 -11445178.55 -11445178.47 0.1878 0.1467
 Venus -36048-01-02 16:04 J -11445106.98 -11445106.83 -11445106.69 0.1907 0.1058
 Mercury -36048-09-06 08:52 J -11444860.24 -11444860.13 -11444860.02 0.1647 0.1032
 Mercury -36039-03-15 04:18 J -11441748.44 -11441748.32 -11441748.20 0.1874 0.0595
 Mercury -36038-01-27 14:38 J -11441430.04 -11441429.89 -11441429.75 0.1651 0.0392
 Mercury -36030-08-05 10:18 J -11438318.20 -11438318.07 -11438317.95 0.1869 0.0238
 Mercury -36029-06-18 19:54 J -11437999.82 -11437999.67 -11437999.53 0.1655 0.0284
 Mercury -36021-12-25 16:33 J -11434887.92 -11434887.81 -11434887.71 0.1864 0.1050
 Earth -36020-08-31 06:28 J -11434639.40 -11434639.23 -11434639.05 0.1735 0.0783
 Moon -36020-08-31 14:09 J -11434639.09 -11434638.91 -11434638.74 0.1735 0.0657 *
 Mercury -36020-11-09 00:57 J -11434569.58 -11434569.46 -11434569.34 0.1659 0.0967
 Venus -36016-01-02 15:06 J -11433418.96 -11433418.87 -11433418.77 0.1905 0.1609

Venus -36016-12-05 18:28 J -11433081.87 -11433081.73 -11433081.59 0.1616 0.0938

Mercury -36011-05-17 23:16 J -11431457.55 -11431457.53 -11431457.50 0.1859 0.1809

Mercury -36009-04-22 22:47 J -11430751.62 -11430751.55 -11430751.48 0.1878 0.1546

Mercury -36008-03-07 09:21 J -11430433.22 -11430433.11 -11430433.01 0.1647 0.1125

36TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 36th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -36000-09-13 04:33 J | -11427321.43 | -11427321.31 | -11427321.19 | 0.1874 | 0.0690 | | |
| Mercury | -35999-07-28 14:52 J | -11427003.02 | -11427002.88 | -11427002.74 | 0.1651 | 0.0477 | | |
| Moon | -35994-03-03 12:14 J | -11425324.05 | -11425323.99 | -11425323.93 | 0.1795 | 0.1704 | | |
| Earth | -35994-03-03 20:23 J | -11425323.74 | -11425323.65 | -11425323.56 | 0.1796 | 0.1571 | | |
| Mercury | -35990-02-03 10:18 J | -11423891.19 | -11423891.07 | -11423890.94 | 0.1869 | 0.0159 | | |
| Mercury | -35990-12-18 20:09 J | -11423572.80 | -11423572.66 | -11423572.51 | 0.1655 | 0.0194 | | |
| Venus | -35984-12-04 11:59 J | -11421395.17 | -11421395.00 | -11421394.83 | 0.1617 | 0.0344 | | |
| Venus | -35983-10-30 18:57 J | -11421064.81 | -11421064.71 | -11421064.61 | 0.1908 | 0.1546 | | |
| Mercury | -35981-06-25 16:33 J | -11420460.91 | -11420460.81 | -11420460.70 | 0.1864 | 0.0960 | | |
| Mercury | -35980-05-10 01:11 J | -11420142.57 | -11420142.45 | -11420142.32 | 0.1659 | 0.0878 | | |
| Mercury | -35972-11-15 23:16 J | -11417030.57 | -11417030.53 | -11417030.49 | 0.1858 | 0.1730 | | |
| Mercury | -35971-09-30 05:59 J | -11416712.29 | -11416712.25 | -11416712.21 | 0.1663 | 0.1592 | | |
| Mercury | -35970-10-22 22:47 J | -11416324.61 | -11416324.55 | -11416324.48 | 0.1878 | 0.1642 | | |
| Mercury | -35969-09-05 09:35 J | -11416006.20 | -11416006.10 | -11416006.00 | 0.1647 | 0.1204 | | |
| Mercury | -35960-03-14 04:33 J | -11412894.43 | -11412894.31 | -11412894.20 | 0.1873 | 0.0771 | | |

Mercury -35959-01-26 15:21 J -11412576.00 -11412575.86 -11412575.72 0.1651 0.0567
 Venus -35952-12-03 05:02 J -11409708.30 -11409708.29 -11409708.28 0.1619 0.1613
 Mercury -35951-08-04 10:33 J -11409464.19 -11409464.06 -11409463.94 0.1869 0.0085
 Venus -35951-10-30 18:14 J -11409376.87 -11409376.74 -11409376.59 0.1906 0.1122
 Mercury -35950-06-18 20:38 J -11409145.78 -11409145.64 -11409145.49 0.1655 0.0106
 Venus -35950-10-03 07:11 J -11409039.33 -11409039.20 -11409039.07 0.1616 0.1069
 Mercury -35942-12-25 16:47 J -11406033.91 -11406033.80 -11406033.69 0.1864 0.0868
 Earth -35941-09-02 21:50 J -11405781.74 -11405781.59 -11405781.44 0.1730 0.1115
 Moon -35941-09-02 21:50 J -11405781.73 -11405781.59 -11405781.44 0.1730 0.1033 *
 Mercury -35941-11-08 01:40 J -11405715.56 -11405715.43 -11405715.30 0.1659 0.0785
 Mercury -35932-05-16 23:16 J -11402603.58 -11402603.53 -11402603.47 0.1858 0.1647
 Mercury -35931-03-31 06:28 J -11402285.29 -11402285.23 -11402285.17 0.1663 0.1495
 Mercury -35930-04-22 23:02 J -11401897.58 -11401897.54 -11401897.49 0.1878 0.1739
 Mercury -35929-03-06 09:50 J -11401579.17 -11401579.09 -11401579.00 0.1647 0.1293
 Mercury -35921-09-12 04:33 J -11398467.42 -11398467.31 -11398467.19 0.1873 0.0862
 Mercury -35920-07-27 15:35 J -11398148.98 -11398148.85 -11398148.71 0.1651 0.0655
 Venus -35918-10-02 00:28 J -11397352.66 -11397352.48 -11397352.31 0.1617 0.0206
 Mercury -35911-02-02 10:33 J -11395037.18 -11395037.06 -11395036.93 0.1869 0.0038
 Mercury -35911-12-17 21:06 J -11394718.77 -11394718.62 -11394718.48 0.1655 0.0046
 Mercury -35902-06-25 16:47 J -11391606.91 -11391606.80 -11391606.69 0.1863 0.0793
 Mercury -35901-05-09 02:09 J -11391288.54 -11391288.41 -11391288.27 0.1659 0.0689
 Mercury -35893-11-14 23:30 J -11388176.59 -11388176.52 -11388176.46 0.1859 0.1562
 Mercury -35892-09-29 06:57 J -11387858.29 -11387858.21 -11387858.14 0.1663 0.1401
 Mercury -35891-10-21 23:02 J -11387470.57 -11387470.54 -11387470.51 0.1878 0.1814
 Mercury -35890-09-05 10:18 J -11387152.14 -11387152.07 -11387151.99 0.1647 0.1383
 Venus -35886-09-30 17:45 J -11385665.83 -11385665.76 -11385665.69 0.1618 0.1479
 Venus -35885-08-26 20:38 J -11385334.81 -11385334.64 -11385334.48 0.1906 0.0615
 Venus -35884-07-30 19:11 J -11384996.81 -11384996.70 -11384996.58 0.1616 0.1206
 Mercury -35881-03-13 04:47 J -11384040.40 -11384040.30 -11384040.19 0.1874 0.0959
 Mercury -35880-01-25 16:04 J -11383721.96 -11383721.83 -11383721.70 0.1651 0.0745

Mercury -35872-08-03 10:47 J -11380610.18 -11380610.05 -11380609.93 0.1869 0.0118

Mercury -35871-06-17 21:21 J -11380291.75 -11380291.61 -11380291.46 0.1655 0.0087

Mercury -35863-12-24 16:47 J -11377179.91 -11377179.80 -11377179.68 0.1864 0.0709

Mercury -35862-11-08 02:23 J -11376861.54 -11376861.40 -11376861.26 0.1659 0.0603

Mercury -35853-05-15 23:30 J -11373749.59 -11373749.52 -11373749.44 0.1858 0.1478

Mercury -35852-03-30 07:11 J -11373431.29 -11373431.20 -11373431.11 0.1663 0.1309

Venus -35852-07-29 12:42 J -11373310.14 -11373309.97 -11373309.79 0.1617 0.0078

Mercury -35850-03-06 10:33 J -11372725.12 -11372725.06 -11372724.99 0.1647 0.1465

Mercury -35842-09-12 04:47 J -11369613.40 -11369613.30 -11369613.19 0.1873 0.1037

Mercury -35841-07-26 16:18 J -11369294.94 -11369294.82 -11369294.69 0.1651 0.0831

Mercury -35832-02-01 10:47 J -11366183.18 -11366183.05 -11366182.93 0.1869 0.0193

Mercury -35832-12-16 21:50 J -11365864.73 -11365864.59 -11365864.44 0.1655 0.0178

Mercury -35823-06-24 17:16 J -11362752.90 -11362752.78 -11362752.67 0.1864 0.0614

Mercury -35822-05-09 02:52 J -11362434.52 -11362434.38 -11362434.24 0.1659 0.0509

Venus -35820-07-28 05:59 J -11361623.34 -11361623.25 -11361623.15 0.1618 0.1340

Venus -35819-06-23 23:02 J -11361292.71 -11361292.54 -11361292.36 0.1907 0.0116

Venus -35818-05-28 07:54 J -11360954.27 -11360954.17 -11360954.08 0.1615 0.1336

Mercury -35814-11-14 23:30 J -11359322.60 -11359322.52 -11359322.44 0.1858 0.1398

Mercury -35813-09-28 07:40 J -11359004.28 -11359004.18 -11359004.08 0.1663 0.1214

Mercury -35811-09-04 11:02 J -11358298.09 -11358298.04 -11358298.00 0.1647 0.1550

Mercury -35802-03-13 05:02 J -11355186.39 -11355186.29 -11355186.19 0.1873 0.1125

Mercury -35801-01-25 16:47 J -11354867.92 -11354867.80 -11354867.68 0.1651 0.0919

Mercury -35793-08-02 11:02 J -11351756.17 -11351756.04 -11351755.92 0.1868 0.0287

Mercury -35792-06-16 22:04 J -11351437.72 -11351437.58 -11351437.43 0.1655 0.0262

Earth -35789-02-29 12:57 J -11350450.13 -11350449.96 -11350449.79 0.1783 0.0758

Moon -35789-02-29 20:09 J -11350449.82 -11350449.66 -11350449.49 0.1783 0.0889 *

Venus -35786-05-27 01:11 J -11349267.62 -11349267.45 -11349267.27 0.1616 0.0065

Mercury -35784-12-23 17:02 J -11348325.91 -11348325.79 -11348325.67 0.1863 0.0539

Mercury -35783-11-07 03:21 J -11348007.50 -11348007.36 -11348007.21 0.1659 0.0414

Mercury -35774-05-15 23:45 J -11344895.60 -11344895.51 -11344895.42 0.1858 0.1309

Mercury -35773-03-29 08:09 J -11344577.27 -11344577.16 -11344577.05 0.1663 0.1118
 Mercury -35771-03-05 11:30 J -11343871.03 -11343871.02 -11343871.01 0.1647 0.1641
 Mercury -35763-09-11 05:16 J -11340759.38 -11340759.28 -11340759.18 0.1873 0.1222
 Mercury -35762-07-26 17:02 J -11340440.90 -11340440.79 -11340440.67 0.1651 0.1006
 Venus -35754-05-25 18:42 J -11337580.83 -11337580.72 -11337580.60 0.1618 0.1203
 Mercury -35753-02-01 11:02 J -11337329.16 -11337329.04 -11337328.92 0.1868 0.0370
 Venus -35753-04-20 01:54 J -11337250.59 -11337250.42 -11337250.25 0.1907 0.0371
 Mercury -35753-12-15 22:33 J -11337010.70 -11337010.56 -11337010.41 0.1655 0.0353
 Venus -35752-03-24 19:54 J -11336911.73 -11336911.67 -11336911.60 0.1616 0.1474
 Mercury -35744-06-23 17:16 J -11333898.90 -11333898.78 -11333898.66 0.1863 0.0446
 Mercury -35743-05-08 03:35 J -11333580.49 -11333580.35 -11333580.20 0.1659 0.0330
 Moon -35736-08-31 17:02 J -11330907.97 -11330907.79 -11330907.61 0.1743 0.0867
 Earth -35736-08-31 17:16 J -11330907.94 -11330907.78 -11330907.61 0.1743 0.0953 *
 Mercury -35735-11-13 23:45 J -11330468.60 -11330468.51 -11330468.42 0.1858 0.1231
 Mercury -35734-09-28 08:23 J -11330150.26 -11330150.15 -11330150.03 0.1663 0.1031
 Mercury -35723-03-12 05:16 J -11326332.37 -11326332.28 -11326332.19 0.1873 0.1301
 Mercury -35722-01-24 17:30 J -11326013.88 -11326013.77 -11326013.66 0.1651 0.1096
 Venus -35720-03-23 13:40 J -11325225.11 -11325224.93 -11325224.76 0.1616 0.0199
 Mercury -35714-08-02 11:02 J -11322902.16 -11322902.04 -11322901.91 0.1869 0.0462
 Mercury -35713-06-15 23:02 J -11322583.68 -11322583.54 -11322583.40 0.1655 0.0445
 Earth -35710-03-04 04:33 J -11321592.44 -11321592.31 -11321592.17 0.1788 0.1268
 Moon -35710-03-04 06:57 J -11321592.29 -11321592.21 -11321592.12 0.1788 0.1562 *
 Mercury -35705-12-22 17:16 J -11319471.90 -11319471.78 -11319471.65 0.1863 0.0363
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 Venus -35687-02-15 04:33 J -11313208.47 -11313208.31 -11313208.16 0.1907 0.0866
 Venus -35686-01-20 08:23 J -11312869.17 -11312869.15 -11312869.14 0.1616 0.1605
 Mercury -35685-08-18 13:26 J -11312292.95 -11312292.94 -11312292.93 0.1668 0.1660

Mercury -35684-09-10 05:16 J -11311905.36 -11311905.28 -11311905.19 0.1873 0.1394
 Mercury -35683-07-25 17:45 J -11311586.86 -11311586.76 -11311586.65 0.1651 0.1182
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 Mercury -35674-12-15 23:16 J -11308156.67 -11308156.53 -11308156.39 0.1655 0.0527
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 Mercury -35664-05-07 04:33 J -11304726.46 -11304726.31 -11304726.16 0.1659 0.0142
 Earth -35657-09-03 08:38 J -11302050.30 -11302050.14 -11302049.98 0.1738 0.0980
 Moon -35657-09-03 16:47 J -11302049.97 -11302049.80 -11302049.64 0.1737 0.0989
 Mercury -35656-11-12 23:59 J -11301614.60 -11301614.50 -11301614.40 0.1858 0.1060
 Venus -35655-02-15 04:19 J -11301520.37 -11301520.32 -11301520.26 0.1906 0.1797
 Mercury -35655-09-27 09:21 J -11301296.24 -11301296.11 -11301295.98 0.1663 0.0841
 Venus -35654-01-19 01:55 J -11301182.59 -11301182.42 -11301182.25 0.1616 0.0335
 Mercury -35646-04-05 06:43 J -11298184.24 -11298184.22 -11298184.19 0.1852 0.1817
 Mercury -35645-02-17 13:55 J -11297865.97 -11297865.92 -11297865.87 0.1668 0.1562
 Mercury -35644-03-11 05:31 J -11297478.34 -11297478.27 -11297478.19 0.1873 0.1489
 Mercury -35643-01-23 18:14 J -11297159.83 -11297159.74 -11297159.65 0.1651 0.1268
 Mercury -35635-08-01 11:16 J -11294048.15 -11294048.03 -11294047.91 0.1868 0.0634
 Mercury -35634-06-15 23:45 J -11293729.65 -11293729.51 -11293729.38 0.1655 0.0618
 Mercury -35626-12-22 17:31 J -11290617.90 -11290617.77 -11290617.64 0.1863 0.0192
 Mercury -35625-11-05 04:47 J -11290299.44 -11290299.30 -11290299.15 0.1659 0.0068
 Venus -35622-01-17 19:26 J -11289495.83 -11289495.69 -11289495.55 0.1617 0.0928
 Venus -35622-12-13 07:40 J -11289166.30 -11289166.18 -11289166.06 0.1907 0.1333
 Mercury -35616-05-13 23:59 J -11287187.60 -11287187.50 -11287187.39 0.1858 0.0979
 Mercury -35615-03-28 09:50 J -11286869.22 -11286869.09 -11286868.96 0.1663 0.0749
 Mercury -35607-10-04 06:43 J -11283757.26 -11283757.22 -11283757.18 0.1853 0.1743
 Mercury -35606-08-18 14:23 J -11283438.97 -11283438.90 -11283438.83 0.1668 0.1465
 Mercury -35605-09-09 05:31 J -11283051.34 -11283051.27 -11283051.20 0.1873 0.1565
 Mercury -35604-07-24 18:43 J -11282732.81 -11282732.72 -11282732.64 0.1652 0.1355
 Mercury -35595-01-30 11:31 J -11279621.14 -11279621.02 -11279620.91 0.1868 0.0717
 Mercury -35595-12-15 00:14 J -11279302.63 -11279302.49 -11279302.36 0.1655 0.0711

Venus -35590-12-13 06:28 J -11277478.35 -11277478.23 -11277478.10 0.1906 0.1290
 Venus -35589-11-15 14:23 J -11277140.07 -11277139.90 -11277139.74 0.1616 0.0470
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 Mercury -35577-11-11 23:59 J -11272760.61 -11272760.50 -11272760.39 0.1858 0.0899
 Mercury -35576-09-26 10:04 J -11272442.21 -11272442.08 -11272441.94 0.1663 0.0659
 Mercury -35567-04-04 06:57 J -11269330.26 -11269330.21 -11269330.16 0.1852 0.1655
 Mercury -35566-02-16 14:38 J -11269011.97 -11269011.89 -11269011.80 0.1668 0.1377
 Mercury -35565-03-10 05:45 J -11268624.32 -11268624.26 -11268624.20 0.1873 0.1656
 Mercury -35564-01-22 18:57 J -11268305.78 -11268305.71 -11268305.64 0.1651 0.1440
 Venus -35557-11-14 07:55 J -11265453.32 -11265453.17 -11265453.01 0.1617 0.0798
 Mercury -35556-07-31 11:31 J -11265194.13 -11265194.02 -11265193.90 0.1868 0.0808
 Venus -35556-10-09 10:33 J -11265124.11 -11265124.06 -11265124.00 0.1907 0.1809
 Mercury -35555-06-15 00:28 J -11264875.61 -11264875.48 -11264875.35 0.1655 0.0794
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 Mercury -35528-10-03 06:57 J -11254903.27 -11254903.21 -11254903.14 0.1852 0.1572
 Mercury -35527-08-17 15:07 J -11254584.96 -11254584.87 -11254584.77 0.1668 0.1282
 Mercury -35526-09-09 05:59 J -11254197.29 -11254197.25 -11254197.21 0.1873 0.1754
 Mercury -35525-07-23 19:11 J -11253878.75 -11253878.70 -11253878.64 0.1652 0.1526
 Venus -35524-10-09 09:50 J -11253436.25 -11253436.09 -11253435.94 0.1907 0.0812
 Venus -35523-09-13 02:52 J -11253097.54 -11253097.38 -11253097.22 0.1616 0.0603
 Mercury -35516-01-29 11:45 J -11250767.13 -11250767.01 -11250766.90 0.1868 0.0892
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 Moon -35505-02-29 18:43 J -11246718.85 -11246718.72 -11246718.58 0.1774 0.1302
 Earth -35505-02-29 23:02 J -11246718.70 -11246718.54 -11246718.38 0.1775 0.0974 *

Mercury -35498-11-12 00:14 J -11243906.60 -11243906.49 -11243906.37 0.1857 0.0730
 Mercury -35497-09-25 11:02 J -11243588.19 -11243588.04 -11243587.90 0.1664 0.0475
 Venus -35491-09-11 20:09 J -11241410.81 -11241410.66 -11241410.50 0.1617 0.0659
 Mercury -35488-04-03 06:57 J -11240476.28 -11240476.21 -11240476.14 0.1852 0.1494
 Mercury -35487-02-15 15:35 J -11240157.95 -11240157.85 -11240157.74 0.1668 0.1182
 Mercury -35486-03-10 05:59 J -11239770.28 -11239770.25 -11239770.23 0.1872 0.1830
 Mercury -35485-01-22 19:40 J -11239451.70 -11239451.68 -11239451.65 0.1652 0.1615
 Mercury -35477-07-30 11:45 J -11236340.12 -11236340.01 -11236339.90 0.1868 0.0980
 Mercury -35476-06-14 01:11 J -11236021.57 -11236021.45 -11236021.33 0.1655 0.0973
 Mercury -35468-12-20 17:59 J -11232909.88 -11232909.75 -11232909.63 0.1863 0.0156
 Mercury -35467-11-04 06:28 J -11232591.38 -11232591.23 -11232591.09 0.1659 0.0306
 Mercury -35458-05-13 00:28 J -11229479.60 -11229479.48 -11229479.37 0.1858 0.0646
 Venus -35458-08-06 11:59 J -11229394.17 -11229394.00 -11229393.83 0.1907 0.0313
 Mercury -35457-03-26 11:31 J -11229161.17 -11229161.02 -11229160.88 0.1664 0.0382
 Venus -35457-07-10 14:52 J -11229055.04 -11229054.88 -11229054.73 0.1616 0.0741
 Moon -35452-08-31 19:55 J -11227176.81 -11227176.67 -11227176.52 0.1751 0.1090
 Earth -35452-09-01 02:38 J -11227176.54 -11227176.39 -11227176.25 0.1750 0.1180 *
 Mercury -35449-10-02 07:11 J -11226049.28 -11226049.20 -11226049.12 0.1852 0.1412
 Mercury -35448-08-16 15:50 J -11225730.95 -11225730.84 -11225730.72 0.1668 0.1098
 Mercury -35437-01-29 11:45 J -11221913.11 -11221913.01 -11221912.90 0.1868 0.1065
 Mercury -35437-12-13 01:26 J -11221594.55 -11221594.44 -11221594.32 0.1656 0.1057
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 Mercury -35427-05-05 06:57 J -11218164.35 -11218164.21 -11218164.07 0.1659 0.0403
 Earth -35426-03-04 14:09 J -11217861.06 -11217860.91 -11217860.75 0.1780 0.1005
 Moon -35426-03-04 19:11 J -11217860.83 -11217860.70 -11217860.57 0.1780 0.1332 *
 Venus -35425-07-09 08:23 J -11217368.31 -11217368.15 -11217367.98 0.1616 0.0526
 Mercury -35419-11-11 00:28 J -11215052.60 -11215052.48 -11215052.36 0.1858 0.0558
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 Mercury -35409-04-02 07:11 J -11211622.29 -11211622.20 -11211622.11 0.1852 0.1327
 Mercury -35408-02-14 16:19 J -11211303.93 -11211303.82 -11211303.70 0.1668 0.1002

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 Venus -35391-05-08 03:21 J -11205012.50 -11205012.36 -11205012.21 0.1616 0.0871
 Mercury -35389-12-19 17:59 J -11204055.87 -11204055.75 -11204055.62 0.1863 0.0325
 Mercury -35388-11-03 07:11 J -11203737.34 -11203737.20 -11203737.06 0.1660 0.0485
 Mercury -35379-05-12 00:28 J -11200625.60 -11200625.48 -11200625.36 0.1857 0.0479
 Mercury -35378-03-26 12:14 J -11200307.14 -11200306.99 -11200306.84 0.1664 0.0199
 Moon -35373-09-03 12:43 J -11198319.17 -11198318.97 -11198318.77 0.1746 0.0490
 Earth -35373-09-03 17:59 J -11198318.92 -11198318.75 -11198318.58 0.1745 0.0789 *
 Mercury -35370-10-02 07:11 J -11197195.29 -11197195.20 -11197195.11 0.1852 0.1250
 Mercury -35369-08-15 16:47 J -11196876.92 -11196876.80 -11196876.67 0.1668 0.0906
 Mercury -35359-01-05 21:07 J -11193446.64 -11193446.62 -11193446.59 0.1673 0.1641
 Venus -35359-05-06 20:52 J -11193325.80 -11193325.63 -11193325.46 0.1616 0.0387
 Mercury -35358-01-28 11:59 J -11193059.09 -11193059.00 -11193058.90 0.1868 0.1242
 Mercury -35358-12-13 02:23 J -11192740.50 -11192740.40 -11192740.31 0.1655 0.1235
 Mercury -35349-06-19 18:14 J -11189628.86 -11189628.74 -11189628.62 0.1863 0.0413
 Mercury -35348-05-04 07:40 J -11189310.32 -11189310.18 -11189310.04 0.1659 0.0576
 Mercury -35340-11-10 00:28 J -11186198.60 -11186198.48 -11186198.35 0.1857 0.0399
 Mercury -35339-09-24 12:28 J -11185880.12 -11185879.98 -11185879.83 0.1664 0.0117
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 Mercury -35329-02-14 17:16 J -11182449.91 -11182449.78 -11182449.65 0.1668 0.0817
 Venus -35326-03-30 17:31 J -11181309.94 -11181309.77 -11181309.61 0.1907 0.0662
 Venus -35325-03-04 15:21 J -11180970.00 -11180969.86 -11180969.73 0.1616 0.1012
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 Mercury -35319-07-29 12:14 J -11178632.08 -11178631.99 -11178631.90 0.1867 0.1327
 Mercury -35318-06-13 02:38 J -11178313.48 -11178313.39 -11178313.30 0.1656 0.1318
 Mercury -35310-12-19 18:14 J -11175201.87 -11175201.74 -11175201.62 0.1862 0.0487
 Mercury -35309-11-02 08:09 J -11174883.30 -11174883.16 -11174883.03 0.1660 0.0669
 Mercury -35300-05-11 00:43 J -11171771.59 -11171771.47 -11171771.34 0.1857 0.0307

Mercury -35299-03-25 12:57 J -11171453.11 -11171452.96 -11171452.81 0.1664 0.0028

Venus -35293-03-03 09:07 J -11169283.29 -11169283.12 -11169282.95 0.1616 0.0251

Mercury -35291-10-01 07:26 J -11168341.29 -11168341.19 -11168341.09 0.1852 0.1083

Mercury -35290-08-15 17:45 J -11168022.90 -11168022.76 -11168022.63 0.1668 0.0725

Mercury -35281-02-21 14:23 J -11164910.91 -11164910.90 -11164910.89 0.1846 0.1829

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Venus -35261-03-02 02:38 J -11157596.45 -11157596.39 -11157596.32 0.1617 0.1501

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Venus -35260-01-24 19:55 J -11157267.81 -11157267.67 -11157267.53 0.1906 0.1144

Mercury -35260-09-23 13:26 J -11157026.09 -11157025.94 -11157025.79 0.1664 0.0077

Venus -35260-12-31 03:35 J -11156927.47 -11156927.35 -11156927.23 0.1617 0.1142

Mercury -35251-04-01 07:26 J -11153914.29 -11153914.19 -11153914.09 0.1852 0.1002

Mercury -35250-02-13 18:14 J -11153595.88 -11153595.74 -11153595.61 0.1668 0.0627

Mercury -35242-08-22 14:23 J -11150483.93 -11150483.90 -11150483.86 0.1846 0.1744

Mercury -35241-07-05 22:19 J -11150165.65 -11150165.57 -11150165.48 0.1673 0.1361

Mercury -35240-07-28 12:28 J -11149778.05 -11149777.98 -11149777.91 0.1868 0.1502

Mercury -35239-06-12 03:21 J -11149459.42 -11149459.36 -11149459.30 0.1656 0.1493

Mercury -35231-12-18 18:28 J -11146347.85 -11146347.73 -11146347.61 0.1862 0.0666

Mercury -35230-11-02 08:38 J -11146029.26 -11146029.14 -11146029.01 0.1660 0.0841

Venus -35228-01-24 19:26 J -11145579.80 -11145579.69 -11145579.58 0.1906 0.1468

Venus -35228-12-29 21:21 J -11145240.79 -11145240.61 -11145240.44 0.1616 0.0115

Moon -35221-03-01 05:59 J -11142987.35 -11142987.25 -11142987.16 0.1767 0.1460

Earth -35221-03-01 10:04 J -11142987.22 -11142987.08 -11142986.93 0.1767 0.1157 *

Mercury -35221-05-10 00:57 J -11142917.59 -11142917.46 -11142917.34 0.1857 0.0156

Mercury -35220-03-24 13:40 J -11142599.07 -11142598.93 -11142598.78 0.1664 0.0170

Mercury -35212-09-30 07:26 J -11139487.30 -11139487.19 -11139487.08 0.1852 0.0921

Mercury -35211-08-14 18:28 J -11139168.88 -11139168.73 -11139168.59 0.1668 0.0544

Mercury -35202-02-20 14:23 J -11136056.95 -11136056.90 -11136056.85 0.1846 0.1673

Mercury -35201-01-04 22:47 J -11135738.64 -11135738.55 -11135738.45 0.1673 0.1262

Mercury -35200-01-26 12:28 J -11135351.04 -11135350.98 -11135350.91 0.1867 0.1584

Mercury -35200-12-11 03:35 J -11135032.39 -11135032.35 -11135032.31 0.1656 0.1577

Venus -35196-12-28 14:52 J -11133553.97 -11133553.88 -11133553.79 0.1617 0.1363

Venus -35195-11-21 23:16 J -11133225.62 -11133225.53 -11133225.43 0.1906 0.1599

Venus -35194-10-28 15:35 J -11132884.95 -11132884.85 -11132884.74 0.1617 0.1280

Mercury -35191-06-18 18:28 J -11131920.85 -11131920.73 -11131920.61 0.1862 0.0744

Mercury -35190-05-03 09:07 J -11131602.24 -11131602.12 -11131601.99 0.1660 0.0936

Mercury -35182-11-09 00:57 J -11128490.59 -11128490.46 -11128490.33 0.1857 0.0057

Mercury -35181-09-22 14:09 J -11128172.06 -11128171.91 -11128171.76 0.1664 0.0253

Mercury -35172-03-31 07:40 J -11125060.29 -11125060.18 -11125060.07 0.1852 0.0837

Mercury -35171-02-12 18:57 J -11124741.86 -11124741.71 -11124741.57 0.1668 0.0447

Earth -35168-09-01 08:23 J -11123445.25 -11123445.15 -11123445.06 0.1758 0.1514

Moon -35168-09-01 13:55 J -11123445.06 -11123444.92 -11123444.79 0.1758 0.1209 *

Mercury -35163-08-21 14:38 J -11121629.96 -11121629.89 -11121629.83 0.1846 0.1588

Venus -35163-11-21 21:35 J -11121537.74 -11121537.60 -11121537.45 0.1906 0.0972

Mercury -35162-07-05 23:16 J -11121311.64 -11121311.53 -11121311.43 0.1673 0.1174

Venus -35162-10-27 09:35 J -11121198.27 -11121198.10 -11121197.92 0.1617 0.0045

Mercury -35161-07-27 12:43 J -11120924.03 -11120923.97 -11120923.92 0.1867 0.1674

Mercury -35152-12-17 18:43 J -11117493.84 -11117493.72 -11117493.61 0.1862 0.0833

Mercury -35151-11-01 09:21 J -11117175.22 -11117175.11 -11117174.99 0.1660 0.1014

Moon -35142-03-04 16:33 J -11114129.98 -11114129.81 -11114129.64 0.1771 0.0868

Earth -35142-03-04 23:45 J -11114129.68 -11114129.51 -11114129.34 0.1772 0.0754 *

Mercury -35142-05-10 00:57 J -11114063.59 -11114063.46 -11114063.34 0.1857 0.0024

Mercury -35141-03-23 14:38 J -11113745.04 -11113744.89 -11113744.75 0.1664 0.0346

Mercury -35133-09-29 07:40 J -11110633.30 -11110633.18 -11110633.07 0.1852 0.0757

Mercury -35132-08-13 19:11 J -11110314.84 -11110314.70 -11110314.55 0.1668 0.0356

Venus -35130-10-26 03:35 J -11109511.46 -11109511.35 -11109511.24 0.1617 0.1234

Venus -35128-08-25 03:50 J -11108842.42 -11108842.34 -11108842.25 0.1617 0.1412
 Mercury -35123-02-19 14:38 J -11107202.96 -11107202.89 -11107202.82 0.1846 0.1503
 Mercury -35122-01-03 23:45 J -11106884.63 -11106884.51 -11106884.40 0.1673 0.1078
 Mercury -35121-01-26 12:43 J -11106497.01 -11106496.97 -11106496.93 0.1867 0.1761
 Mercury -35112-06-17 18:43 J -11103066.83 -11103066.72 -11103066.61 0.1862 0.0924
 Mercury -35111-05-02 09:50 J -11102748.20 -11102748.09 -11102747.98 0.1660 0.1104
 Mercury -35103-11-08 00:57 J -11099636.58 -11099636.46 -11099636.33 0.1857 0.0116
 Mercury -35102-09-22 14:52 J -11099318.02 -11099317.88 -11099317.74 0.1664 0.0431
 Venus -35097-09-18 00:43 J -11097495.64 -11097495.47 -11097495.30 0.1906 0.0500
 Venus -35096-08-23 22:04 J -11097155.76 -11097155.58 -11097155.41 0.1617 0.0157
 Mercury -35093-03-30 07:40 J -11096206.29 -11096206.18 -11096206.06 0.1851 0.0673
 Mercury -35092-02-11 19:40 J -11095887.83 -11095887.68 -11095887.53 0.1668 0.0264
 Moon -35089-09-03 22:04 J -11094587.76 -11094587.58 -11094587.40 0.1753 0.0225
 Earth -35089-09-04 01:11 J -11094587.63 -11094587.45 -11094587.26 0.1753 0.0535 *
 Mercury -35084-08-20 14:23 J -11092775.97 -11092775.90 -11092775.82 0.1846 0.1435
 Mercury -35083-07-05 00:14 J -11092457.62 -11092457.49 -11092457.37 0.1673 0.0983
 Mercury -35082-07-27 12:43 J -11092069.98 -11092069.97 -11092069.95 0.1867 0.1847
 Mercury -35073-12-16 18:43 J -11088639.83 -11088639.72 -11088639.61 0.1862 0.0998
 Mercury -35072-10-31 10:19 J -11088321.17 -11088321.07 -11088320.97 0.1660 0.1195
 Venus -35064-08-22 15:35 J -11085468.98 -11085468.85 -11085468.72 0.1617 0.1094
 Mercury -35063-05-09 01:11 J -11085209.57 -11085209.45 -11085209.32 0.1857 0.0200
 Mercury -35062-03-23 15:21 J -11084891.00 -11084890.86 -11084890.72 0.1664 0.0524
 Venus -35062-06-22 15:50 J -11084799.88 -11084799.84 -11084799.79 0.1617 0.1550
 Mercury -35054-09-29 07:40 J -11081779.29 -11081779.18 -11081779.06 0.1851 0.0595
 Mercury -35053-08-12 19:55 J -11081460.81 -11081460.67 -11081460.52 0.1668 0.0181
 Mercury -35044-02-18 14:38 J -11078348.97 -11078348.89 -11078348.81 0.1846 0.1348
 Mercury -35043-01-03 00:28 J -11078030.61 -11078030.48 -11078030.35 0.1673 0.0894
 Mercury -35034-05-26 04:33 J -11074600.34 -11074600.31 -11074600.29 0.1678 0.1641
 Mercury -35033-06-16 18:57 J -11074212.81 -11074212.71 -11074212.61 0.1862 0.1091
 Mercury -35032-05-01 10:33 J -11073894.15 -11073894.06 -11073893.97 0.1660 0.1277

Venus -35031-07-16 03:21 J -11073453.54 -11073453.36 -11073453.19 0.1906 0.0041

Venus -35030-06-21 10:04 J -11073113.26 -11073113.08 -11073112.91 0.1617 0.0291

Mercury -35024-11-07 01:11 J -11070782.58 -11070782.45 -11070782.33 0.1856 0.0272

Mercury -35023-09-21 15:35 J -11070463.98 -11070463.85 -11070463.71 0.1664 0.0613

Mercury -35014-03-30 07:55 J -11067352.29 -11067352.17 -11067352.05 0.1852 0.0510

Mercury -35013-02-11 20:38 J -11067033.79 -11067033.64 -11067033.50 0.1668 0.0093

Mercury -35005-08-19 14:52 J -11063921.97 -11063921.88 -11063921.79 0.1846 0.1262

Mercury -35004-07-04 00:57 J -11063603.60 -11063603.46 -11063603.33 0.1673 0.0802

35TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 35th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Venus | -34998-06-20 03:50 J | -11061426.48 | -11061426.34 | -11061426.20 | 0.1617 | 0.0962 | | |
| Mercury | -34995-11-24 04:47 J | -11060173.35 | -11060173.30 | -11060173.24 | 0.1678 | 0.1546 | | |
| Mercury | -34994-12-16 18:57 J | -11059785.80 | -11059785.71 | -11059785.61 | 0.1862 | 0.1177 | | |
| Mercury | -34993-10-30 10:47 J | -11059467.13 | -11059467.05 | -11059466.96 | 0.1660 | 0.1365 | | |
| Mercury | -34984-05-08 01:11 J | -11056355.57 | -11056355.45 | -11056355.32 | 0.1857 | 0.0362 | | |
| Mercury | -34983-03-22 16:04 J | -11056036.97 | -11056036.83 | -11056036.70 | 0.1664 | 0.0700 | | |
| Mercury | -34975-09-28 07:55 J | -11052925.29 | -11052925.17 | -11052925.05 | 0.1851 | 0.0428 | | |
| Mercury | -34974-08-12 20:52 J | -11052606.78 | -11052606.63 | -11052606.48 | 0.1669 | 0.0045 | | |
| Mercury | -34965-02-18 14:38 J | -11049494.98 | -11049494.89 | -11049494.79 | 0.1846 | 0.1192 | | |
| Venus | -34965-05-12 05:31 J | -11049411.43 | -11049411.27 | -11049411.10 | 0.1906 | 0.0480 | | |
| Mercury | -34964-01-02 01:26 J | -11049176.58 | -11049176.44 | -11049176.30 | 0.1673 | 0.0700 | | |

Venus -34964-04-17 22:19 J -11049070.74 -11049070.57 -11049070.40 0.1617 0.0423
 Mercury -34955-05-25 05:16 J -11045746.35 -11045746.28 -11045746.20 0.1678 0.1450
 Mercury -34954-06-16 18:57 J -11045358.80 -11045358.71 -11045358.61 0.1862 0.1257
 Mercury -34953-04-30 11:16 J -11045040.09 -11045040.03 -11045039.96 0.1660 0.1457
 Mercury -34945-11-06 01:26 J -11041928.56 -11041928.44 -11041928.32 0.1857 0.0446
 Mercury -34944-09-20 16:19 J -11041609.95 -11041609.82 -11041609.69 0.1664 0.0788
 Earth -34937-03-01 21:50 J -11039255.71 -11039255.59 -11039255.46 0.1759 0.1311
 Moon -34937-03-02 05:16 J -11039255.39 -11039255.28 -11039255.17 0.1760 0.1405
 Mercury -34935-03-29 07:55 J -11038498.29 -11038498.17 -11038498.04 0.1851 0.0347
 Mercury -34934-02-10 21:21 J -11038179.76 -11038179.61 -11038179.46 0.1669 0.0108
 Venus -34932-04-16 16:04 J -11037383.98 -11037383.83 -11037383.68 0.1617 0.0824
 Mercury -34926-08-19 14:52 J -11035067.98 -11035067.88 -11035067.78 0.1846 0.1104
 Mercury -34925-07-03 01:40 J -11034749.57 -11034749.43 -11034749.29 0.1673 0.0616
 Mercury -34916-01-08 21:50 J -11031637.59 -11031637.59 -11031637.58 0.1840 0.1838
 Mercury -34916-11-23 05:45 J -11031319.35 -11031319.26 -11031319.17 0.1678 0.1358
 Mercury -34915-12-15 19:11 J -11030931.79 -11030931.70 -11030931.61 0.1862 0.1344
 Mercury -34914-10-30 11:31 J -11030613.07 -11030613.02 -11030612.97 0.1660 0.1535
 Mercury -34905-05-07 01:26 J -11027501.56 -11027501.44 -11027501.32 0.1856 0.0523
 Mercury -34904-03-21 16:47 J -11027182.92 -11027182.80 -11027182.67 0.1664 0.0880
 Venus -34899-03-09 08:52 J -11025369.28 -11025369.13 -11025368.98 0.1905 0.0937
 Venus -34898-02-13 10:04 J -11025028.24 -11025028.08 -11025027.91 0.1618 0.0564
 Mercury -34896-09-27 08:09 J -11024071.29 -11024071.16 -11024071.04 0.1851 0.0267
 Mercury -34895-08-11 21:35 J -11023752.74 -11023752.60 -11023752.45 0.1669 0.0196
 Mercury -34886-02-17 14:52 J -11020640.98 -11020640.88 -11020640.78 0.1845 0.1022
 Mercury -34885-01-02 02:09 J -11020322.55 -11020322.41 -11020322.27 0.1673 0.0522
 Moon -34884-09-01 13:55 J -11019714.00 -11019713.92 -11019713.85 0.1766 0.1633
 Mercury -34877-07-09 22:04 J -11017210.61 -11017210.58 -11017210.55 0.1840 0.1754
 Mercury -34876-05-24 06:14 J -11016892.34 -11016892.24 -11016892.14 0.1678 0.1262
 Mercury -34875-06-15 19:26 J -11016504.77 -11016504.69 -11016504.61 0.1861 0.1436
 Mercury -34874-04-30 11:59 J -11016186.03 -11016186.00 -11016185.97 0.1660 0.1625

Venus -34867-03-09 07:11 J -11013681.29 -11013681.20 -11013681.11 0.1905 0.1612
 Venus -34866-02-12 04:04 J -11013341.49 -11013341.33 -11013341.17 0.1617 0.0689
 Mercury -34866-11-06 01:26 J -11013074.56 -11013074.44 -11013074.32 0.1856 0.0611
 Mercury -34865-09-19 17:02 J -11012755.91 -11012755.79 -11012755.67 0.1664 0.0966
 Earth -34858-03-05 10:19 J -11010398.25 -11010398.07 -11010397.89 0.1764 0.0540
 Moon -34858-03-05 10:19 J -11010398.24 -11010398.07 -11010397.91 0.1764 0.0696 *
 Mercury -34856-03-28 08:09 J -11009644.29 -11009644.16 -11009644.04 0.1851 0.0180
 Mercury -34855-02-09 22:04 J -11009325.73 -11009325.58 -11009325.44 0.1669 0.0283
 Mercury -34847-08-18 14:52 J -11006213.99 -11006213.88 -11006213.78 0.1845 0.0950
 Mercury -34846-07-03 02:38 J -11005895.54 -11005895.39 -11005895.25 0.1673 0.0424
 Mercury -34837-01-08 22:04 J -11002783.62 -11002783.58 -11002783.53 0.1840 0.1673
 Mercury -34837-11-22 06:43 J -11002465.33 -11002465.22 -11002465.12 0.1678 0.1168
 Mercury -34836-12-14 19:11 J -11002077.77 -11002077.70 -11002077.62 0.1862 0.1514
 Venus -34833-01-04 11:31 J -11001327.14 -11001327.02 -11001326.91 0.1904 0.1407
 Venus -34833-12-10 22:33 J -11000985.72 -11000985.56 -11000985.41 0.1618 0.0695
 Mercury -34826-05-07 01:40 J -10998647.54 -10998647.43 -10998647.31 0.1856 0.0703
 Mercury -34825-03-20 17:31 J -10998328.88 -10998328.77 -10998328.66 0.1664 0.1055
 Mercury -34817-09-26 08:09 J -10995217.29 -10995217.16 -10995217.03 0.1851 0.0099
 Mercury -34816-08-10 22:19 J -10994898.71 -10994898.57 -10994898.42 0.1669 0.0372
 Mercury -34807-02-16 15:07 J -10991786.98 -10991786.87 -10991786.76 0.1845 0.0865
 Mercury -34806-01-01 02:52 J -10991468.53 -10991468.38 -10991468.23 0.1673 0.0338
 Earth -34805-09-04 06:28 J -10990856.42 -10990856.23 -10990856.03 0.1761 0.0210
 Moon -34805-09-04 14:23 J -10990856.10 -10990855.90 -10990855.71 0.1761 0.0084 *
 Venus -34801-01-04 10:19 J -10989639.21 -10989639.07 -10989638.93 0.1905 0.1147
 Venus -34801-12-09 16:19 J -10989298.98 -10989298.82 -10989298.65 0.1617 0.0553
 Mercury -34798-07-09 22:04 J -10988356.64 -10988356.58 -10988356.52 0.1839 0.1597
 Mercury -34797-05-23 07:11 J -10988038.32 -10988038.20 -10988038.09 0.1678 0.1073
 Mercury -34796-06-14 19:26 J -10987650.75 -10987650.69 -10987650.62 0.1861 0.1606
 Mercury -34787-11-05 01:40 J -10984220.55 -10984220.43 -10984220.32 0.1856 0.0774
 Mercury -34786-09-19 17:59 J -10983901.86 -10983901.75 -10983901.65 0.1665 0.1144

Mercury -34777-03-27 08:23 J -10980790.28 -10980790.15 -10980790.03 0.1851 0.0048

Mercury -34776-02-08 22:47 J -10980471.69 -10980471.55 -10980471.40 0.1669 0.0466

Mercury -34768-08-17 15:07 J -10977359.98 -10977359.87 -10977359.76 0.1845 0.0777

Venus -34768-10-31 15:21 J -10977284.90 -10977284.86 -10977284.82 0.1903 0.1845

Mercury -34767-07-02 03:21 J -10977041.51 -10977041.36 -10977041.21 0.1673 0.0245

Venus -34767-10-08 10:33 J -10976943.21 -10976943.06 -10976942.91 0.1618 0.0831

Mercury -34758-01-07 22:04 J -10973929.64 -10973929.58 -10973929.51 0.1839 0.1521

Mercury -34758-11-22 07:26 J -10973611.31 -10973611.19 -10973611.07 0.1678 0.0980

Mercury -34757-12-13 19:40 J -10973223.74 -10973223.68 -10973223.63 0.1861 0.1689

Mercury -34747-05-06 01:55 J -10969793.54 -10969793.42 -10969793.31 0.1856 0.0866

Mercury -34746-03-20 18:14 J -10969474.84 -10969474.74 -10969474.64 0.1664 0.1230

Mercury -34738-09-26 08:23 J -10966363.28 -10966363.15 -10966363.03 0.1851 0.0075

Mercury -34737-08-09 23:02 J -10966044.68 -10966044.54 -10966044.40 0.1669 0.0552

Venus -34736-10-31 12:57 J -10965597.12 -10965596.96 -10965596.79 0.1905 0.0665

Venus -34735-10-07 04:47 J -10965256.47 -10965256.30 -10965256.13 0.1618 0.0422

Mercury -34728-02-15 15:07 J -10962932.99 -10962932.87 -10962932.76 0.1845 0.0709

Mercury -34728-12-31 03:50 J -10962614.49 -10962614.34 -10962614.19 0.1673 0.0147

Mercury -34719-07-08 22:19 J -10959502.64 -10959502.57 -10959502.49 0.1840 0.1432

Mercury -34718-05-23 07:55 J -10959184.30 -10959184.17 -10959184.04 0.1678 0.0885

Mercury -34717-06-13 19:40 J -10958796.72 -10958796.68 -10958796.65 0.1861 0.1772

Mercury -34709-10-12 11:45 J -10955754.04 -10955754.01 -10955753.98 0.1683 0.1644

Mercury -34708-11-04 01:55 J -10955366.53 -10955366.42 -10955366.31 0.1856 0.0953

Mercury -34707-09-18 18:43 J -10955047.81 -10955047.72 -10955047.64 0.1665 0.1318

Venus -34701-08-04 22:33 J -10952900.70 -10952900.56 -10952900.42 0.1619 0.0964

Mercury -34698-03-27 08:23 J -10951936.27 -10951936.15 -10951936.02 0.1851 0.0152

Mercury -34697-02-08 23:31 J -10951617.65 -10951617.52 -10951617.38 0.1669 0.0646

Mercury -34689-08-16 15:07 J -10948505.98 -10948505.87 -10948505.75 0.1845 0.0621

Mercury -34688-07-01 04:04 J -10948187.48 -10948187.33 -10948187.18 0.1673 0.0064

Mercury -34679-01-06 22:19 J -10945075.65 -10945075.57 -10945075.49 0.1839 0.1361

Mercury -34679-11-21 08:23 J -10944757.28 -10944757.15 -10944757.02 0.1678 0.0792

Mercury -34678-12-13 19:55 J -10944369.68 -10944369.67 -10944369.67 0.1861 0.1861
 Venus -34670-08-28 16:04 J -10941555.00 -10941554.83 -10941554.65 0.1905 0.0211
 Mercury -34669-04-12 12:14 J -10941327.05 -10941326.99 -10941326.93 0.1683 0.1542
 Venus -34669-08-03 16:47 J -10941213.97 -10941213.80 -10941213.63 0.1618 0.0286
 Mercury -34668-05-05 01:55 J -10940939.53 -10940939.42 -10940939.32 0.1856 0.1028
 Mercury -34667-03-19 19:11 J -10940620.78 -10940620.70 -10940620.63 0.1665 0.1411
 Mercury -34659-09-25 08:38 J -10937509.27 -10937509.14 -10937509.02 0.1851 0.0244
 Mercury -34658-08-09 23:59 J -10937190.63 -10937190.50 -10937190.37 0.1669 0.0732
 Earth -34653-03-02 11:16 J -10935524.14 -10935524.03 -10935523.92 0.1752 0.1415
 Moon -34653-03-02 11:31 J -10935524.11 -10935524.02 -10935523.94 0.1752 0.1577 *
 Mercury -34649-02-15 15:21 J -10934078.98 -10934078.86 -10934078.74 0.1845 0.0537
 Mercury -34649-12-30 04:33 J -10933760.46 -10933760.31 -10933760.16 0.1673 0.0031
 Mercury -34640-07-07 22:19 J -10930648.65 -10930648.57 -10930648.48 0.1839 0.1278
 Mercury -34639-05-22 08:52 J -10930330.27 -10930330.13 -10930330.00 0.1678 0.0699
 Venus -34637-08-02 10:33 J -10929527.11 -10929527.06 -10929527.00 0.1617 0.1520
 Venus -34635-06-02 10:33 J -10928858.19 -10928858.06 -10928857.93 0.1619 0.1100
 Mercury -34630-10-12 12:28 J -10926900.05 -10926899.98 -10926899.90 0.1683 0.1456
 Mercury -34629-11-03 02:09 J -10926512.51 -10926512.41 -10926512.31 0.1856 0.1117
 Mercury -34628-09-17 19:11 J -10926193.76 -10926193.70 -10926193.63 0.1665 0.1493
 Mercury -34619-03-26 08:38 J -10923082.27 -10923082.14 -10923082.02 0.1850 0.0319
 Mercury -34618-02-08 00:14 J -10922763.61 -10922763.49 -10922763.36 0.1669 0.0823
 Mercury -34610-08-16 15:21 J -10919651.98 -10919651.86 -10919651.74 0.1845 0.0463
 Mercury -34609-06-30 05:02 J -10919333.44 -10919333.29 -10919333.14 0.1673 0.0129
 Venus -34604-06-24 19:11 J -10917512.88 -10917512.70 -10917512.53 0.1904 0.0268
 Venus -34603-06-01 05:02 J -10917171.47 -10917171.29 -10917171.12 0.1618 0.0155
 Mercury -34600-01-05 22:33 J -10916221.65 -10916221.56 -10916221.47 0.1839 0.1194
 Mercury -34600-11-20 09:07 J -10915903.26 -10915903.12 -10915902.98 0.1678 0.0605
 Mercury -34590-04-12 12:57 J -10912473.04 -10912472.96 -10912472.87 0.1683 0.1357
 Mercury -34589-05-04 02:09 J -10912085.50 -10912085.41 -10912085.31 0.1856 0.1210
 Mercury -34588-03-18 19:40 J -10911766.72 -10911766.68 -10911766.63 0.1665 0.1581

Mercury -34580-09-24 08:38 J -10908655.26 -10908655.14 -10908655.02 0.1850 0.0400
 Mercury -34579-08-09 00:43 J -10908336.59 -10908336.47 -10908336.35 0.1669 0.0910
 Earth -34574-03-05 22:47 J -10906666.73 -10906666.55 -10906666.36 0.1756 0.0391
 Moon -34574-03-06 05:59 J -10906666.43 -10906666.25 -10906666.07 0.1757 0.0634 *
 Venus -34571-05-30 23:02 J -10905484.62 -10905484.54 -10905484.45 0.1618 0.1392
 Mercury -34570-02-14 15:21 J -10905224.98 -10905224.86 -10905224.74 0.1845 0.0376
 Mercury -34570-12-30 05:16 J -10904906.43 -10904906.28 -10904906.13 0.1674 0.0215
 Venus -34569-03-29 22:33 J -10904815.67 -10904815.56 -10904815.45 0.1620 0.1235
 Mercury -34561-07-06 22:33 J -10901794.66 -10901794.56 -10901794.47 0.1839 0.1121
 Mercury -34560-05-21 09:35 J -10901476.24 -10901476.10 -10901475.95 0.1678 0.0509
 Mercury -34551-10-11 13:40 J -10898046.03 -10898045.93 -10898045.84 0.1683 0.1259
 Mercury -34550-11-03 02:09 J -10897658.50 -10897658.41 -10897658.32 0.1856 0.1279
 Mercury -34540-03-25 08:52 J -10894228.25 -10894228.13 -10894228.01 0.1851 0.0490
 Mercury -34539-02-07 01:11 J -10893909.57 -10893909.45 -10893909.33 0.1669 0.1004
 Venus -34538-04-21 21:35 J -10893470.76 -10893470.60 -10893470.44 0.1903 0.0735
 Venus -34537-03-28 17:16 J -10893128.96 -10893128.78 -10893128.61 0.1619 0.0023
 Mercury -34531-08-15 15:35 J -10890797.98 -10890797.85 -10890797.73 0.1845 0.0290
 Mercury -34530-06-30 05:45 J -10890479.41 -10890479.26 -10890479.11 0.1674 0.0306
 Mercury -34521-01-05 22:33 J -10887367.66 -10887367.56 -10887367.46 0.1839 0.1040
 Moon -34521-09-04 06:57 J -10887125.41 -10887125.21 -10887125.00 0.1769 0.0450
 Earth -34521-09-04 10:47 J -10887125.25 -10887125.05 -10887124.85 0.1769 0.0159 *
 Mercury -34521-11-19 10:04 J -10887049.23 -10887049.08 -10887048.94 0.1678 0.0419
 Mercury -34512-05-28 05:59 J -10883937.28 -10883937.25 -10883937.22 0.1833 0.1751
 Mercury -34511-04-11 13:55 J -10883619.03 -10883618.92 -10883618.81 0.1683 0.1168
 Mercury -34510-05-04 02:23 J -10883231.48 -10883231.40 -10883231.32 0.1856 0.1373
 Venus -34506-04-21 19:55 J -10881782.73 -10881782.67 -10881782.61 0.1904 0.1782
 Venus -34505-03-27 11:02 J -10881442.15 -10881442.04 -10881441.93 0.1618 0.1255
 Venus -34503-01-25 10:33 J -10880773.16 -10880773.06 -10880772.97 0.1621 0.1373
 Mercury -34501-09-23 08:52 J -10879801.25 -10879801.13 -10879801.01 0.1850 0.0568
 Mercury -34500-08-08 01:26 J -10879482.55 -10879482.44 -10879482.33 0.1669 0.1089

Mercury -34491-02-13 15:21 J -10876370.98 -10876370.86 -10876370.73 0.1845 0.0223
 Mercury -34491-12-29 06:14 J -10876052.38 -10876052.24 -10876052.09 0.1674 0.0404
 Mercury -34482-07-06 22:47 J -10872940.66 -10872940.55 -10872940.45 0.1839 0.0951
 Mercury -34481-05-20 10:33 J -10872622.21 -10872622.06 -10872621.92 0.1678 0.0325
 Mercury -34473-11-26 05:59 J -10869510.30 -10869510.25 -10869510.20 0.1833 0.1674
 Venus -34472-02-16 01:11 J -10869428.58 -10869428.45 -10869428.31 0.1902 0.1175
 Mercury -34472-10-10 14:23 J -10869192.02 -10869191.90 -10869191.78 0.1683 0.1070
 Venus -34471-01-24 05:02 J -10869086.47 -10869086.29 -10869086.12 0.1619 0.0119
 Mercury -34471-11-02 02:38 J -10868804.47 -10868804.39 -10868804.32 0.1856 0.1463
 Mercury -34461-03-24 08:52 J -10865374.25 -10865374.13 -10865374.01 0.1850 0.0650
 Mercury -34460-02-06 01:55 J -10865055.52 -10865055.42 -10865055.32 0.1669 0.1180
 Mercury -34452-08-14 15:35 J -10861943.97 -10861943.85 -10861943.72 0.1845 0.0133
 Mercury -34451-06-29 06:28 J -10861625.37 -10861625.23 -10861625.09 0.1674 0.0486
 Mercury -34442-01-04 22:33 J -10858513.67 -10858513.56 -10858513.45 0.1839 0.0882
 Mercury -34442-11-19 11:02 J -10858195.19 -10858195.04 -10858194.89 0.1679 0.0231
 Venus -34440-02-15 22:47 J -10857740.67 -10857740.55 -10857740.42 0.1904 0.1314
 Venus -34439-01-22 23:16 J -10857399.66 -10857399.53 -10857399.41 0.1618 0.1123
 Venus -34438-11-22 22:19 J -10856730.63 -10856730.57 -10856730.51 0.1621 0.1509
 Mercury -34433-05-27 05:59 J -10855083.30 -10855083.25 -10855083.19 0.1834 0.1595
 Mercury -34432-04-10 14:52 J -10854765.00 -10854764.88 -10854764.75 0.1683 0.0971
 Mercury -34431-05-03 02:23 J -10854377.47 -10854377.40 -10854377.33 0.1855 0.1538
 Mercury -34422-09-23 09:07 J -10850947.24 -10850947.12 -10850947.01 0.1850 0.0739
 Mercury -34421-08-07 02:23 J -10850628.50 -10850628.40 -10850628.31 0.1669 0.1269
 Mercury -34412-02-12 15:50 J -10847516.97 -10847516.84 -10847516.72 0.1845 0.0069
 Mercury -34412-12-28 06:57 J -10847198.35 -10847198.21 -10847198.07 0.1674 0.0580
 Venus -34407-12-14 04:04 J -10845386.41 -10845386.33 -10845386.24 0.1901 0.1627
 Venus -34406-11-21 17:16 J -10845043.95 -10845043.78 -10845043.60 0.1620 0.0247
 Mercury -34403-07-05 22:47 J -10844086.66 -10844086.55 -10844086.44 0.1839 0.0795
 Mercury -34402-05-20 11:16 J -10843768.18 -10843768.03 -10843767.88 0.1678 0.0140
 Mercury -34394-11-26 05:59 J -10840656.31 -10840656.25 -10840656.18 0.1833 0.1519

Mercury -34393-10-09 15:07 J -10840337.99 -10840337.87 -10840337.74 0.1683 0.0885

Mercury -34392-11-01 02:38 J -10839950.45 -10839950.39 -10839950.33 0.1855 0.1626

Mercury -34383-03-01 18:57 J -10836907.74 -10836907.71 -10836907.67 0.1688 0.1643

Mercury -34382-03-24 09:07 J -10836520.23 -10836520.12 -10836520.01 0.1850 0.0819

Mercury -34381-02-06 02:38 J -10836201.47 -10836201.39 -10836201.30 0.1669 0.1358

Venus -34375-12-14 02:23 J -10833698.56 -10833698.40 -10833698.25 0.1903 0.0867

Venus -34374-11-20 11:31 J -10833357.16 -10833357.02 -10833356.88 0.1619 0.0990

Mercury -34373-08-13 15:50 J -10833089.97 -10833089.84 -10833089.72 0.1845 0.0064

Mercury -34372-06-28 07:26 J -10832771.32 -10832771.19 -10832771.05 0.1674 0.0678

Moon -34369-03-02 20:38 J -10831792.70 -10831792.64 -10831792.59 0.1745 0.1655

Earth -34369-03-03 02:38 J -10831792.48 -10831792.39 -10831792.28 0.1745 0.1462

Mercury -34363-01-03 22:47 J -10829659.66 -10829659.55 -10829659.43 0.1839 0.0714

Mercury -34363-11-18 11:45 J -10829341.16 -10829341.01 -10829340.86 0.1678 0.0045

Mercury -34354-05-27 06:14 J -10826229.32 -10826229.24 -10826229.17 0.1833 0.1436

Mercury -34353-04-09 15:50 J -10825910.98 -10825910.84 -10825910.71 0.1683 0.0784

Mercury -34352-05-02 02:52 J -10825523.42 -10825523.38 -10825523.34 0.1855 0.1720

Mercury -34344-08-30 19:11 J -10822480.75 -10822480.70 -10822480.64 0.1688 0.1556

Mercury -34343-09-22 09:07 J -10822093.23 -10822093.12 -10822093.01 0.1850 0.0903

Mercury -34342-08-07 03:07 J -10821774.44 -10821774.37 -10821774.30 0.1669 0.1446

Venus -34340-09-18 05:16 J -10821001.45 -10821001.28 -10821001.11 0.1620 0.0385

Mercury -34333-02-12 15:50 J -10818662.96 -10818662.84 -10818662.71 0.1845 0.0123

Mercury -34333-12-27 07:40 J -10818344.31 -10818344.18 -10818344.04 0.1674 0.0761

Mercury -34324-07-04 22:47 J -10815232.66 -10815232.55 -10815232.43 0.1839 0.0638

Mercury -34323-05-19 12:14 J -10814914.14 -10814913.99 -10814913.84 0.1679 0.0053

Mercury -34315-11-25 06:14 J -10811802.32 -10811802.24 -10811802.16 0.1833 0.1357

Mercury -34314-10-09 16:19 J -10811483.96 -10811483.82 -10811483.69 0.1683 0.0689

Mercury -34313-10-31 02:38 J -10811096.41 -10811096.39 -10811096.36 0.1855 0.1794

Venus -34309-10-10 05:16 J -10809656.44 -10809656.28 -10809656.11 0.1903 0.0407

Venus -34308-09-16 23:45 J -10809314.66 -10809314.51 -10809314.36 0.1619 0.0858

Mercury -34304-02-28 19:55 J -10808053.75 -10808053.67 -10808053.60 0.1688 0.1455

Mercury -34303-03-23 09:21 J -10807666.22 -10807666.11 -10807666.00 0.1850 0.0992
 Mercury -34302-02-05 03:35 J -10807347.41 -10807347.35 -10807347.30 0.1669 0.1538
 Mercury -34294-08-13 16:04 J -10804235.96 -10804235.83 -10804235.71 0.1844 0.0212
 Mercury -34293-06-27 08:09 J -10803917.29 -10803917.16 -10803917.03 0.1674 0.0852
 Moon -34290-03-06 09:21 J -10802935.30 -10802935.11 -10802934.91 0.1749 0.0308
 Earth -34290-03-06 13:26 J -10802935.12 -10802934.94 -10802934.75 0.1749 0.0304 *
 Mercury -34284-01-02 23:02 J -10800805.66 -10800805.54 -10800805.42 0.1839 0.0556
 Mercury -34284-11-17 12:28 J -10800487.12 -10800486.98 -10800486.83 0.1679 0.0151
 Mercury -34275-05-26 06:14 J -10797375.32 -10797375.24 -10797375.15 0.1833 0.1277
 Mercury -34274-04-09 16:33 J -10797056.95 -10797056.81 -10797056.67 0.1683 0.0597
 Venus -34274-07-16 17:16 J -10796958.95 -10796958.78 -10796958.62 0.1621 0.0518
 Mercury -34265-08-29 20:23 J -10793626.74 -10793626.65 -10793626.56 0.1688 0.1353
 Mercury -34264-09-21 09:21 J -10793239.21 -10793239.11 -10793239.01 0.1850 0.1069
 Mercury -34263-08-06 03:50 J -10792920.37 -10792920.34 -10792920.31 0.1670 0.1622
 Mercury -34254-02-11 16:04 J -10789808.96 -10789808.83 -10789808.71 0.1845 0.0287
 Mercury -34254-12-27 08:38 J -10789490.26 -10789490.14 -10789490.01 0.1674 0.0949
 Mercury -34245-07-03 23:16 J -10786378.65 -10786378.53 -10786378.41 0.1839 0.0469
 Mercury -34244-05-18 12:57 J -10786060.10 -10786059.96 -10786059.81 0.1679 0.0242
 Venus -34243-08-07 08:52 J -10785614.30 -10785614.13 -10785613.96 0.1902 0.0042
 Venus -34242-07-15 11:45 J -10785272.17 -10785272.01 -10785271.85 0.1619 0.0724
 Moon -34237-09-04 08:09 J -10783394.32 -10783394.16 -10783394.00 0.1777 0.0906
 Earth -34237-09-04 14:09 J -10783394.09 -10783393.91 -10783393.72 0.1777 0.0567 *
 Mercury -34236-11-24 06:14 J -10782948.33 -10782948.24 -10782948.14 0.1833 0.1201
 Mercury -34235-10-08 17:02 J -10782629.93 -10782629.79 -10782629.64 0.1683 0.0500
 Mercury -34225-02-28 20:38 J -10779199.74 -10779199.64 -10779199.54 0.1688 0.1264
 Mercury -34224-03-22 09:21 J -10778812.20 -10778812.11 -10778812.01 0.1850 0.1156
 Mercury -34215-08-12 16:04 J -10775381.95 -10775381.83 -10775381.70 0.1844 0.0376
 Mercury -34214-06-27 08:52 J -10775063.24 -10775063.13 -10775063.01 0.1674 0.1033
 Venus -34208-05-13 05:16 J -10772916.44 -10772916.28 -10772916.12 0.1622 0.0652
 Mercury -34205-01-02 23:02 J -10771951.66 -10771951.54 -10771951.42 0.1838 0.0396

Mercury -34205-11-16 13:26 J -10771633.08 -10771632.94 -10771632.79 0.1679 0.0336

Mercury -34196-05-25 06:28 J -10768521.33 -10768521.23 -10768521.13 0.1833 0.1117

Mercury -34195-04-08 17:31 J -10768202.91 -10768202.77 -10768202.62 0.1683 0.0403

Mercury -34187-10-15 13:55 J -10765090.92 -10765090.92 -10765090.91 0.1827 0.1819

Mercury -34186-08-29 21:07 J -10764772.72 -10764772.62 -10764772.51 0.1688 0.1167

Mercury -34185-09-20 09:35 J -10764385.19 -10764385.10 -10764385.01 0.1850 0.1246

Venus -34177-06-03 11:59 J -10761572.17 -10761572.00 -10761571.83 0.1901 0.0494

Venus -34176-05-11 23:59 J -10761229.66 -10761229.50 -10761229.33 0.1620 0.0592

Mercury -34175-02-10 16:19 J -10760954.94 -10760954.82 -10760954.70 0.1844 0.0455

Mercury -34175-12-26 09:21 J -10760636.21 -10760636.11 -10760636.00 0.1674 0.1126

Mercury -34166-07-03 23:16 J -10757524.66 -10757524.53 -10757524.41 0.1839 0.0310

Mercury -34165-05-17 13:55 J -10757206.07 -10757205.92 -10757205.78 0.1679 0.0420

Moon -34158-09-08 03:07 J -10754536.43 -10754536.37 -10754536.30 0.1773 0.1673

Earth -34158-09-08 10:47 J -10754536.12 -10754536.05 -10754535.99 0.1772 0.1661

Mercury -34157-11-23 06:28 J -10754094.33 -10754094.23 -10754094.13 0.1833 0.1040

Mercury -34156-10-07 17:59 J -10753775.90 -10753775.75 -10753775.61 0.1684 0.0316

Mercury -34147-04-15 13:55 J -10750663.95 -10750663.92 -10750663.89 0.1827 0.1746

Mercury -34146-02-27 21:50 J -10750345.71 -10750345.59 -10750345.47 0.1688 0.1061

Mercury -34145-03-21 09:35 J -10749958.18 -10749958.10 -10749958.01 0.1849 0.1324

Venus -34142-03-10 17:02 J -10748873.94 -10748873.79 -10748873.63 0.1623 0.0789

Mercury -34136-08-11 16:19 J -10746527.94 -10746527.82 -10746527.70 0.1844 0.0534

Mercury -34135-06-26 09:50 J -10746209.19 -10746209.09 -10746208.99 0.1674 0.1219

Mercury -34126-01-01 23:16 J -10743097.65 -10743097.53 -10743097.40 0.1839 0.0226

Mercury -34126-11-16 14:23 J -10742779.05 -10742778.90 -10742778.76 0.1679 0.0514

Mercury -34117-05-24 06:28 J -10739667.33 -10739667.23 -10739667.12 0.1833 0.0959

Mercury -34116-04-07 18:28 J -10739348.88 -10739348.73 -10739348.58 0.1684 0.0216

Venus -34111-03-31 15:07 J -10737530.02 -10737529.87 -10737529.72 0.1900 0.0944

Venus -34110-03-09 12:14 J -10737187.16 -10737186.99 -10737186.83 0.1621 0.0462

Mercury -34108-10-14 14:09 J -10736236.96 -10736236.91 -10736236.87 0.1827 0.1665

Mercury -34107-08-28 22:04 J -10735918.70 -10735918.58 -10735918.46 0.1689 0.0976

Mercury -34106-09-20 09:50 J -10735531.17 -10735531.09 -10735531.01 0.1850 0.1410

Mercury -34096-02-09 16:19 J -10732100.93 -10732100.82 -10732100.70 0.1844 0.0619

Mercury -34096-12-25 10:04 J -10731782.17 -10731782.08 -10731781.98 0.1674 0.1303

Mercury -34087-07-02 23:16 J -10728670.65 -10728670.53 -10728670.41 0.1838 0.0150

Mercury -34086-05-17 14:52 J -10728352.02 -10728351.88 -10728351.74 0.1679 0.0610

Earth -34085-03-03 19:11 J -10728060.80 -10728060.70 -10728060.60 0.1738 0.1471

Moon -34085-03-03 23:45 J -10728060.60 -10728060.51 -10728060.42 0.1738 0.1483 *

Venus -34079-03-31 12:28 J -10725842.08 -10725841.98 -10725841.87 0.1902 0.1509

Mercury -34078-11-23 06:43 J -10725240.33 -10725240.22 -10725240.12 0.1833 0.0879

Mercury -34077-10-06 18:57 J -10724921.86 -10724921.71 -10724921.56 0.1683 0.0124

Venus -34076-01-05 05:02 J -10724831.43 -10724831.29 -10724831.15 0.1623 0.0923

Mercury -34068-04-14 14:09 J -10721809.97 -10721809.91 -10721809.85 0.1827 0.1583

Mercury -34067-02-26 22:33 J -10721491.69 -10721491.56 -10721491.43 0.1688 0.0876

Mercury -34066-03-21 09:50 J -10721104.16 -10721104.09 -10721104.01 0.1850 0.1500

Mercury -34058-07-20 01:55 J -10718061.44 -10718061.42 -10718061.39 0.1694 0.1662

Mercury -34057-08-10 16:33 J -10717673.93 -10717673.81 -10717673.70 0.1844 0.0704

Mercury -34056-06-25 10:33 J -10717355.14 -10717355.06 -10717354.98 0.1674 0.1394

Mercury -34048-12-31 23:31 J -10714243.65 -10714243.52 -10714243.40 0.1838 0.0086

Mercury -34047-11-15 15:07 J -10713925.00 -10713924.87 -10713924.73 0.1679 0.0696

Venus -34045-01-26 18:57 J -10713487.83 -10713487.71 -10713487.60 0.1898 0.1367

Venus -34044-01-03 23:59 J -10713144.67 -10713144.50 -10713144.33 0.1621 0.0324

Mercury -34038-05-24 06:43 J -10710813.33 -10710813.22 -10710813.11 0.1833 0.0798

Mercury -34037-04-06 19:11 J -10710494.85 -10710494.70 -10710494.55 0.1684 0.0049

Mercury -34029-10-13 14:09 J -10707382.98 -10707382.91 -10707382.85 0.1827 0.1514

Mercury -34028-08-27 23:16 J -10707064.67 -10707064.53 -10707064.40 0.1689 0.0776

Mercury -34027-09-19 09:50 J -10706677.15 -10706677.09 -10706677.02 0.1849 0.1577

Mercury -34018-01-18 02:23 J -10703634.45 -10703634.40 -10703634.34 0.1694 0.1561

Mercury -34017-02-09 16:33 J -10703246.92 -10703246.81 -10703246.70 0.1844 0.0783

Mercury -34017-12-24 11:02 J -10702928.10 -10702928.04 -10702927.97 0.1674 0.1489

Venus -34013-01-26 15:35 J -10701799.99 -10701799.85 -10701799.71 0.1901 0.1057

Venus -34012-01-02 18:28 J -10701457.77 -10701457.73 -10701457.68 0.1620 0.1554

Venus -34011-11-02 17:02 J -10700788.92 -10700788.79 -10700788.66 0.1624 0.1057

Mercury -34008-07-01 23:31 J -10699816.64 -10699816.52 -10699816.39 0.1838 0.0067

Mercury -34007-05-16 15:35 J -10699497.98 -10699497.85 -10699497.72 0.1679 0.0790

Moon -34006-03-07 02:23 J -10699203.58 -10699203.40 -10699203.23 0.1742 0.0207

Earth -34006-03-07 05:45 J -10699203.44 -10699203.26 -10699203.07 0.1742 0.0267 *

34TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 34th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Mercury | -33999-11-22 06:43 J | -10696386.33 | -10696386.22 | -10696386.11 | 0.1832 | 0.0721 | | |
| Mercury | -33998-10-06 19:40 J | -10696067.83 | -10696067.68 | -10696067.53 | 0.1684 | 0.0067 | | |
| Mercury | -33989-04-13 14:23 J | -10692955.98 | -10692955.90 | -10692955.83 | 0.1827 | 0.1429 | | |
| Mercury | -33988-02-25 23:31 J | -10692637.66 | -10692637.52 | -10692637.38 | 0.1689 | 0.0686 | | |
| Mercury | -33987-03-20 10:04 J | -10692250.13 | -10692250.08 | -10692250.03 | 0.1849 | 0.1664 | | |
| Venus | -33980-11-22 22:19 J | -10689445.62 | -10689445.57 | -10689445.52 | 0.1897 | 0.1796 | | |
| Mercury | -33979-07-19 02:52 J | -10689207.45 | -10689207.38 | -10689207.30 | 0.1694 | 0.1464 | | |
| Venus | -33979-11-01 12:14 J | -10689102.16 | -10689101.99 | -10689101.81 | 0.1622 | 0.0199 | | |
| Mercury | -33978-08-10 16:47 J | -10688819.91 | -10688819.80 | -10688819.69 | 0.1844 | 0.0871 | | |
| Mercury | -33977-06-24 11:31 J | -10688501.07 | -10688501.02 | -10688500.98 | 0.1674 | 0.1572 | | |
| Mercury | -33969-12-30 23:31 J | -10685389.65 | -10685389.52 | -10685389.40 | 0.1838 | 0.0097 | | |
| Mercury | -33968-11-14 16:04 J | -10685070.96 | -10685070.83 | -10685070.70 | 0.1679 | 0.0884 | | |
| Mercury | -33959-05-23 06:57 J | -10681959.33 | -10681959.21 | -10681959.10 | 0.1833 | 0.0636 | | |

Mercury -33958-04-06 20:09 J -10681640.81 -10681640.66 -10681640.51 0.1684 0.0164

Earth -33953-09-04 15:35 J -10679663.01 -10679662.85 -10679662.69 0.1785 0.1045

Moon -33953-09-04 23:02 J -10679662.69 -10679662.54 -10679662.38 0.1785 0.1050 *

Mercury -33950-10-13 14:23 J -10678528.98 -10678528.90 -10678528.82 0.1827 0.1348

Mercury -33949-08-26 23:59 J -10678210.64 -10678210.50 -10678210.36 0.1689 0.0589

Mercury -33948-09-18 10:19 J -10677823.11 -10677823.07 -10677823.03 0.1849 0.1755

Venus -33948-11-22 19:40 J -10677757.85 -10677757.68 -10677757.52 0.1900 0.0629

Venus -33947-10-31 06:43 J -10677415.30 -10677415.22 -10677415.14 0.1620 0.1425

Venus -33945-08-30 05:02 J -10676746.41 -10676746.29 -10676746.17 0.1625 0.1190

Mercury -33939-01-17 03:21 J -10674780.44 -10674780.36 -10674780.27 0.1694 0.1366

Mercury -33938-02-08 16:47 J -10674392.91 -10674392.80 -10674392.69 0.1844 0.0952

Mercury -33938-12-24 11:45 J -10674074.02 -10674074.01 -10674073.99 0.1674 0.1662

Mercury -33929-06-30 23:45 J -10670962.64 -10670962.51 -10670962.39 0.1838 0.0187

Mercury -33928-05-15 16:19 J -10670643.94 -10670643.82 -10670643.70 0.1679 0.0972

Mercury -33920-11-21 06:57 J -10667532.33 -10667532.21 -10667532.10 0.1832 0.0561

Mercury -33919-10-05 20:38 J -10667213.79 -10667213.64 -10667213.49 0.1684 0.0253

Venus -33913-08-28 23:59 J -10665059.67 -10665059.50 -10665059.32 0.1623 0.0065

Mercury -33910-04-13 14:23 J -10664101.99 -10664101.90 -10664101.82 0.1827 0.1275

Mercury -33909-02-26 00:43 J -10663783.62 -10663783.47 -10663783.33 0.1689 0.0487

Mercury -33908-03-19 10:19 J -10663396.09 -10663396.07 -10663396.06 0.1849 0.1831

Mercury -33900-07-18 03:50 J -10660353.44 -10660353.34 -10660353.24 0.1694 0.1271

Mercury -33899-08-09 16:47 J -10659965.90 -10659965.80 -10659965.69 0.1844 0.1037

Mercury -33890-12-30 23:45 J -10656535.63 -10656535.51 -10656535.38 0.1838 0.0271

Mercury -33889-11-13 16:47 J -10656216.91 -10656216.80 -10656216.68 0.1679 0.1062

Venus -33882-09-19 22:47 J -10653715.72 -10653715.55 -10653715.38 0.1899 0.0181

Venus -33881-08-27 18:57 J -10653372.82 -10653372.71 -10653372.61 0.1621 0.1293

Mercury -33880-05-22 06:57 J -10653105.33 -10653105.21 -10653105.09 0.1832 0.0476

Mercury -33879-04-05 21:07 J -10652786.77 -10652786.62 -10652786.47 0.1684 0.0348

Venus -33879-06-27 16:33 J -10652703.91 -10652703.81 -10652703.71 0.1626 0.1331

Moon -33874-09-08 12:14 J -10650805.10 -10650804.99 -10650804.87 0.1780 0.1390

Earth -33874-09-08 14:23 J -10650805.03 -10650804.90 -10650804.76 0.1780 0.1293 *
 Mercury -33871-10-12 14:23 J -10649674.99 -10649674.90 -10649674.81 0.1827 0.1194
 Mercury -33870-08-27 00:43 J -10649356.61 -10649356.47 -10649356.32 0.1689 0.0405
 Mercury -33860-01-16 04:19 J -10645926.42 -10645926.32 -10645926.21 0.1694 0.1170
 Mercury -33859-02-07 17:02 J -10645538.89 -10645538.79 -10645538.69 0.1844 0.1119
 Mercury -33850-06-30 23:45 J -10642108.63 -10642108.51 -10642108.39 0.1838 0.0342
 Mercury -33849-05-14 17:16 J -10641789.88 -10641789.78 -10641789.67 0.1679 0.1161
 Venus -33847-06-26 11:59 J -10641017.18 -10641017.00 -10641016.83 0.1624 0.0076
 Mercury -33841-11-20 06:57 J -10638678.33 -10638678.21 -10638678.08 0.1832 0.0401
 Mercury -33840-10-04 21:21 J -10638359.75 -10638359.61 -10638359.46 0.1684 0.0443
 Mercury -33831-04-12 14:38 J -10635247.99 -10635247.89 -10635247.80 0.1826 0.1113
 Mercury -33830-02-25 01:26 J -10634929.59 -10634929.44 -10634929.29 0.1689 0.0302
 Mercury -33822-09-02 22:19 J -10631817.59 -10631817.57 -10631817.56 0.1820 0.1806
 Mercury -33821-07-17 04:47 J -10631499.42 -10631499.30 -10631499.18 0.1694 0.1077
 Mercury -33820-08-08 17:02 J -10631111.88 -10631111.79 -10631111.69 0.1844 0.1205
 Venus -33816-07-17 02:38 J -10629673.56 -10629673.39 -10629673.22 0.1898 0.0243
 Venus -33815-06-25 06:57 J -10629330.33 -10629330.21 -10629330.09 0.1622 0.1161
 Venus -33813-04-24 04:33 J -10628661.38 -10628661.31 -10628661.23 0.1627 0.1462
 Mercury -33811-12-29 23:59 J -10627681.63 -10627681.50 -10627681.38 0.1838 0.0430
 Mercury -33810-11-13 17:31 J -10627362.86 -10627362.77 -10627362.67 0.1679 0.1244
 Earth -33801-03-04 12:57 J -10624329.06 -10624328.96 -10624328.86 0.1731 0.1450
 Moon -33801-03-04 17:16 J -10624328.89 -10624328.78 -10624328.67 0.1731 0.1433 *
 Mercury -33801-05-21 07:11 J -10624251.33 -10624251.20 -10624251.08 0.1832 0.0324
 Mercury -33800-04-04 21:50 J -10623932.73 -10623932.59 -10623932.44 0.1684 0.0532
 Mercury -33792-10-11 14:23 J -10620821.00 -10620820.90 -10620820.80 0.1827 0.1041
 Mercury -33791-08-26 01:55 J -10620502.57 -10620502.42 -10620502.27 0.1689 0.0203
 Mercury -33782-03-03 22:19 J -10617390.61 -10617390.57 -10617390.53 0.1821 0.1723
 Mercury -33781-01-16 05:16 J -10617072.40 -10617072.28 -10617072.15 0.1694 0.0976
 Venus -33781-04-22 23:45 J -10616974.68 -10616974.51 -10616974.33 0.1624 0.0213
 Mercury -33780-02-06 17:02 J -10616684.87 -10616684.79 -10616684.70 0.1844 0.1287

Mercury -33771-06-29 23:59 J -10613254.62 -10613254.50 -10613254.38 0.1838 0.0517

Mercury -33770-05-14 17:59 J -10612935.84 -10612935.75 -10612935.66 0.1679 0.1335

Mercury -33762-11-20 07:11 J -10609824.33 -10609824.20 -10609824.08 0.1832 0.0241

Mercury -33761-10-03 22:19 J -10609505.71 -10609505.57 -10609505.43 0.1684 0.0624

Mercury -33752-04-11 14:38 J -10606393.99 -10606393.89 -10606393.79 0.1826 0.0955

Mercury -33751-02-24 02:09 J -10606075.56 -10606075.41 -10606075.26 0.1689 0.0120

Venus -33750-05-14 05:45 J -10605631.42 -10605631.26 -10605631.10 0.1896 0.0685

Venus -33749-04-21 18:57 J -10605287.85 -10605287.71 -10605287.58 0.1622 0.1027

Venus -33747-02-19 15:50 J -10604618.86 -10604618.84 -10604618.82 0.1628 0.1608

Mercury -33743-09-01 22:04 J -10602963.62 -10602963.58 -10602963.53 0.1820 0.1657

Mercury -33742-07-17 05:45 J -10602645.39 -10602645.26 -10602645.13 0.1694 0.0879

Mercury -33741-08-07 17:16 J -10602257.86 -10602257.78 -10602257.70 0.1843 0.1370

Mercury -33733-12-06 08:52 J -10599215.15 -10599215.13 -10599215.11 0.1699 0.1678

Mercury -33732-12-28 23:59 J -10598827.62 -10598827.50 -10598827.38 0.1838 0.0585

Mercury -33731-11-12 18:28 J -10598508.80 -10598508.73 -10598508.65 0.1679 0.1429

Earth -33722-03-07 23:02 J -10595471.73 -10595471.54 -10595471.35 0.1736 0.0261

Moon -33722-03-08 05:59 J -10595471.43 -10595471.25 -10595471.07 0.1736 0.0339 *

Mercury -33722-05-21 07:26 J -10595397.32 -10595397.19 -10595397.07 0.1832 0.0162

Mercury -33721-04-03 22:47 J -10595078.69 -10595078.55 -10595078.41 0.1684 0.0719

Venus -33718-05-14 01:55 J -10593943.50 -10593943.42 -10593943.35 0.1900 0.1697

Venus -33715-02-18 11:31 J -10592932.20 -10592932.02 -10592931.85 0.1625 0.0348

Mercury -33713-10-10 14:38 J -10591967.00 -10591966.89 -10591966.78 0.1826 0.0877

Mercury -33712-08-25 02:38 J -10591648.54 -10591648.39 -10591648.24 0.1689 0.0036

Mercury -33703-03-02 22:19 J -10588536.63 -10588536.57 -10588536.51 0.1820 0.1575

Mercury -33702-01-15 06:14 J -10588218.38 -10588218.24 -10588218.11 0.1694 0.0785

Mercury -33701-02-06 17:16 J -10587830.85 -10587830.78 -10587830.70 0.1843 0.1451

Mercury -33693-06-06 09:21 J -10584788.17 -10584788.11 -10584788.06 0.1700 0.1586

Mercury -33692-06-29 00:14 J -10584400.61 -10584400.49 -10584400.38 0.1838 0.0676

Mercury -33691-05-13 18:57 J -10584081.78 -10584081.71 -10584081.65 0.1679 0.1514

Venus -33684-03-10 09:21 J -10581589.25 -10581589.11 -10581588.97 0.1895 0.1115

Venus -33683-02-17 06:43 J -10581245.36 -10581245.22 -10581245.07 0.1623 0.0895
 Mercury -33683-11-19 07:11 J -10580970.32 -10580970.20 -10580970.07 0.1832 0.0087
 Mercury -33682-10-03 23:16 J -10580651.67 -10580651.53 -10580651.40 0.1684 0.0810
 Mercury -33673-04-10 14:38 J -10577540.00 -10577539.89 -10577539.78 0.1826 0.0802
 Mercury -33672-02-23 03:21 J -10577221.52 -10577221.36 -10577221.21 0.1689 0.0093
 Moon -33669-09-04 13:26 J -10575932.02 -10575931.94 -10575931.85 0.1793 0.1642
 Earth -33669-09-04 15:07 J -10575931.95 -10575931.87 -10575931.78 0.1793 0.1605 *
 Mercury -33664-08-31 22:19 J -10574109.63 -10574109.57 -10574109.50 0.1820 0.1494
 Mercury -33663-07-16 06:43 J -10573791.36 -10573791.22 -10573791.08 0.1694 0.0691
 Mercury -33662-08-07 17:31 J -10573403.84 -10573403.77 -10573403.70 0.1844 0.1539
 Mercury -33654-12-06 09:50 J -10570361.16 -10570361.09 -10570361.02 0.1699 0.1482
 Mercury -33653-12-28 00:14 J -10569973.60 -10569973.49 -10569973.37 0.1838 0.0760
 Venus -33652-03-10 05:45 J -10569901.38 -10569901.26 -10569901.13 0.1899 0.1268
 Mercury -33652-11-11 19:11 J -10569654.74 -10569654.70 -10569654.66 0.1679 0.1605
 Venus -33650-12-16 23:16 J -10568889.70 -10568889.53 -10568889.36 0.1626 0.0484
 Mercury -33643-05-20 07:26 J -10566543.32 -10566543.19 -10566543.07 0.1832 0.0030
 Mercury -33642-04-03 23:31 J -10566224.64 -10566224.52 -10566224.39 0.1684 0.0903
 Mercury -33634-10-10 14:52 J -10563113.00 -10563112.88 -10563112.77 0.1826 0.0723
 Mercury -33633-08-24 03:35 J -10562794.50 -10562794.35 -10562794.20 0.1689 0.0171
 Mercury -33624-03-01 22:19 J -10559682.64 -10559682.57 -10559682.49 0.1820 0.1423
 Mercury -33623-01-14 07:11 J -10559364.34 -10559364.20 -10559364.06 0.1694 0.0588
 Mercury -33622-02-05 17:31 J -10558976.83 -10558976.77 -10558976.71 0.1843 0.1619
 Venus -33618-01-05 13:11 J -10557547.05 -10557546.95 -10557546.85 0.1893 0.1524
 Venus -33618-12-15 18:28 J -10557202.88 -10557202.73 -10557202.57 0.1624 0.0759
 Mercury -33614-06-06 10:19 J -10555934.16 -10555934.07 -10555933.98 0.1699 0.1383
 Mercury -33613-06-28 00:14 J -10555546.60 -10555546.49 -10555546.38 0.1838 0.0834
 Mercury -33604-11-18 07:26 J -10552116.31 -10552116.19 -10552116.06 0.1832 0.0092
 Mercury -33603-10-02 23:59 J -10551797.62 -10551797.50 -10551797.38 0.1684 0.0992
 Mercury -33594-04-10 14:52 J -10548686.00 -10548685.88 -10548685.76 0.1826 0.0638
 Mercury -33593-02-23 04:04 J -10548367.48 -10548367.33 -10548367.18 0.1689 0.0265

Earth -33590-09-08 15:07 J -10547074.05 -10547073.87 -10547073.70 0.1788 0.0818
 Moon -33590-09-08 22:47 J -10547073.71 -10547073.55 -10547073.38 0.1788 0.0966 *
 Venus -33586-01-05 09:07 J -10545859.28 -10545859.12 -10545858.97 0.1897 0.0829
 Mercury -33585-08-30 22:33 J -10545255.65 -10545255.56 -10545255.48 0.1820 0.1343
 Mercury -33584-07-15 07:26 J -10544937.33 -10544937.19 -10544937.04 0.1694 0.0502
 Venus -33584-10-13 11:02 J -10544847.20 -10544847.04 -10544846.87 0.1627 0.0619
 Mercury -33583-08-06 17:31 J -10544549.81 -10544549.77 -10544549.72 0.1843 0.1706
 Mercury -33575-12-05 10:47 J -10541507.15 -10541507.05 -10541506.96 0.1700 0.1292
 Mercury -33574-12-28 00:28 J -10541119.59 -10541119.48 -10541119.38 0.1838 0.0921
 Mercury -33564-05-19 07:26 J -10537689.31 -10537689.19 -10537689.06 0.1832 0.0169
 Mercury -33563-04-03 00:28 J -10537370.59 -10537370.48 -10537370.37 0.1684 0.1085
 Mercury -33555-10-09 14:52 J -10534259.00 -10534258.88 -10534258.76 0.1826 0.0565
 Mercury -33554-08-24 04:33 J -10533940.46 -10533940.31 -10533940.16 0.1689 0.0361
 Venus -33552-10-12 06:43 J -10533160.38 -10533160.22 -10533160.06 0.1625 0.0630
 Mercury -33545-02-29 22:33 J -10530828.65 -10530828.56 -10530828.47 0.1820 0.1260
 Mercury -33544-01-13 08:09 J -10530510.31 -10530510.16 -10530510.02 0.1694 0.0403
 Mercury -33543-02-04 17:45 J -10530122.79 -10530122.76 -10530122.73 0.1843 0.1787
 Mercury -33535-06-05 11:16 J -10527080.14 -10527080.03 -10527079.92 0.1699 0.1190
 Mercury -33534-06-28 00:28 J -10526692.58 -10526692.48 -10526692.37 0.1837 0.1008
 Mercury -33525-11-17 07:26 J -10523262.31 -10523262.19 -10523262.06 0.1832 0.0255
 Mercury -33524-10-02 00:43 J -10522943.57 -10522943.47 -10522943.36 0.1684 0.1176
 Venus -33521-11-01 13:26 J -10521817.11 -10521816.94 -10521816.77 0.1896 0.0415
 Venus -33518-08-10 22:47 J -10520804.71 -10520804.55 -10520804.39 0.1628 0.0755
 Moon -33517-03-05 00:14 J -10520597.60 -10520597.49 -10520597.38 0.1724 0.1420
 Earth -33517-03-05 07:26 J -10520597.30 -10520597.19 -10520597.09 0.1725 0.1410
 Mercury -33515-04-09 14:52 J -10519831.99 -10519831.88 -10519831.76 0.1826 0.0486
 Mercury -33514-02-22 04:47 J -10519513.44 -10519513.30 -10519513.15 0.1689 0.0449
 Mercury -33506-08-30 22:19 J -10516401.66 -10516401.57 -10516401.47 0.1820 0.1195
 Mercury -33505-07-14 08:38 J -10516083.29 -10516083.14 -10516082.99 0.1694 0.0306
 Mercury -33496-12-04 11:45 J -10512653.13 -10512653.01 -10512652.90 0.1699 0.1092

Mercury -33495-12-27 00:28 J -10512265.58 -10512265.48 -10512265.38 0.1837 0.1078
 Venus -33486-08-09 18:14 J -10509117.91 -10509117.74 -10509117.57 0.1626 0.0490
 Mercury -33485-05-18 07:40 J -10508835.30 -10508835.18 -10508835.05 0.1832 0.0336
 Mercury -33484-04-02 01:11 J -10508516.54 -10508516.45 -10508516.35 0.1684 0.1268
 Mercury -33476-10-08 14:52 J -10505405.00 -10505404.88 -10505404.76 0.1826 0.0409
 Mercury -33475-08-23 05:16 J -10505086.42 -10505086.28 -10505086.14 0.1689 0.0541
 Mercury -33466-02-28 22:33 J -10501974.65 -10501974.56 -10501974.46 0.1820 0.1111
 Mercury -33465-01-13 08:52 J -10501656.28 -10501656.13 -10501655.98 0.1694 0.0212
 Mercury -33457-07-21 06:28 J -10498544.25 -10498544.23 -10498544.21 0.1814 0.1786
 Mercury -33456-06-04 11:59 J -10498226.12 -10498226.00 -10498225.87 0.1700 0.0999
 Mercury -33455-06-27 00:43 J -10497838.57 -10497838.47 -10497838.38 0.1837 0.1168
 Venus -33455-08-29 16:33 J -10497774.98 -10497774.81 -10497774.63 0.1895 0.0034
 Venus -33452-06-07 10:19 J -10496762.22 -10496762.07 -10496761.93 0.1630 0.0896
 Mercury -33446-11-17 07:40 J -10494408.30 -10494408.18 -10494408.06 0.1831 0.0403
 Mercury -33445-10-01 01:40 J -10494089.52 -10494089.43 -10494089.34 0.1684 0.1356
 Moon -33438-03-08 16:47 J -10491740.01 -10491739.80 -10491739.60 0.1729 0.0182
 Earth -33438-03-08 16:47 J -10491739.99 -10491739.80 -10491739.62 0.1729 0.0268 *
 Mercury -33436-04-08 15:07 J -10490977.99 -10490977.87 -10490977.75 0.1826 0.0330
 Mercury -33435-02-21 05:45 J -10490659.40 -10490659.26 -10490659.12 0.1689 0.0641
 Mercury -33427-08-29 22:47 J -10487547.65 -10487547.55 -10487547.45 0.1820 0.1029
 Mercury -33426-07-14 09:21 J -10487229.26 -10487229.11 -10487228.96 0.1694 0.0117
 Venus -33420-06-06 05:59 J -10485075.42 -10485075.25 -10485075.07 0.1627 0.0359
 Mercury -33417-01-20 06:28 J -10484117.27 -10484117.23 -10484117.19 0.1814 0.1713
 Mercury -33417-12-03 12:43 J -10483799.10 -10483798.97 -10483798.84 0.1700 0.0899
 Mercury -33416-12-26 00:43 J -10483411.56 -10483411.47 -10483411.38 0.1837 0.1250
 Mercury -33406-05-18 07:40 J -10479981.30 -10479981.18 -10479981.06 0.1832 0.0491
 Mercury -33405-04-01 02:09 J -10479662.49 -10479662.41 -10479662.34 0.1684 0.1447
 Mercury -33397-10-07 15:07 J -10476550.99 -10476550.87 -10476550.75 0.1826 0.0246
 Mercury -33396-08-22 05:59 J -10476232.38 -10476232.25 -10476232.11 0.1689 0.0724
 Venus -33389-06-25 20:52 J -10473732.80 -10473732.63 -10473732.46 0.1893 0.0427

Venus -33388-06-05 01:11 J -10473388.48 -10473388.45 -10473388.41 0.1624 0.1582
 Mercury -33387-02-27 22:33 J -10473120.66 -10473120.56 -10473120.46 0.1820 0.0961
 Mercury -33386-01-12 09:50 J -10472802.24 -10472802.09 -10472801.93 0.1694 0.0056
 Venus -33386-04-04 22:04 J -10472719.71 -10472719.58 -10472719.44 0.1631 0.1029
 Mercury -33378-07-21 06:43 J -10469690.27 -10469690.22 -10469690.17 0.1814 0.1634
 Mercury -33377-06-03 12:57 J -10469372.09 -10469371.96 -10469371.82 0.1700 0.0803
 Mercury -33376-06-26 00:43 J -10468984.56 -10468984.47 -10468984.39 0.1837 0.1325
 Mercury -33368-10-24 15:50 J -10465941.88 -10465941.84 -10465941.79 0.1705 0.1615
 Mercury -33367-11-16 07:55 J -10465554.29 -10465554.17 -10465554.05 0.1832 0.0572
 Mercury -33366-10-01 02:23 J -10465235.46 -10465235.40 -10465235.34 0.1684 0.1536
 Mercury -33357-04-07 15:07 J -10462123.99 -10462123.87 -10462123.74 0.1826 0.0169
 Mercury -33356-02-20 06:43 J -10461805.35 -10461805.22 -10461805.09 0.1689 0.0823
 Venus -33354-04-03 17:45 J -10461032.93 -10461032.76 -10461032.58 0.1628 0.0219
 Mercury -33348-08-28 22:47 J -10458693.66 -10458693.55 -10458693.45 0.1820 0.0879
 Mercury -33347-07-13 10:04 J -10458375.23 -10458375.08 -10458374.92 0.1694 0.0086
 Mercury -33338-01-19 06:28 J -10455263.29 -10455263.23 -10455263.17 0.1814 0.1562
 Mercury -33338-12-03 13:26 J -10454945.08 -10454944.94 -10454944.80 0.1700 0.0709
 Mercury -33337-12-25 00:57 J -10454557.54 -10454557.46 -10454557.39 0.1837 0.1412
 Mercury -33328-04-24 16:33 J -10451514.88 -10451514.81 -10451514.74 0.1705 0.1507
 Mercury -33327-05-17 07:55 J -10451127.29 -10451127.17 -10451127.06 0.1831 0.0647
 Mercury -33326-04-01 02:52 J -10450808.41 -10450808.38 -10450808.34 0.1685 0.1629
 Venus -33323-04-22 23:59 J -10449690.65 -10449690.50 -10449690.34 0.1891 0.0856
 Venus -33322-04-02 13:11 J -10449346.03 -10449345.95 -10449345.87 0.1625 0.1446
 Venus -33320-01-30 09:07 J -10448677.24 -10448677.12 -10448677.00 0.1632 0.1178
 Mercury -33318-10-07 15:07 J -10447696.99 -10447696.87 -10447696.74 0.1826 0.0101
 Mercury -33317-08-21 06:57 J -10447378.33 -10447378.21 -10447378.08 0.1689 0.0915
 Mercury -33308-02-26 22:47 J -10444266.66 -10444266.55 -10444266.44 0.1820 0.0797
 Mercury -33307-01-11 10:47 J -10443948.21 -10443948.05 -10443947.90 0.1694 0.0174
 Moon -33306-09-08 06:43 J -10443343.43 -10443343.22 -10443343.01 0.1796 0.0022
 Earth -33306-09-08 13:11 J -10443343.15 -10443342.95 -10443342.76 0.1796 0.0240 *

Mercury -33299-07-20 06:43 J -10440836.29 -10440836.22 -10440836.16 0.1814 0.1484

Mercury -33298-06-03 13:55 J -10440518.06 -10440517.92 -10440517.77 0.1700 0.0610

Mercury -33297-06-25 00:57 J -10440130.53 -10440130.46 -10440130.39 0.1837 0.1499

Venus -33291-04-22 19:11 J -10438002.81 -10438002.70 -10438002.59 0.1895 0.1454

Mercury -33289-10-23 16:47 J -10437087.88 -10437087.80 -10437087.72 0.1705 0.1421

Venus -33288-01-29 05:02 J -10436990.46 -10436990.29 -10436990.11 0.1629 0.0087

Mercury -33288-11-15 07:55 J -10436700.28 -10436700.17 -10436700.05 0.1831 0.0728

Mercury -33278-04-07 15:21 J -10433269.99 -10433269.86 -10433269.74 0.1826 0.0048

Mercury -33277-02-20 07:26 J -10432951.31 -10432951.19 -10432951.07 0.1689 0.1002

Mercury -33269-08-27 22:47 J -10429839.67 -10429839.55 -10429839.44 0.1820 0.0731

Mercury -33268-07-12 11:16 J -10429521.18 -10429521.03 -10429520.88 0.1695 0.0267

Mercury -33259-01-18 06:43 J -10426409.30 -10426409.22 -10426409.15 0.1814 0.1406

Mercury -33259-12-02 14:23 J -10426091.04 -10426090.90 -10426090.75 0.1700 0.0513

Mercury -33258-12-25 00:57 J -10425703.52 -10425703.46 -10425703.40 0.1837 0.1570

Venus -33257-02-18 04:04 J -10425648.46 -10425648.33 -10425648.21 0.1890 0.1264

Venus -33256-01-28 00:57 J -10425303.56 -10425303.46 -10425303.36 0.1626 0.1313

Venus -33255-11-27 20:38 J -10424634.74 -10424634.64 -10424634.54 0.1633 0.1317

Mercury -33249-04-23 17:16 J -10422660.87 -10422660.78 -10422660.68 0.1705 0.1319

Mercury -33248-05-16 08:09 J -10422273.27 -10422273.16 -10422273.05 0.1831 0.0815

Mercury -33239-10-06 15:21 J -10418842.99 -10418842.86 -10418842.74 0.1825 0.0079

Mercury -33238-08-21 07:40 J -10418524.29 -10418524.18 -10418524.06 0.1689 0.1095

Earth -33233-03-06 01:26 J -10416865.55 -10416865.44 -10416865.33 0.1718 0.1374

Moon -33233-03-06 01:26 J -10416865.55 -10416865.44 -10416865.33 0.1718 0.1300 *

Mercury -33229-02-26 22:47 J -10415412.66 -10415412.55 -10415412.43 0.1820 0.0647

Mercury -33228-01-10 11:31 J -10415094.17 -10415094.02 -10415093.87 0.1695 0.0354

Venus -33225-02-17 23:16 J -10413960.67 -10413960.53 -10413960.38 0.1894 0.1043

Venus -33223-11-26 16:47 J -10412947.98 -10412947.80 -10412947.62 0.1630 0.0060

Mercury -33220-07-19 06:43 J -10411982.30 -10411982.22 -10411982.14 0.1813 0.1332

Mercury -33219-06-02 14:52 J -10411664.03 -10411663.88 -10411663.73 0.1700 0.0419

Mercury -33218-06-25 01:11 J -10411276.50 -10411276.45 -10411276.40 0.1837 0.1659

Mercury -33210-10-23 17:59 J -10408233.86 -10408233.75 -10408233.65 0.1705 0.1217
 Mercury -33209-11-14 07:55 J -10407846.28 -10407846.17 -10407846.06 0.1831 0.0885
 Mercury -33199-04-06 15:21 J -10404415.98 -10404415.86 -10404415.73 0.1826 0.0152
 Mercury -33198-02-19 08:23 J -10404097.26 -10404097.15 -10404097.05 0.1689 0.1192
 Venus -33192-12-15 08:09 J -10401606.24 -10401606.16 -10401606.08 0.1887 0.1656
 Venus -33191-11-25 12:28 J -10401261.10 -10401260.98 -10401260.86 0.1627 0.1175
 Mercury -33190-08-27 23:02 J -10400985.66 -10400985.54 -10400985.43 0.1820 0.0565
 Mercury -33189-07-11 11:59 J -10400667.15 -10400667.00 -10400666.86 0.1695 0.0447
 Venus -33189-09-24 07:55 J -10400592.24 -10400592.17 -10400592.09 0.1635 0.1462
 Mercury -33180-01-17 06:43 J -10397555.31 -10397555.22 -10397555.13 0.1813 0.1259
 Mercury -33180-12-01 15:21 J -10397237.01 -10397236.86 -10397236.71 0.1700 0.0324
 Mercury -33179-12-24 01:11 J -10396849.49 -10396849.45 -10396849.41 0.1837 0.1740
 Mercury -33170-04-23 18:14 J -10393806.85 -10393806.74 -10393806.63 0.1705 0.1127
 Mercury -33169-05-15 08:09 J -10393419.26 -10393419.16 -10393419.05 0.1831 0.0971
 Mercury -33160-10-05 15:21 J -10389988.98 -10389988.86 -10389988.73 0.1825 0.0231
 Venus -33160-12-15 02:52 J -10389918.54 -10389918.38 -10389918.21 0.1892 0.0621
 Mercury -33159-08-20 08:38 J -10389670.24 -10389670.14 -10389670.05 0.1690 0.1275
 Venus -33157-09-23 04:19 J -10388905.49 -10388905.32 -10388905.14 0.1631 0.0201
 Moon -33154-03-09 04:19 J -10388008.50 -10388008.32 -10388008.13 0.1722 0.0033
 Earth -33154-03-09 10:47 J -10388008.24 -10388008.05 -10388007.87 0.1722 0.0284 *
 Mercury -33150-02-25 22:47 J -10386558.67 -10386558.55 -10386558.43 0.1819 0.0498
 Mercury -33149-01-10 12:28 J -10386240.12 -10386239.98 -10386239.83 0.1695 0.0549
 Mercury -33141-07-18 06:43 J -10383128.31 -10383128.22 -10383128.12 0.1814 0.1179
 Mercury -33140-06-01 15:50 J -10382809.99 -10382809.84 -10382809.69 0.1700 0.0228
 Mercury -33139-06-24 01:11 J -10382422.46 -10382422.45 -10382422.44 0.1837 0.1818
 Mercury -33131-10-22 18:43 J -10379379.84 -10379379.72 -10379379.60 0.1705 0.1027
 Mercury -33130-11-14 08:23 J -10378992.26 -10378992.15 -10378992.05 0.1831 0.1057
 Venus -33125-09-22 00:28 J -10377218.61 -10377218.48 -10377218.34 0.1628 0.1046
 Venus -33123-07-22 19:11 J -10376549.73 -10376549.70 -10376549.67 0.1636 0.1606
 Mercury -33120-04-05 15:35 J -10375561.98 -10375561.85 -10375561.73 0.1825 0.0314

Mercury -33119-02-18 09:07 J -10375243.21 -10375243.12 -10375243.04 0.1689 0.1370
 Mercury -33111-08-26 23:02 J -10372131.66 -10372131.54 -10372131.42 0.1819 0.0414
 Mercury -33110-07-11 12:43 J -10371813.11 -10371812.97 -10371812.83 0.1695 0.0631
 Mercury -33101-01-17 06:43 J -10368701.31 -10368701.22 -10368701.12 0.1813 0.1106
 Mercury -33101-11-30 16:19 J -10368382.98 -10368382.82 -10368382.67 0.1700 0.0142
 Venus -33094-10-12 07:26 J -10365876.36 -10365876.19 -10365876.02 0.1891 0.0221
 Mercury -33092-06-08 14:52 J -10365270.90 -10365270.88 -10365270.86 0.1808 0.1772
 Mercury -33091-04-22 19:26 J -10364952.82 -10364952.69 -10364952.57 0.1705 0.0922
 Venus -33091-07-21 15:50 J -10364863.01 -10364862.84 -10364862.67 0.1632 0.0337
 Mercury -33090-05-15 08:09 J -10364565.25 -10364565.16 -10364565.06 0.1831 0.1129
 Mercury -33081-10-04 15:35 J -10361134.97 -10361134.85 -10361134.73 0.1825 0.0388
 Mercury -33080-08-19 09:21 J -10360816.18 -10360816.11 -10360816.03 0.1689 0.1460
 Mercury -33071-02-24 23:02 J -10357704.66 -10357704.54 -10357704.42 0.1819 0.0333
 Mercury -33070-01-09 13:11 J -10357386.08 -10357385.95 -10357385.81 0.1695 0.0728
 Mercury -33062-07-18 06:43 J -10354274.32 -10354274.22 -10354274.12 0.1813 0.1030
 Mercury -33061-05-31 16:47 J -10353955.96 -10353955.80 -10353955.65 0.1700 0.0057
 Venus -33059-07-20 11:45 J -10353176.16 -10353176.01 -10353175.86 0.1629 0.0904
 Mercury -33053-12-07 14:52 J -10350843.92 -10350843.88 -10350843.84 0.1807 0.1696
 Mercury -33052-10-21 19:40 J -10350525.82 -10350525.68 -10350525.55 0.1705 0.0838
 Mercury -33051-11-13 08:23 J -10350138.25 -10350138.15 -10350138.06 0.1831 0.1210
 Mercury -33042-03-13 22:19 J -10347095.60 -10347095.57 -10347095.53 0.1711 0.1653
 Mercury -33041-04-04 15:35 J -10346707.97 -10346707.85 -10346707.73 0.1825 0.0466
 Mercury -33040-02-17 09:50 J -10346389.15 -10346389.09 -10346389.03 0.1690 0.1548
 Mercury -33032-08-25 23:02 J -10343277.66 -10343277.54 -10343277.42 0.1819 0.0263
 Mercury -33031-07-10 13:55 J -10342959.06 -10342958.92 -10342958.79 0.1695 0.0828
 Venus -33028-08-08 11:02 J -10341834.22 -10341834.04 -10341833.87 0.1889 0.0201
 Venus -33025-05-18 03:21 J -10340820.53 -10340820.36 -10340820.20 0.1634 0.0480
 Mercury -33022-01-16 06:57 J -10339847.32 -10339847.21 -10339847.11 0.1813 0.0949
 Moon -33022-09-08 06:57 J -10339612.38 -10339612.21 -10339612.04 0.1804 0.0667
 Earth -33022-09-08 09:07 J -10339612.31 -10339612.12 -10339611.92 0.1804 0.0425 *

Mercury -33022-11-30 17:02 J -10339528.94 -10339528.79 -10339528.63 0.1700 0.0070

Mercury -33013-06-07 14:52 J -10336416.93 -10336416.88 -10336416.83 0.1807 0.1618

Mercury -33012-04-21 20:09 J -10336098.80 -10336098.66 -10336098.52 0.1705 0.0735

Mercury -33011-05-14 08:38 J -10335711.23 -10335711.14 -10335711.06 0.1831 0.1300

Mercury -33003-09-11 22:47 J -10332668.61 -10332668.55 -10332668.49 0.1711 0.1561

Mercury -33002-10-04 15:35 J -10332280.97 -10332280.85 -10332280.73 0.1825 0.0545

Mercury -33001-08-18 10:19 J -10331962.11 -10331962.07 -10331962.04 0.1690 0.1640

33RD MILLENNIUM BCE

This is a list of transits visible from Mars in the 33rd millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|--------------|--------------|--------------|--------|--------|-------|---|
| Venus | -32993-05-16 23:31 J | -10329133.67 | -10329133.52 | -10329133.36 | 0.1630 | 0.0771 | | |
| Mercury | -32992-02-23 23:02 J | -10328850.66 | -10328850.54 | -10328850.41 | 0.1819 | 0.0188 | | |
| Mercury | -32991-01-08 14:09 J | -10328532.04 | -10328531.91 | -10328531.79 | 0.1695 | 0.0912 | | |
| Mercury | -32983-07-17 06:57 J | -10325420.32 | -10325420.21 | -10325420.11 | 0.1813 | 0.0877 | | |
| Mercury | -32982-05-31 17:31 J | -10325101.92 | -10325101.77 | -10325101.62 | 0.1700 | 0.0153 | | |
| Mercury | -32974-12-07 14:52 J | -10321989.94 | -10321989.88 | -10321989.82 | 0.1807 | 0.1548 | | |
| Mercury | -32973-10-20 20:38 J | -10321671.78 | -10321671.64 | -10321671.50 | 0.1705 | 0.0633 | | |
| Mercury | -32972-11-12 08:23 J | -10321284.23 | -10321284.15 | -10321284.07 | 0.1831 | 0.1367 | | |
| Mercury | -32963-03-12 23:16 J | -10318241.61 | -10318241.53 | -10318241.45 | 0.1711 | 0.1458 | | |
| Mercury | -32962-04-04 15:50 J | -10317853.96 | -10317853.84 | -10317853.73 | 0.1825 | 0.0629 | | |
| Venus | -32962-06-05 15:21 J | -10317792.02 | -10317791.86 | -10317791.69 | 0.1887 | 0.0590 | | |
| Venus | -32959-03-15 14:52 J | -10316778.05 | -10316777.88 | -10316777.72 | 0.1635 | 0.0616 | | |

Mercury -32953-08-24 23:16 J -10314423.65 -10314423.53 -10314423.41 0.1819 0.0100
 Mercury -32952-07-09 14:23 J -10314105.02 -10314104.90 -10314104.78 0.1695 0.1005
 Earth -32949-03-06 20:38 J -10313133.76 -10313133.64 -10313133.52 0.1712 0.1310
 Moon -32949-03-07 02:52 J -10313133.52 -10313133.38 -10313133.23 0.1712 0.1105 *
 Mercury -32943-01-15 06:57 J -10310993.32 -10310993.21 -10310993.10 0.1813 0.0802
 Mercury -32943-11-29 17:59 J -10310674.90 -10310674.75 -10310674.60 0.1700 0.0247
 Mercury -32934-06-07 15:07 J -10307562.94 -10307562.87 -10307562.81 0.1807 0.1470
 Mercury -32933-04-20 21:07 J -10307244.77 -10307244.62 -10307244.48 0.1706 0.0545
 Mercury -32932-05-13 08:38 J -10306857.22 -10306857.14 -10306857.07 0.1831 0.1456
 Venus -32930-06-05 09:50 J -10306104.17 -10306104.09 -10306104.01 0.1892 0.1667
 Venus -32927-03-14 10:47 J -10305091.21 -10305091.05 -10305090.88 0.1631 0.0631
 Mercury -32924-09-10 23:45 J -10303814.60 -10303814.51 -10303814.42 0.1711 0.1357
 Mercury -32923-10-03 15:50 J -10303426.96 -10303426.84 -10303426.73 0.1825 0.0704
 Mercury -32913-02-23 23:02 J -10299996.66 -10299996.54 -10299996.41 0.1819 0.0053
 Mercury -32912-01-07 15:07 J -10299677.98 -10299677.87 -10299677.76 0.1695 0.1104
 Mercury -32904-07-16 06:57 J -10296566.32 -10296566.21 -10296566.09 0.1813 0.0720
 Mercury -32903-05-30 18:28 J -10296247.88 -10296247.73 -10296247.58 0.1700 0.0343
 Venus -32896-04-01 19:11 J -10293749.85 -10293749.70 -10293749.56 0.1885 0.0995
 Mercury -32895-12-06 14:52 J -10293135.95 -10293135.88 -10293135.80 0.1807 0.1396
 Mercury -32894-10-20 21:35 J -10292817.75 -10292817.60 -10292817.46 0.1706 0.0446
 Venus -32893-01-11 01:40 J -10292735.58 -10292735.43 -10292735.27 0.1636 0.0764
 Mercury -32893-11-11 08:38 J -10292430.20 -10292430.14 -10292430.07 0.1831 0.1541
 Mercury -32884-03-12 00:14 J -10289387.59 -10289387.49 -10289387.39 0.1711 0.1262
 Mercury -32883-04-03 15:50 J -10288999.95 -10288999.84 -10288999.73 0.1825 0.0783
 Mercury -32874-08-24 23:16 J -10285569.65 -10285569.53 -10285569.41 0.1819 0.0060
 Mercury -32873-07-08 15:21 J -10285250.97 -10285250.86 -10285250.76 0.1695 0.1187
 Earth -32870-03-10 05:31 J -10284276.46 -10284276.27 -10284276.09 0.1716 0.0326
 Moon -32870-03-10 09:07 J -10284276.30 -10284276.12 -10284275.94 0.1716 0.0210 *
 Mercury -32864-01-14 06:57 J -10282139.32 -10282139.21 -10282139.10 0.1813 0.0648
 Venus -32864-04-01 13:11 J -10282062.08 -10282061.95 -10282061.82 0.1890 0.1239

Mercury -32864-11-28 18:57 J -10281820.86 -10281820.71 -10281820.57 0.1700 0.0438
 Venus -32861-01-09 22:19 J -10281048.74 -10281048.57 -10281048.40 0.1633 0.0491
 Mercury -32855-06-06 15:07 J -10278708.96 -10278708.87 -10278708.79 0.1807 0.1322
 Mercury -32854-04-20 22:04 J -10278390.73 -10278390.58 -10278390.43 0.1705 0.0342
 Mercury -32853-05-12 08:38 J -10278003.20 -10278003.14 -10278003.08 0.1830 0.1611
 Mercury -32845-09-10 00:43 J -10274960.58 -10274960.47 -10274960.36 0.1711 0.1165
 Mercury -32844-10-02 15:50 J -10274572.95 -10274572.84 -10274572.73 0.1825 0.0866
 Mercury -32834-02-22 23:16 J -10271142.65 -10271142.53 -10271142.40 0.1819 0.0151
 Mercury -32833-01-07 15:50 J -10270823.94 -10270823.84 -10270823.74 0.1695 0.1283
 Venus -32830-01-27 23:16 J -10269707.64 -10269707.53 -10269707.41 0.1883 0.1383
 Venus -32828-11-07 13:11 J -10268693.10 -10268692.95 -10268692.80 0.1638 0.0901
 Mercury -32825-07-15 06:57 J -10267712.32 -10267712.21 -10267712.09 0.1813 0.0572
 Mercury -32824-05-29 19:26 J -10267393.84 -10267393.69 -10267393.55 0.1700 0.0533
 Mercury -32816-12-05 15:07 J -10264281.96 -10264281.87 -10264281.79 0.1807 0.1246
 Mercury -32815-10-19 22:19 J -10263963.72 -10263963.57 -10263963.42 0.1706 0.0256
 Mercury -32814-11-11 08:52 J -10263576.18 -10263576.13 -10263576.09 0.1831 0.1697
 Mercury -32805-03-11 01:11 J -10260533.57 -10260533.45 -10260533.32 0.1711 0.1058
 Mercury -32804-04-02 16:04 J -10260145.94 -10260145.83 -10260145.73 0.1825 0.0945
 Venus -32798-01-27 17:31 J -10258019.92 -10258019.77 -10258019.61 0.1888 0.0847
 Venus -32796-11-06 09:50 J -10257006.26 -10257006.09 -10257005.92 0.1634 0.0355
 Mercury -32795-08-23 23:16 J -10256715.65 -10256715.53 -10256715.41 0.1819 0.0210
 Mercury -32794-07-08 16:19 J -10256396.90 -10256396.82 -10256396.73 0.1695 0.1380
 Mercury -32785-01-14 07:11 J -10253285.32 -10253285.20 -10253285.08 0.1813 0.0490
 Mercury -32785-11-27 19:40 J -10252966.82 -10252966.68 -10252966.54 0.1700 0.0625
 Mercury -32776-06-05 15:07 J -10249854.96 -10249854.87 -10249854.78 0.1807 0.1166
 Mercury -32775-04-19 23:02 J -10249536.70 -10249536.54 -10249536.39 0.1706 0.0161
 Mercury -32774-05-12 08:52 J -10249149.15 -10249149.13 -10249149.10 0.1831 0.1787
 Mercury -32766-09-10 01:40 J -10246106.56 -10246106.43 -10246106.31 0.1711 0.0968
 Mercury -32765-10-01 16:04 J -10245718.94 -10245718.83 -10245718.73 0.1825 0.1023
 Venus -32765-11-24 04:04 J -10245665.39 -10245665.33 -10245665.27 0.1880 0.1753

Venus -32764-11-05 05:59 J -10245319.28 -10245319.25 -10245319.21 0.1630 0.1584

Venus -32762-09-05 00:14 J -10244650.62 -10244650.49 -10244650.35 0.1639 0.1048

Mercury -32755-02-21 23:31 J -10242288.64 -10242288.52 -10242288.40 0.1819 0.0293

Mercury -32754-01-06 16:33 J -10241969.88 -10241969.81 -10241969.74 0.1695 0.1463

Mercury -32746-07-15 07:11 J -10238858.32 -10238858.20 -10238858.08 0.1813 0.0419

Mercury -32745-05-28 20:09 J -10238539.79 -10238539.66 -10238539.52 0.1700 0.0722

Earth -32738-09-08 03:07 J -10235881.52 -10235881.37 -10235881.22 0.1813 0.1168

Moon -32738-09-08 11:59 J -10235881.14 -10235881.00 -10235880.86 0.1812 0.1289

Mercury -32737-12-04 15:07 J -10235427.97 -10235427.87 -10235427.77 0.1807 0.1094

Mercury -32736-10-18 23:31 J -10235109.68 -10235109.52 -10235109.37 0.1706 0.0065

Venus -32733-11-23 21:50 J -10233977.76 -10233977.59 -10233977.43 0.1886 0.0448

Venus -32730-09-03 21:21 J -10232963.79 -10232963.61 -10232963.44 0.1635 0.0218

Mercury -32727-04-26 23:31 J -10231997.55 -10231997.52 -10231997.50 0.1801 0.1743

Mercury -32726-03-11 02:09 J -10231679.54 -10231679.41 -10231679.28 0.1711 0.0866

Mercury -32725-04-01 16:04 J -10231291.92 -10231291.83 -10231291.73 0.1825 0.1107

Mercury -32717-07-31 04:19 J -10228249.32 -10228249.32 -10228249.31 0.1717 0.1711

Mercury -32716-08-22 23:31 J -10227861.64 -10227861.52 -10227861.40 0.1819 0.0374

Mercury -32715-07-07 17:02 J -10227542.85 -10227542.79 -10227542.73 0.1695 0.1556

Mercury -32706-01-13 07:11 J -10224431.32 -10224431.20 -10224431.08 0.1813 0.0338

Mercury -32706-11-27 20:38 J -10224112.77 -10224112.64 -10224112.51 0.1700 0.0813

Venus -32698-09-02 17:45 J -10221276.83 -10221276.76 -10221276.68 0.1632 0.1454

Mercury -32697-06-04 15:07 J -10221000.97 -10221000.87 -10221000.77 0.1807 0.1017

Mercury -32696-04-18 23:45 J -10220682.66 -10220682.51 -10220682.36 0.1706 0.0042

Venus -32696-07-02 11:16 J -10220608.15 -10220608.03 -10220607.91 0.1641 0.1194

Mercury -32688-10-25 23:16 J -10217570.57 -10217570.53 -10217570.49 0.1801 0.1679

Mercury -32687-09-09 02:38 J -10217252.52 -10217252.39 -10217252.25 0.1711 0.0765

Mercury -32686-10-01 16:04 J -10216864.92 -10216864.83 -10216864.73 0.1824 0.1183

Mercury -32677-01-30 05:02 J -10213822.34 -10213822.29 -10213822.24 0.1717 0.1605

Mercury -32676-02-20 23:31 J -10213434.64 -10213434.52 -10213434.40 0.1819 0.0444

Mercury -32675-01-05 17:31 J -10213115.79 -10213115.77 -10213115.74 0.1695 0.1656

Mercury -32667-07-14 07:26 J -10210004.32 -10210004.19 -10210004.07 0.1813 0.0260

Venus -32667-09-21 02:23 J -10209935.57 -10209935.40 -10209935.22 0.1885 0.0074

Mercury -32666-05-28 21:07 J -10209685.75 -10209685.62 -10209685.49 0.1700 0.0908

Moon -32665-03-07 12:43 J -10209402.12 -10209401.97 -10209401.81 0.1706 0.1064

Earth -32665-03-07 17:45 J -10209401.89 -10209401.76 -10209401.63 0.1706 0.1197 *

Venus -32664-07-01 08:38 J -10208921.32 -10208921.14 -10208920.96 0.1637 0.0075

Earth -32659-09-11 04:47 J -10207023.43 -10207023.30 -10207023.17 0.1807 0.1380

Moon -32659-09-11 07:55 J -10207023.22 -10207023.17 -10207023.11 0.1807 0.1717 *

Mercury -32658-12-04 15:07 J -10206573.97 -10206573.87 -10206573.76 0.1807 0.0943

Mercury -32657-10-18 00:14 J -10206255.64 -10206255.49 -10206255.34 0.1706 0.0134

Mercury -32648-04-25 23:31 J -10203143.58 -10203143.52 -10203143.47 0.1801 0.1599

Mercury -32647-03-10 03:07 J -10202825.51 -10202825.37 -10202825.23 0.1711 0.0671

Mercury -32646-04-01 16:19 J -10202437.91 -10202437.82 -10202437.73 0.1824 0.1264

Mercury -32638-07-31 05:31 J -10199395.35 -10199395.27 -10199395.20 0.1717 0.1512

Mercury -32637-08-21 23:45 J -10199007.63 -10199007.51 -10199007.40 0.1819 0.0532

Venus -32632-06-30 05:02 J -10197234.39 -10197234.29 -10197234.18 0.1633 0.1312

Venus -32630-04-29 22:33 J -10196565.66 -10196565.56 -10196565.46 0.1642 0.1338

Mercury -32627-01-12 07:11 J -10195577.32 -10195577.20 -10195577.08 0.1812 0.0187

Mercury -32627-11-26 21:35 J -10195258.72 -10195258.60 -10195258.48 0.1701 0.1003

Mercury -32618-06-04 15:21 J -10192146.97 -10192146.86 -10192146.76 0.1807 0.0866

Mercury -32617-04-18 00:43 J -10191828.62 -10191828.47 -10191828.31 0.1706 0.0241

Mercury -32609-10-24 23:31 J -10188716.58 -10188716.52 -10188716.46 0.1801 0.1521

Mercury -32608-09-08 03:35 J -10188398.50 -10188398.35 -10188398.21 0.1711 0.0573

Mercury -32607-09-30 16:19 J -10188010.90 -10188010.82 -10188010.73 0.1825 0.1348

Venus -32601-07-18 06:43 J -10185893.39 -10185893.22 -10185893.05 0.1882 0.0327

Mercury -32598-01-29 05:59 J -10184968.34 -10184968.25 -10184968.16 0.1717 0.1405

Venus -32598-04-28 19:55 J -10184878.85 -10184878.67 -10184878.49 0.1638 0.0068

Mercury -32597-02-20 23:45 J -10184580.63 -10184580.51 -10184580.39 0.1818 0.0609

Mercury -32588-07-13 07:26 J -10181150.32 -10181150.19 -10181150.07 0.1813 0.0119

Mercury -32587-05-27 21:50 J -10180831.70 -10180831.59 -10180831.47 0.1700 0.1095

Earth -32586-03-11 01:40 J -10180544.61 -10180544.43 -10180544.25 0.1710 0.0400
 Moon -32586-03-11 05:31 J -10180544.46 -10180544.27 -10180544.07 0.1710 0.0262 *
 Mercury -32579-12-03 15:21 J -10177719.97 -10177719.86 -10177719.75 0.1806 0.0789
 Mercury -32578-10-18 01:11 J -10177401.60 -10177401.45 -10177401.30 0.1706 0.0323
 Mercury -32569-04-24 23:31 J -10174289.59 -10174289.52 -10174289.45 0.1801 0.1454
 Venus -32569-07-18 00:14 J -10174205.50 -10174205.49 -10174205.47 0.1889 0.1878
 Mercury -32568-03-09 04:19 J -10173971.47 -10173971.32 -10173971.17 0.1711 0.0465
 Mercury -32567-03-31 16:19 J -10173583.89 -10173583.82 -10173583.74 0.1824 0.1426
 Venus -32566-04-27 16:47 J -10173191.92 -10173191.80 -10173191.68 0.1634 0.1180
 Venus -32564-02-24 09:21 J -10172523.18 -10172523.11 -10172523.04 0.1644 0.1489
 Mercury -32559-07-30 06:28 J -10170541.33 -10170541.23 -10170541.13 0.1717 0.1308
 Mercury -32558-08-21 23:45 J -10170153.63 -10170153.51 -10170153.40 0.1819 0.0684
 Mercury -32548-01-11 07:26 J -10166723.31 -10166723.19 -10166723.07 0.1813 0.0026
 Mercury -32548-11-25 22:19 J -10166404.67 -10166404.57 -10166404.46 0.1700 0.1188
 Mercury -32539-06-03 15:21 J -10163292.97 -10163292.86 -10163292.75 0.1806 0.0710
 Mercury -32538-04-18 01:40 J -10162974.58 -10162974.43 -10162974.28 0.1706 0.0425
 Venus -32535-05-15 11:16 J -10161851.19 -10161851.03 -10161850.87 0.1880 0.0701
 Venus -32532-02-23 07:11 J -10160836.37 -10160836.20 -10160836.02 0.1640 0.0206
 Mercury -32530-10-24 23:31 J -10159862.60 -10159862.52 -10159862.44 0.1800 0.1375
 Mercury -32529-09-07 04:33 J -10159544.46 -10159544.31 -10159544.16 0.1711 0.0379
 Mercury -32528-09-29 16:33 J -10159156.88 -10159156.81 -10159156.75 0.1824 0.1505
 Mercury -32519-01-28 06:57 J -10156114.32 -10156114.21 -10156114.10 0.1717 0.1207
 Mercury -32518-02-19 23:45 J -10155726.62 -10155726.51 -10155726.40 0.1818 0.0766
 Mercury -32509-07-12 07:26 J -10152296.31 -10152296.19 -10152296.07 0.1812 0.0050
 Mercury -32508-05-26 23:02 J -10151977.64 -10151977.54 -10151977.45 0.1701 0.1286
 Venus -32503-05-15 04:33 J -10150163.41 -10150163.31 -10150163.20 0.1886 0.1480
 Venus -32500-02-22 03:50 J -10149149.47 -10149149.34 -10149149.20 0.1635 0.1038
 Mercury -32500-12-02 15:21 J -10148865.97 -10148865.86 -10148865.74 0.1807 0.0636
 Mercury -32499-10-17 02:09 J -10148547.55 -10148547.41 -10148547.26 0.1706 0.0521
 Venus -32499-12-22 20:23 J -10148480.67 -10148480.65 -10148480.64 0.1646 0.1636

Mercury -32490-04-24 23:31 J -10145435.60 -10145435.52 -10145435.43 0.1800 0.1297

Mercury -32489-03-08 05:02 J -10145117.44 -10145117.29 -10145117.14 0.1711 0.0277

Mercury -32488-03-30 16:33 J -10144729.87 -10144729.81 -10144729.75 0.1824 0.1590

Mercury -32480-07-29 07:26 J -10141687.31 -10141687.19 -10141687.07 0.1717 0.1108

Mercury -32479-08-20 23:59 J -10141299.61 -10141299.50 -10141299.39 0.1818 0.0849

Mercury -32469-01-11 07:26 J -10137869.31 -10137869.19 -10137869.06 0.1812 0.0133

Venus -32469-03-11 15:35 J -10137808.99 -10137808.85 -10137808.71 0.1878 0.1085

Mercury -32469-11-24 23:16 J -10137550.62 -10137550.53 -10137550.44 0.1701 0.1374

Venus -32467-12-21 18:14 J -10136793.92 -10136793.74 -10136793.57 0.1641 0.0356

Mercury -32460-06-02 15:21 J -10134438.97 -10134438.86 -10134438.74 0.1806 0.0562

Mercury -32459-04-17 02:38 J -10134120.53 -10134120.39 -10134120.25 0.1706 0.0612

Mercury -32451-10-23 23:31 J -10131008.61 -10131008.52 -10131008.43 0.1800 0.1230

Mercury -32450-09-07 05:45 J -10130690.42 -10130690.26 -10130690.11 0.1711 0.0180

Mercury -32449-09-28 16:33 J -10130302.85 -10130302.81 -10130302.76 0.1824 0.1666

Mercury -32440-01-27 07:55 J -10127260.29 -10127260.17 -10127260.04 0.1717 0.1005

Mercury -32439-02-18 23:59 J -10126872.61 -10126872.50 -10126872.40 0.1818 0.0923

Venus -32437-03-11 08:38 J -10126121.28 -10126121.14 -10126121.00 0.1884 0.1075

Venus -32435-12-20 15:21 J -10125107.01 -10125106.86 -10125106.72 0.1637 0.0900

Mercury -32430-07-12 07:40 J -10123442.30 -10123442.18 -10123442.06 0.1812 0.0214

Mercury -32429-05-25 23:45 J -10123123.58 -10123123.51 -10123123.44 0.1701 0.1469

Mercury -32421-12-01 15:21 J -10120011.97 -10120011.86 -10120011.74 0.1806 0.0487

Mercury -32420-10-16 03:07 J -10119693.51 -10119693.37 -10119693.23 0.1706 0.0709

Mercury -32411-04-23 23:45 J -10116581.61 -10116581.51 -10116581.42 0.1800 0.1148

Mercury -32410-03-08 05:59 J -10116263.40 -10116263.25 -10116263.10 0.1711 0.0082

Mercury -32409-03-29 16:47 J -10115875.83 -10115875.80 -10115875.77 0.1824 0.1749

Venus -32403-01-06 20:23 J -10113766.76 -10113766.65 -10113766.55 0.1876 0.1450

Mercury -32402-09-14 07:55 J -10113151.17 -10113151.17 -10113151.17 0.1794 0.1793

Mercury -32401-07-28 08:23 J -10112833.28 -10112833.15 -10112833.02 0.1717 0.0909

Venus -32401-10-18 05:31 J -10112751.44 -10112751.27 -10112751.10 0.1643 0.0490

Mercury -32400-08-19 23:59 J -10112445.60 -10112445.50 -10112445.39 0.1818 0.1007

Mercury -32390-01-10 07:26 J -10109015.31 -10109015.19 -10109015.06 0.1812 0.0286
 Mercury -32390-11-25 00:14 J -10108696.55 -10108696.49 -10108696.43 0.1701 0.1563
 Moon -32381-03-08 11:16 J -10105670.17 -10105670.03 -10105669.88 0.1700 0.0947
 Earth -32381-03-08 15:50 J -10105669.99 -10105669.84 -10105669.70 0.1701 0.1057 *
 Mercury -32381-06-01 15:35 J -10105584.97 -10105584.85 -10105584.73 0.1807 0.0402
 Mercury -32380-04-16 03:35 J -10105266.48 -10105266.35 -10105266.22 0.1706 0.0808
 Earth -32375-09-10 23:16 J -10103292.72 -10103292.53 -10103292.35 0.1815 0.0675
 Moon -32375-09-11 05:02 J -10103292.46 -10103292.29 -10103292.12 0.1815 0.1085 *
 Mercury -32372-10-22 23:45 J -10102154.61 -10102154.51 -10102154.41 0.1800 0.1071
 Venus -32371-01-06 13:26 J -10102079.10 -10102078.94 -10102078.78 0.1882 0.0703
 Mercury -32371-09-06 06:28 J -10101836.38 -10101836.23 -10101836.08 0.1711 0.0018
 Venus -32369-10-17 02:52 J -10101064.54 -10101064.38 -10101064.23 0.1638 0.0764
 Mercury -32362-03-15 08:09 J -10098724.20 -10098724.16 -10098724.13 0.1794 0.1719
 Mercury -32361-01-27 09:07 J -10098406.26 -10098406.12 -10098405.99 0.1717 0.0807
 Mercury -32360-02-17 23:59 J -10098018.59 -10098018.50 -10098018.40 0.1818 0.1087
 Mercury -32352-06-18 11:02 J -10094976.08 -10094976.04 -10094976.01 0.1723 0.1669
 Mercury -32351-07-11 07:40 J -10094588.30 -10094588.18 -10094588.06 0.1812 0.0366
 Mercury -32350-05-26 00:43 J -10094269.51 -10094269.47 -10094269.44 0.1701 0.1654
 Mercury -32342-12-01 15:35 J -10091157.97 -10091157.85 -10091157.73 0.1806 0.0328
 Mercury -32341-10-15 03:50 J -10090839.46 -10090839.34 -10090839.21 0.1706 0.0899
 Venus -32338-11-04 01:26 J -10089724.48 -10089724.44 -10089724.39 0.1873 0.1800
 Venus -32335-08-15 16:19 J -10088708.98 -10088708.82 -10088708.65 0.1644 0.0639
 Mercury -32332-04-22 23:45 J -10087727.61 -10087727.51 -10087727.41 0.1800 0.1003
 Mercury -32331-03-07 07:11 J -10087409.35 -10087409.20 -10087409.05 0.1711 0.0124
 Mercury -32323-09-13 08:09 J -10084297.21 -10084297.16 -10084297.12 0.1794 0.1641
 Mercury -32322-07-28 09:21 J -10083979.25 -10083979.11 -10083978.97 0.1717 0.0710
 Mercury -32321-08-19 00:14 J -10083591.59 -10083591.49 -10083591.40 0.1818 0.1164
 Mercury -32313-12-17 11:31 J -10080549.08 -10080549.02 -10080548.95 0.1723 0.1561
 Mercury -32311-01-09 07:55 J -10080161.29 -10080161.17 -10080161.05 0.1812 0.0450
 Venus -32306-11-03 17:59 J -10078036.92 -10078036.75 -10078036.58 0.1880 0.0325

Venus -32303-08-14 13:55 J -10077022.08 -10077021.92 -10077021.76 0.1640 0.0623

Moon -32302-03-11 16:33 J -10076813.00 -10076812.81 -10076812.62 0.1704 0.0182

Earth -32302-03-11 23:16 J -10076812.70 -10076812.53 -10076812.35 0.1704 0.0515 *

Mercury -32302-06-01 15:35 J -10076730.97 -10076730.85 -10076730.73 0.1806 0.0254

Mercury -32301-04-15 04:33 J -10076412.43 -10076412.31 -10076412.19 0.1706 0.0997

Mercury -32293-10-21 23:45 J -10073300.61 -10073300.51 -10073300.41 0.1800 0.0923

Mercury -32292-09-05 07:26 J -10072982.34 -10072982.19 -10072982.04 0.1712 0.0209

Mercury -32283-03-14 08:09 J -10069870.22 -10069870.16 -10069870.11 0.1794 0.1571

Mercury -32282-01-26 10:04 J -10069552.22 -10069552.08 -10069551.94 0.1717 0.0605

Mercury -32281-02-18 00:14 J -10069164.58 -10069164.49 -10069164.40 0.1818 0.1244

Mercury -32273-06-17 12:14 J -10066122.07 -10066121.99 -10066121.91 0.1723 0.1455

Mercury -32272-07-10 07:40 J -10065734.29 -10065734.18 -10065734.06 0.1812 0.0521

Venus -32269-06-12 03:21 J -10064666.51 -10064666.36 -10064666.20 0.1646 0.0783

Mercury -32263-11-30 15:50 J -10062303.97 -10062303.84 -10062303.72 0.1806 0.0185

Mercury -32262-10-15 04:47 J -10061985.41 -10061985.30 -10061985.18 0.1706 0.1092

Mercury -32253-04-21 23:45 J -10058873.61 -10058873.51 -10058873.40 0.1800 0.0845

Mercury -32252-03-06 07:55 J -10058555.32 -10058555.17 -10058555.02 0.1712 0.0311

Mercury -32244-09-12 08:09 J -10055443.23 -10055443.16 -10055443.10 0.1794 0.1495

Mercury -32243-07-27 10:33 J -10055125.21 -10055125.06 -10055124.92 0.1717 0.0511

Mercury -32242-08-19 00:28 J -10054737.57 -10054737.48 -10054737.40 0.1818 0.1328

Venus -32240-08-30 23:02 J -10053994.71 -10053994.54 -10053994.37 0.1878 0.0041

Venus -32237-06-11 01:26 J -10052979.61 -10052979.44 -10052979.28 0.1641 0.0487

Mercury -32234-12-17 12:28 J -10051695.07 -10051694.98 -10051694.88 0.1723 0.1363

Mercury -32232-01-08 07:55 J -10051307.29 -10051307.17 -10051307.05 0.1812 0.0599

Mercury -32223-05-31 15:50 J -10047876.96 -10047876.84 -10047876.72 0.1806 0.0101

Mercury -32222-04-15 05:16 J -10047558.38 -10047558.28 -10047558.17 0.1706 0.1184

Mercury -32214-10-21 23:45 J -10044446.62 -10044446.51 -10044446.40 0.1800 0.0775

Mercury -32213-09-04 08:38 J -10044128.29 -10044128.14 -10044128.00 0.1711 0.0413

Mercury -32204-03-13 08:09 J -10041016.23 -10041016.16 -10041016.08 0.1794 0.1417

Mercury -32203-01-25 11:02 J -10040698.19 -10040698.04 -10040697.89 0.1717 0.0406

Venus -32203-04-09 14:38 J -10040624.04 -10040623.89 -10040623.75 0.1648 0.0929
 Mercury -32202-02-17 00:28 J -10040310.56 -10040310.48 -10040310.41 0.1818 0.1403
 Mercury -32194-06-17 13:11 J -10037268.06 -10037267.95 -10037267.85 0.1723 0.1258
 Mercury -32193-07-09 08:09 J -10036880.28 -10036880.16 -10036880.05 0.1812 0.0688
 Mercury -32184-11-29 15:50 J -10033449.96 -10033449.84 -10033449.72 0.1806 0.0023
 Mercury -32183-10-14 05:45 J -10033131.35 -10033131.26 -10033131.16 0.1706 0.1279
 Mercury -32174-04-21 23:59 J -10030019.62 -10030019.50 -10030019.39 0.1800 0.0694
 Venus -32174-06-28 03:50 J -10029952.51 -10029952.34 -10029952.17 0.1875 0.0408
 Mercury -32173-03-05 08:52 J -10029701.28 -10029701.13 -10029700.98 0.1712 0.0501
 Venus -32171-04-08 12:28 J -10028937.15 -10028936.98 -10028936.81 0.1643 0.0344
 Mercury -32165-09-11 08:09 J -10026589.24 -10026589.16 -10026589.08 0.1794 0.1349
 Mercury -32164-07-26 11:31 J -10026271.17 -10026271.02 -10026270.87 0.1717 0.0310
 Mercury -32163-08-18 00:28 J -10025883.55 -10025883.48 -10025883.41 0.1818 0.1485
 Mercury -32155-12-16 13:40 J -10022841.04 -10022840.93 -10022840.81 0.1723 0.1152
 Mercury -32153-01-08 07:55 J -10022453.28 -10022453.17 -10022453.06 0.1812 0.0752
 Mercury -32144-05-30 15:50 J -10019022.96 -10019022.84 -10019022.71 0.1806 0.0093
 Mercury -32143-04-14 06:28 J -10018704.32 -10018704.23 -10018704.15 0.1706 0.1377
 Venus -32142-06-27 20:23 J -10018264.71 -10018264.65 -10018264.58 0.1882 0.1721
 Venus -32139-04-07 09:50 J -10017250.13 -10017250.09 -10017250.05 0.1639 0.1587
 Venus -32137-02-05 00:57 J -10016581.59 -10016581.46 -10016581.32 0.1650 0.1082
 Mercury -32135-10-20 23:59 J -10015592.62 -10015592.50 -10015592.39 0.1800 0.0617
 Mercury -32134-09-04 09:21 J -10015274.25 -10015274.11 -10015273.97 0.1712 0.0598
 Mercury -32125-03-12 08:09 J -10012162.24 -10012162.16 -10012162.07 0.1794 0.1273
 Mercury -32124-01-24 11:59 J -10011844.15 -10011844.00 -10011843.85 0.1717 0.0210
 Mercury -32123-02-16 00:28 J -10011456.54 -10011456.48 -10011456.42 0.1818 0.1565
 Mercury -32115-06-16 14:09 J -10008414.03 -10008413.91 -10008413.79 0.1723 0.1059
 Mercury -32114-07-09 08:09 J -10008026.27 -10008026.16 -10008026.05 0.1812 0.0839
 Venus -32108-04-24 08:52 J -10005910.29 -10005910.13 -10005909.97 0.1873 0.0763
 Venus -32105-02-03 23:31 J -10004894.69 -10004894.52 -10004894.34 0.1645 0.0204
 Mercury -32105-11-28 15:50 J -10004595.96 -10004595.84 -10004595.71 0.1806 0.0145

Mercury -32104-10-13 06:43 J -10004277.29 -10004277.22 -10004277.14 0.1706 0.1465

Earth -32097-03-09 14:52 J -10001938.04 -10001937.88 -10001937.72 0.1695 0.0893

Moon -32097-03-09 21:07 J -10001937.79 -10001937.62 -10001937.45 0.1696 0.0603 *

Mercury -32095-04-20 23:59 J -10001165.62 -10001165.50 -10001165.39 0.1800 0.0547

Mercury -32094-03-05 10:04 J -10000847.22 -10000847.08 -10000846.94 0.1711 0.0704

Moon -32091-09-10 07:40 J -9999562.39 -9999562.18 -9999561.98 0.1824 0.0076

Earth -32091-09-10 16:04 J -9999562.03 -9999561.83 -9999561.63 0.1823 0.0113 *

Mercury -32086-09-11 08:23 J -9997735.24 -9997735.15 -9997735.06 0.1794 0.1193

Mercury -32085-07-25 12:28 J -9997417.13 -9997416.98 -9997416.83 0.1717 0.0113

Mercury -32084-08-17 00:43 J -9997029.52 -9997029.47 -9997029.42 0.1818 0.1646

Venus -32076-04-24 00:57 J -9994222.58 -9994222.46 -9994222.34 0.1880 0.1341

Mercury -32076-12-15 14:38 J -9993987.01 -9993986.89 -9993986.76 0.1723 0.0953

Mercury -32074-01-07 08:09 J -9993599.26 -9993599.16 -9993599.05 0.1812 0.0921

Venus -32073-02-02 20:52 J -9993207.71 -9993207.63 -9993207.55 0.1640 0.1444

Venus -32072-12-02 11:59 J -9992539.12 -9992539.00 -9992538.89 0.1652 0.1231

Mercury -32065-05-29 16:04 J -9990168.96 -9990168.83 -9990168.71 0.1806 0.0218

Mercury -32064-04-13 07:11 J -9989850.26 -9989850.20 -9989850.14 0.1706 0.1562

Mercury -32056-10-19 23:59 J -9986738.62 -9986738.50 -9986738.38 0.1800 0.0467

Mercury -32055-09-03 10:19 J -9986420.21 -9986420.07 -9986419.94 0.1712 0.0788

Mercury -32046-03-12 08:23 J -9983308.25 -9983308.15 -9983308.06 0.1794 0.1126

Mercury -32045-01-24 13:11 J -9982990.11 -9982989.95 -9982989.80 0.1718 0.0048

Mercury -32044-02-15 00:43 J -9982602.51 -9982602.47 -9982602.43 0.1818 0.1725

Venus -32042-02-19 13:26 J -9981868.07 -9981867.94 -9981867.80 0.1870 0.1126

Venus -32040-12-01 10:19 J -9980852.24 -9980852.07 -9980851.89 0.1646 0.0059

Mercury -32037-08-01 16:47 J -9979877.82 -9979877.80 -9979877.78 0.1788 0.1754

Mercury -32036-06-15 15:21 J -9979560.00 -9979559.86 -9979559.73 0.1723 0.0850

Mercury -32035-07-08 08:09 J -9979172.26 -9979172.16 -9979172.06 0.1812 0.0991

Mercury -32026-11-28 16:04 J -9975741.95 -9975741.83 -9975741.71 0.1806 0.0293

Mercury -32025-10-12 07:40 J -9975423.21 -9975423.18 -9975423.15 0.1706 0.1655

Moon -32018-03-12 20:23 J -9973080.82 -9973080.65 -9973080.48 0.1699 0.0432

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|---------|----------------------|-------------|-------------|-------------|--------|--------|---|
| Earth | -32018-03-12 21:35 J | -9973080.78 | -9973080.60 | -9973080.43 | 0.1699 | 0.0646 | * |
| Mercury | -32016-04-20 00:14 J | -9972311.61 | -9972311.49 | -9972311.37 | 0.1800 | 0.0390 | |
| Mercury | -32015-03-04 10:47 J | -9971993.18 | -9971993.05 | -9971992.92 | 0.1712 | 0.0890 | |
| Venus | -32010-02-19 05:16 J | -9970180.43 | -9970180.28 | -9970180.13 | 0.1877 | 0.0958 | |
| Venus | -32008-11-30 08:09 J | -9969165.27 | -9969165.16 | -9969165.06 | 0.1642 | 0.1306 | |
| Mercury | -32007-09-10 08:23 J | -9968881.25 | -9968881.15 | -9968881.05 | 0.1794 | 0.1048 | |
| Mercury | -32006-07-25 13:26 J | -9968563.09 | -9968562.94 | -9968562.79 | 0.1717 | 0.0084 | |
| Venus | -32006-09-29 22:47 J | -9968496.65 | -9968496.55 | -9968496.46 | 0.1654 | 0.1382 | |
| Mercury | -32005-08-16 00:57 J | -9968175.47 | -9968175.46 | -9968175.46 | 0.1818 | 0.1808 | |

32ND MILLENNIUM BCE

This is a list of transits visible from Mars in the 32nd millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|-------------|-------------|-------------|--------|--------|-------|---|
| Mercury | -31997-01-31 16:47 J | -9965450.83 | -9965450.80 | -9965450.76 | 0.1788 | 0.1683 | | |
| Mercury | -31997-12-14 15:35 J | -9965132.99 | -9965132.85 | -9965132.71 | 0.1723 | 0.0757 | | |
| Mercury | -31995-01-06 08:23 J | -9964745.25 | -9964745.15 | -9964745.06 | 0.1812 | 0.1074 | | |
| Mercury | -31987-05-06 17:31 J | -9961702.82 | -9961702.77 | -9961702.71 | 0.1729 | 0.1617 | | |
| Mercury | -31986-05-29 16:04 J | -9961314.95 | -9961314.83 | -9961314.71 | 0.1806 | 0.0372 | | |
| Mercury | -31977-10-18 23:59 J | -9957884.62 | -9957884.50 | -9957884.38 | 0.1800 | 0.0320 | | |
| Venus | -31977-12-16 18:43 J | -9957825.82 | -9957825.72 | -9957825.62 | 0.1868 | 0.1470 | | |
| Mercury | -31976-09-02 11:16 J | -9957566.15 | -9957566.03 | -9957565.90 | 0.1712 | 0.0990 | | |
| Venus | -31974-09-28 21:35 J | -9956809.78 | -9956809.60 | -9956809.42 | 0.1648 | 0.0085 | | |
| Mercury | -31967-03-11 08:23 J | -9954454.25 | -9954454.15 | -9954454.05 | 0.1794 | 0.0971 | | |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -31966-01-23 13:55 J | -9954136.07 | -9954135.92 | -9954135.76 | 0.1717 | 0.0187 |
| Mercury | -31958-08-01 16:47 J | -9951023.85 | -9951023.80 | -9951023.74 | 0.1788 | 0.1609 |
| Mercury | -31957-06-14 16:19 J | -9950705.97 | -9950705.82 | -9950705.68 | 0.1723 | 0.0653 |
| Mercury | -31956-07-07 08:23 J | -9950318.24 | -9950318.15 | -9950318.05 | 0.1812 | 0.1160 |
| Mercury | -31948-11-04 17:59 J | -9947275.82 | -9947275.75 | -9947275.68 | 0.1729 | 0.1526 |
| Mercury | -31947-11-27 16:04 J | -9946887.95 | -9946887.83 | -9946887.71 | 0.1806 | 0.0447 |
| Venus | -31945-12-16 10:33 J | -9946138.22 | -9946138.06 | -9946137.89 | 0.1875 | 0.0605 |
| Venus | -31942-09-27 19:26 J | -9945122.81 | -9945122.69 | -9945122.57 | 0.1643 | 0.1167 |
| Venus | -31940-07-27 09:21 J | -9944454.17 | -9944454.11 | -9944454.04 | 0.1655 | 0.1530 |
| Mercury | -31937-04-19 00:14 J | -9943457.61 | -9943457.49 | -9943457.37 | 0.1800 | 0.0237 |
| Mercury | -31936-03-03 11:45 J | -9943139.13 | -9943139.01 | -9943138.90 | 0.1712 | 0.1077 |
| Mercury | -31928-09-09 08:23 J | -9940027.26 | -9940027.15 | -9940027.05 | 0.1793 | 0.0902 |
| Mercury | -31927-07-24 14:23 J | -9939709.05 | -9939708.90 | -9939708.74 | 0.1718 | 0.0287 |
| Mercury | -31918-01-30 17:02 J | -9936596.85 | -9936596.79 | -9936596.73 | 0.1788 | 0.1535 |
| Mercury | -31918-12-14 16:47 J | -9936278.95 | -9936278.80 | -9936278.65 | 0.1723 | 0.0549 |
| Mercury | -31916-01-05 08:23 J | -9935891.24 | -9935891.15 | -9935891.06 | 0.1812 | 0.1226 |
| Venus | -31911-10-14 00:14 J | -9933783.53 | -9933783.49 | -9933783.45 | 0.1865 | 0.1803 |
| Mercury | -31908-05-05 18:28 J | -9932848.81 | -9932848.73 | -9932848.64 | 0.1729 | 0.1420 |
| Venus | -31908-07-26 08:09 J | -9932767.33 | -9932767.16 | -9932766.98 | 0.1650 | 0.0236 |
| Mercury | -31907-05-28 16:19 J | -9932460.94 | -9932460.82 | -9932460.70 | 0.1806 | 0.0529 |
| Mercury | -31898-10-19 00:14 J | -9929030.61 | -9929030.49 | -9929030.37 | 0.1800 | 0.0161 |
| Mercury | -31897-09-01 12:14 J | -9928712.10 | -9928711.99 | -9928711.88 | 0.1712 | 0.1173 |
| Mercury | -31888-03-10 08:23 J | -9925600.25 | -9925600.15 | -9925600.04 | 0.1794 | 0.0825 |
| Mercury | -31887-01-22 14:52 J | -9925282.03 | -9925281.88 | -9925281.73 | 0.1717 | 0.0382 |
| Mercury | -31879-07-31 17:02 J | -9922169.86 | -9922169.79 | -9922169.72 | 0.1788 | 0.1460 |
| Venus | -31879-10-13 15:35 J | -9922096.02 | -9922095.85 | -9922095.68 | 0.1872 | 0.0243 |
| Mercury | -31878-06-14 17:16 J | -9921851.93 | -9921851.78 | -9921851.64 | 0.1723 | 0.0458 |
| Mercury | -31877-07-06 08:38 J | -9921464.23 | -9921464.14 | -9921464.06 | 0.1812 | 0.1313 |
| Venus | -31876-07-25 06:14 J | -9921080.38 | -9921080.24 | -9921080.10 | 0.1645 | 0.1024 |
| Mercury | -31869-11-03 19:11 J | -9918421.80 | -9918421.70 | -9918421.60 | 0.1729 | 0.1311 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -31868-11-26 16:19 J | -9918033.94 | -9918033.82 | -9918033.71 | 0.1805 | 0.0601 |
| Mercury | -31858-04-19 00:14 J | -9914603.61 | -9914603.49 | -9914603.37 | 0.1800 | 0.0087 |
| Mercury | -31857-03-02 12:43 J | -9914285.07 | -9914284.97 | -9914284.87 | 0.1712 | 0.1277 |
| Mercury | -31849-09-08 08:38 J | -9911173.25 | -9911173.14 | -9911173.03 | 0.1794 | 0.0744 |
| Mercury | -31848-07-23 15:21 J | -9910855.00 | -9910854.86 | -9910854.71 | 0.1718 | 0.0477 |
| Venus | -31842-05-23 18:57 J | -9908724.88 | -9908724.71 | -9908724.54 | 0.1652 | 0.0383 |
| Mercury | -31839-01-29 17:02 J | -9907742.87 | -9907742.79 | -9907742.72 | 0.1787 | 0.1389 |
| Mercury | -31839-12-13 17:45 J | -9907424.91 | -9907424.76 | -9907424.61 | 0.1723 | 0.0352 |
| Mercury | -31837-01-05 08:38 J | -9907037.22 | -9907037.14 | -9907037.06 | 0.1811 | 0.1393 |
| Mercury | -31829-05-04 19:26 J | -9903994.79 | -9903994.69 | -9903994.58 | 0.1729 | 0.1220 |
| Mercury | -31828-05-27 16:19 J | -9903606.93 | -9903606.82 | -9903606.70 | 0.1806 | 0.0680 |
| Mercury | -31819-10-18 00:14 J | -9900176.61 | -9900176.49 | -9900176.36 | 0.1800 | 0.0066 |
| Mercury | -31818-09-01 12:57 J | -9899858.05 | -9899857.96 | -9899857.87 | 0.1712 | 0.1360 |
| Earth | -31813-03-10 14:52 J | -9898206.05 | -9898205.88 | -9898205.71 | 0.1690 | 0.0707 |
| Moon | -31813-03-10 16:04 J | -9898206.02 | -9898205.83 | -9898205.64 | 0.1690 | 0.0470 * |
| Venus | -31813-08-09 20:52 J | -9898053.80 | -9898053.63 | -9898053.46 | 0.1870 | 0.0103 |
| Venus | -31810-05-22 17:31 J | -9897037.92 | -9897037.77 | -9897037.62 | 0.1646 | 0.0885 |
| Mercury | -31809-03-09 08:23 J | -9896746.26 | -9896746.15 | -9896746.03 | 0.1793 | 0.0680 |
| Mercury | -31808-01-21 16:04 J | -9896427.98 | -9896427.83 | -9896427.69 | 0.1718 | 0.0580 |
| Earth | -31807-09-10 06:43 J | -9895831.39 | -9895831.22 | -9895831.05 | 0.1831 | 0.0994 |
| Moon | -31807-09-10 10:33 J | -9895831.23 | -9895831.06 | -9895830.89 | 0.1831 | 0.0827 * |
| Mercury | -31800-07-30 17:02 J | -9893315.87 | -9893315.79 | -9893315.71 | 0.1788 | 0.1314 |
| Mercury | -31799-06-13 18:14 J | -9892997.89 | -9892997.74 | -9892997.59 | 0.1723 | 0.0251 |
| Mercury | -31798-07-06 08:38 J | -9892610.21 | -9892610.14 | -9892610.07 | 0.1811 | 0.1465 |
| Mercury | -31790-11-03 20:09 J | -9889567.78 | -9889567.66 | -9889567.54 | 0.1729 | 0.1116 |
| Mercury | -31789-11-25 16:33 J | -9889179.93 | -9889179.81 | -9889179.70 | 0.1806 | 0.0762 |
| Mercury | -31779-04-18 00:28 J | -9885749.61 | -9885749.48 | -9885749.36 | 0.1800 | 0.0081 |
| Mercury | -31778-03-02 13:40 J | -9885431.01 | -9885430.93 | -9885430.86 | 0.1712 | 0.1461 |
| Venus | -31776-03-20 05:45 J | -9884682.43 | -9884682.26 | -9884682.09 | 0.1654 | 0.0532 |
| Mercury | -31770-09-08 08:38 J | -9882319.26 | -9882319.14 | -9882319.03 | 0.1794 | 0.0600 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -31769-07-22 16:19 J | -9882000.96 | -9882000.82 | -9882000.68 | 0.1718 | 0.0668 |
| Mercury | -31760-01-28 17:02 J | -9878888.88 | -9878888.79 | -9878888.70 | 0.1787 | 0.1242 |
| Mercury | -31760-12-12 18:43 J | -9878570.88 | -9878570.72 | -9878570.57 | 0.1724 | 0.0158 |
| Mercury | -31758-01-04 08:38 J | -9878183.20 | -9878183.14 | -9878183.07 | 0.1811 | 0.1549 |
| Mercury | -31750-05-04 20:52 J | -9875140.76 | -9875140.63 | -9875140.51 | 0.1729 | 0.1004 |
| Mercury | -31749-05-26 16:33 J | -9874752.92 | -9874752.81 | -9874752.71 | 0.1805 | 0.0837 |
| Venus | -31747-06-07 01:55 J | -9874011.58 | -9874011.42 | -9874011.25 | 0.1867 | 0.0456 |
| Venus | -31744-03-19 04:19 J | -9872995.48 | -9872995.32 | -9872995.16 | 0.1648 | 0.0740 |
| Mercury | -31740-10-17 00:28 J | -9871322.61 | -9871322.48 | -9871322.36 | 0.1800 | 0.0152 |
| Mercury | -31739-08-31 14:09 J | -9871003.97 | -9871003.91 | -9871003.85 | 0.1712 | 0.1557 |
| Earth | -31734-03-13 20:23 J | -9869348.82 | -9869348.65 | -9869348.49 | 0.1693 | 0.0789 |
| Moon | -31734-03-14 03:07 J | -9869348.55 | -9869348.37 | -9869348.20 | 0.1693 | 0.0645 * |
| Mercury | -31730-03-09 08:38 J | -9867892.25 | -9867892.14 | -9867892.02 | 0.1794 | 0.0521 |
| Mercury | -31729-01-21 16:47 J | -9867573.93 | -9867573.80 | -9867573.66 | 0.1718 | 0.0769 |
| Moon | -31728-09-13 05:31 J | -9866973.36 | -9866973.27 | -9866973.18 | 0.1826 | 0.1591 |
| Earth | -31728-09-13 12:43 J | -9866972.97 | -9866972.97 | -9866972.96 | 0.1826 | 0.1825 |
| Mercury | -31721-07-29 17:02 J | -9864461.88 | -9864461.79 | -9864461.70 | 0.1787 | 0.1167 |
| Mercury | -31720-06-12 19:11 J | -9864143.85 | -9864143.70 | -9864143.54 | 0.1723 | 0.0060 |
| Mercury | -31719-07-05 08:52 J | -9863756.18 | -9863756.13 | -9863756.08 | 0.1811 | 0.1632 |
| Venus | -31715-06-06 17:16 J | -9862323.86 | -9862323.78 | -9862323.69 | 0.1875 | 0.1598 |
| Mercury | -31711-11-02 21:07 J | -9860713.75 | -9860713.62 | -9860713.49 | 0.1729 | 0.0916 |
| Venus | -31710-01-15 16:04 J | -9860639.99 | -9860639.83 | -9860639.67 | 0.1656 | 0.0688 |
| Mercury | -31710-11-25 16:33 J | -9860325.92 | -9860325.81 | -9860325.71 | 0.1805 | 0.0911 |
| Mercury | -31700-04-17 00:28 J | -9856895.60 | -9856895.48 | -9856895.36 | 0.1799 | 0.0221 |
| Mercury | -31699-03-01 14:23 J | -9856576.94 | -9856576.90 | -9856576.86 | 0.1712 | 0.1644 |
| Mercury | -31691-09-07 08:38 J | -9853465.26 | -9853465.14 | -9853465.02 | 0.1793 | 0.0454 |
| Mercury | -31690-07-22 17:31 J | -9853146.91 | -9853146.77 | -9853146.64 | 0.1718 | 0.0869 |
| Mercury | -31681-01-28 17:02 J | -9850034.88 | -9850034.79 | -9850034.69 | 0.1788 | 0.1095 |
| Venus | -31681-04-03 07:26 J | -9849969.35 | -9849969.19 | -9849969.04 | 0.1865 | 0.0797 |
| Mercury | -31681-12-11 19:40 J | -9849716.83 | -9849716.68 | -9849716.52 | 0.1723 | 0.0058 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -31679-01-03 08:52 J | -9849329.17 | -9849329.13 | -9849329.09 | 0.1811 | 0.1700 |
| Venus | -31678-01-14 15:21 J | -9848953.03 | -9848952.86 | -9848952.70 | 0.1650 | 0.0599 |
| Mercury | -31672-06-20 01:55 J | -9846604.45 | -9846604.42 | -9846604.39 | 0.1781 | 0.1714 |
| Mercury | -31671-05-03 21:35 J | -9846286.73 | -9846286.60 | -9846286.46 | 0.1729 | 0.0811 |
| Mercury | -31670-05-26 16:33 J | -9845898.91 | -9845898.81 | -9845898.70 | 0.1806 | 0.0995 |
| Mercury | -31662-09-23 23:02 J | -9842856.56 | -9842856.54 | -9842856.51 | 0.1735 | 0.1703 |
| Mercury | -31661-10-16 00:28 J | -9842468.60 | -9842468.48 | -9842468.36 | 0.1799 | 0.0299 |
| Mercury | -31651-03-08 08:38 J | -9839038.26 | -9839038.14 | -9839038.02 | 0.1793 | 0.0377 |
| Mercury | -31650-01-20 17:45 J | -9838719.88 | -9838719.76 | -9838719.63 | 0.1718 | 0.0961 |
| Venus | -31649-04-02 22:19 J | -9838281.70 | -9838281.57 | -9838281.44 | 0.1872 | 0.1232 |
| Venus | -31645-11-12 02:52 J | -9836597.54 | -9836597.38 | -9836597.23 | 0.1658 | 0.0839 |
| Mercury | -31642-07-29 17:02 J | -9835607.88 | -9835607.79 | -9835607.69 | 0.1787 | 0.1022 |
| Mercury | -31641-06-11 20:09 J | -9835289.81 | -9835289.66 | -9835289.51 | 0.1724 | 0.0139 |
| Mercury | -31640-07-04 08:52 J | -9834902.14 | -9834902.13 | -9834902.11 | 0.1811 | 0.1786 |
| Mercury | -31633-12-19 01:40 J | -9832177.47 | -9832177.43 | -9832177.39 | 0.1781 | 0.1649 |
| Mercury | -31632-11-01 22:19 J | -9831859.71 | -9831859.57 | -9831859.43 | 0.1729 | 0.0704 |
| Mercury | -31631-11-24 16:33 J | -9831471.91 | -9831471.81 | -9831471.71 | 0.1805 | 0.1064 |
| Mercury | -31622-03-24 23:45 J | -9828429.57 | -9828429.51 | -9828429.45 | 0.1735 | 0.1596 |
| Mercury | -31621-04-16 00:28 J | -9828041.60 | -9828041.48 | -9828041.36 | 0.1800 | 0.0377 |
| Venus | -31615-01-29 12:14 J | -9825927.12 | -9825926.99 | -9825926.85 | 0.1862 | 0.1140 |
| Venus | -31613-11-11 01:55 J | -9824910.59 | -9824910.42 | -9824910.25 | 0.1652 | 0.0449 |
| Mercury | -31612-09-06 08:52 J | -9824611.25 | -9824611.13 | -9824611.01 | 0.1793 | 0.0299 |
| Mercury | -31611-07-21 18:14 J | -9824292.86 | -9824292.74 | -9824292.62 | 0.1718 | 0.1055 |
| Mercury | -31602-01-27 17:02 J | -9821180.89 | -9821180.79 | -9821180.68 | 0.1787 | 0.0950 |
| Mercury | -31602-12-11 20:38 J | -9820862.79 | -9820862.64 | -9820862.49 | 0.1723 | 0.0241 |
| Mercury | -31593-06-19 01:55 J | -9817750.48 | -9817750.42 | -9817750.37 | 0.1781 | 0.1571 |
| Mercury | -31592-05-02 22:33 J | -9817432.70 | -9817432.56 | -9817432.41 | 0.1729 | 0.0613 |
| Mercury | -31591-05-25 16:47 J | -9817044.90 | -9817044.80 | -9817044.71 | 0.1805 | 0.1147 |
| Venus | -31583-01-29 02:38 J | -9814239.54 | -9814239.39 | -9814239.23 | 0.1869 | 0.0865 |
| Mercury | -31583-09-23 00:14 J | -9814002.57 | -9814002.49 | -9814002.41 | 0.1736 | 0.1495 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -31582-10-16 00:43 J | -9813614.59 | -9813614.47 | -9813614.36 | 0.1799 | 0.0453 |
| Venus | -31579-09-09 13:11 J | -9812555.09 | -9812554.95 | -9812554.81 | 0.1660 | 0.0995 |
| Mercury | -31572-03-07 08:38 J | -9810184.26 | -9810184.14 | -9810184.02 | 0.1793 | 0.0232 |
| Mercury | -31571-01-19 18:57 J | -9809865.83 | -9809865.71 | -9809865.60 | 0.1718 | 0.1159 |
| Mercury | -31563-07-28 17:16 J | -9806753.89 | -9806753.78 | -9806753.68 | 0.1787 | 0.0872 |
| Mercury | -31562-06-11 21:07 J | -9806435.77 | -9806435.62 | -9806435.47 | 0.1723 | 0.0343 |
| Mercury | -31554-12-19 01:55 J | -9803323.49 | -9803323.42 | -9803323.36 | 0.1781 | 0.1499 |
| Mercury | -31553-10-31 23:16 J | -9803005.68 | -9803005.53 | -9803005.39 | 0.1729 | 0.0512 |
| Mercury | -31552-11-23 16:47 J | -9802617.89 | -9802617.80 | -9802617.71 | 0.1805 | 0.1226 |
| Venus | -31550-11-26 17:59 J | -9801884.86 | -9801884.75 | -9801884.65 | 0.1859 | 0.1465 |
| Venus | -31547-09-08 12:43 J | -9800868.14 | -9800867.97 | -9800867.79 | 0.1654 | 0.0306 |
| Mercury | -31543-03-24 00:43 J | -9799575.56 | -9799575.47 | -9799575.38 | 0.1735 | 0.1392 |
| Mercury | -31542-04-16 00:43 J | -9799187.59 | -9799187.47 | -9799187.35 | 0.1799 | 0.0527 |
| Mercury | -31533-09-05 08:52 J | -9795757.25 | -9795757.13 | -9795757.01 | 0.1793 | 0.0156 |
| Mercury | -31532-07-20 19:11 J | -9795438.81 | -9795438.70 | -9795438.60 | 0.1718 | 0.1244 |
| Moon | -31529-03-11 07:55 J | -9794474.35 | -9794474.17 | -9794473.98 | 0.1685 | 0.0395 |
| Earth | -31529-03-11 14:38 J | -9794474.07 | -9794473.89 | -9794473.72 | 0.1685 | 0.0527 * |
| Mercury | -31523-01-26 17:16 J | -9792326.89 | -9792326.78 | -9792326.68 | 0.1787 | 0.0802 |
| Moon | -31523-09-10 01:11 J | -9792100.48 | -9792100.45 | -9792100.41 | 0.1839 | 0.1808 |
| Mercury | -31523-12-10 21:35 J | -9792008.75 | -9792008.60 | -9792008.45 | 0.1724 | 0.0434 |
| Venus | -31518-11-26 08:38 J | -9790197.31 | -9790197.14 | -9790196.98 | 0.1867 | 0.0531 |
| Venus | -31515-09-07 11:16 J | -9789181.09 | -9789181.03 | -9789180.98 | 0.1648 | 0.1556 |
| Mercury | -31514-06-19 01:40 J | -9788896.49 | -9788896.43 | -9788896.35 | 0.1781 | 0.1432 |
| Mercury | -31513-05-01 23:45 J | -9788578.66 | -9788578.51 | -9788578.36 | 0.1729 | 0.0403 |
| Venus | -31513-07-06 23:31 J | -9788512.64 | -9788512.52 | -9788512.39 | 0.1662 | 0.1149 |
| Mercury | -31512-05-24 16:47 J | -9788190.89 | -9788190.80 | -9788190.72 | 0.1805 | 0.1298 |
| Mercury | -31504-09-22 01:11 J | -9785148.55 | -9785148.45 | -9785148.35 | 0.1735 | 0.1292 |
| Mercury | -31503-10-15 00:43 J | -9784760.59 | -9784760.47 | -9784760.36 | 0.1799 | 0.0601 |
| Mercury | -31493-03-06 08:52 J | -9781330.25 | -9781330.13 | -9781330.01 | 0.1793 | 0.0074 |
| Mercury | -31492-01-18 19:40 J | -9781011.77 | -9781011.68 | -9781011.59 | 0.1718 | 0.1343 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -31484-07-27 17:16 J | -9777899.89 | -9777899.78 | -9777899.67 | 0.1787 | 0.0727 |
| Venus | -31484-09-22 23:45 J | -9777842.56 | -9777842.51 | -9777842.47 | 0.1856 | 0.1782 |
| Mercury | -31483-06-10 22:04 J | -9777581.72 | -9777581.58 | -9777581.43 | 0.1724 | 0.0536 |
| Venus | -31481-07-05 23:02 J | -9776825.72 | -9776825.54 | -9776825.36 | 0.1656 | 0.0151 |
| Mercury | -31475-12-18 01:55 J | -9774469.50 | -9774469.42 | -9774469.35 | 0.1781 | 0.1357 |
| Mercury | -31474-10-31 23:59 J | -9774151.65 | -9774151.50 | -9774151.34 | 0.1729 | 0.0316 |
| Mercury | -31473-11-22 16:47 J | -9773763.88 | -9773763.80 | -9773763.72 | 0.1805 | 0.1375 |
| Mercury | -31464-03-23 01:55 J | -9770721.54 | -9770721.42 | -9770721.31 | 0.1736 | 0.1185 |
| Mercury | -31463-04-15 00:43 J | -9770333.58 | -9770333.47 | -9770333.35 | 0.1799 | 0.0681 |
| Mercury | -31454-09-05 08:52 J | -9766903.26 | -9766903.13 | -9766903.01 | 0.1793 | 0.0051 |
| Mercury | -31453-07-19 20:09 J | -9766584.74 | -9766584.66 | -9766584.58 | 0.1718 | 0.1443 |
| Venus | -31452-09-22 13:40 J | -9766155.10 | -9766154.93 | -9766154.76 | 0.1864 | 0.0185 |
| Moon | -31450-03-14 17:31 J | -9765616.95 | -9765616.77 | -9765616.59 | 0.1688 | 0.0685 |
| Earth | -31450-03-14 19:55 J | -9765616.82 | -9765616.67 | -9765616.52 | 0.1688 | 0.0948 * |
| Venus | -31449-07-04 21:50 J | -9765138.68 | -9765138.59 | -9765138.50 | 0.1650 | 0.1410 |
| Venus | -31447-05-04 09:50 J | -9764470.20 | -9764470.09 | -9764469.98 | 0.1664 | 0.1308 |
| Mercury | -31444-01-25 17:16 J | -9763472.89 | -9763472.78 | -9763472.67 | 0.1787 | 0.0652 |
| Earth | -31444-09-13 01:55 J | -9763242.60 | -9763242.42 | -9763242.25 | 0.1834 | 0.0908 |
| Moon | -31444-09-13 09:35 J | -9763242.25 | -9763242.10 | -9763241.95 | 0.1833 | 0.1119 * |
| Mercury | -31444-12-09 22:33 J | -9763154.70 | -9763154.56 | -9763154.42 | 0.1723 | 0.0632 |
| Mercury | -31435-06-18 01:55 J | -9760042.50 | -9760042.42 | -9760042.34 | 0.1781 | 0.1281 |
| Mercury | -31434-05-02 00:43 J | -9759724.62 | -9759724.47 | -9759724.32 | 0.1729 | 0.0209 |
| Mercury | -31433-05-23 17:02 J | -9759336.86 | -9759336.79 | -9759336.72 | 0.1805 | 0.1460 |
| Mercury | -31425-09-21 02:09 J | -9756294.53 | -9756294.41 | -9756294.29 | 0.1735 | 0.1089 |
| Mercury | -31424-10-14 00:43 J | -9755906.58 | -9755906.47 | -9755906.36 | 0.1799 | 0.0756 |
| Venus | -31415-05-03 09:35 J | -9752783.27 | -9752783.10 | -9752782.92 | 0.1658 | 0.0033 |
| Mercury | -31414-03-06 08:52 J | -9752476.25 | -9752476.13 | -9752476.01 | 0.1793 | 0.0076 |
| Mercury | -31413-01-18 20:23 J | -9752157.71 | -9752157.65 | -9752157.58 | 0.1718 | 0.1532 |
| Mercury | -31405-07-26 17:16 J | -9749045.90 | -9749045.78 | -9749045.67 | 0.1787 | 0.0580 |
| Mercury | -31404-06-09 23:02 J | -9748727.68 | -9748727.54 | -9748727.40 | 0.1724 | 0.0726 |

Mercury -31396-12-17 01:55 J -9745615.51 -9745615.42 -9745615.34 0.1781 0.1215

Mercury -31395-10-31 01:11 J -9745297.60 -9745297.45 -9745297.29 0.1729 0.0111

Mercury -31394-11-22 16:47 J -9744909.86 -9744909.80 -9744909.73 0.1805 0.1529

Venus -31386-07-20 19:26 J -9742112.86 -9742112.69 -9742112.52 0.1862 0.0146

Mercury -31385-03-22 02:52 J -9741867.51 -9741867.38 -9741867.25 0.1735 0.0983

Mercury -31384-04-14 00:57 J -9741479.57 -9741479.46 -9741479.36 0.1799 0.0834

Venus -31383-05-02 08:52 J -9741096.24 -9741096.13 -9741096.02 0.1652 0.1268

Venus -31381-02-29 20:09 J -9740427.74 -9740427.66 -9740427.58 0.1666 0.1464

Mercury -31375-09-04 08:52 J -9738049.25 -9738049.13 -9738049.00 0.1793 0.0166

Mercury -31374-07-19 20:52 J -9737730.67 -9737730.63 -9737730.58 0.1718 0.1624

Mercury -31365-01-25 17:16 J -9734618.90 -9734618.78 -9734618.66 0.1787 0.0507

Mercury -31365-12-08 23:31 J -9734300.65 -9734300.52 -9734300.38 0.1724 0.0825

Mercury -31356-06-17 01:55 J -9731188.51 -9731188.42 -9731188.33 0.1781 0.1138

Mercury -31355-05-01 01:40 J -9730870.59 -9730870.43 -9730870.28 0.1730 0.0032

Mercury -31354-05-23 17:02 J -9730482.84 -9730482.79 -9730482.74 0.1805 0.1610

Venus -31354-07-20 10:04 J -9730425.10 -9730425.08 -9730425.07 0.1870 0.1857

Venus -31349-02-28 19:55 J -9728740.85 -9728740.67 -9728740.49 0.1660 0.0156

Mercury -31347-11-07 10:33 J -9727758.07 -9727758.06 -9727758.04 0.1775 0.1756

Mercury -31346-09-21 03:21 J -9727440.49 -9727440.36 -9727440.23 0.1736 0.0882

Mercury -31345-10-13 00:57 J -9727052.57 -9727052.46 -9727052.36 0.1799 0.0907

Mercury -31335-03-05 08:52 J -9723622.25 -9723622.13 -9723622.01 0.1793 0.0219

Mercury -31326-07-26 17:31 J -9720191.89 -9720191.77 -9720191.66 0.1787 0.0433

Mercury -31325-06-08 23:59 J -9719873.63 -9719873.50 -9719873.37 0.1724 0.0923

Venus -31320-05-17 00:43 J -9718070.64 -9718070.47 -9718070.31 0.1859 0.0484

Venus -31317-02-27 19:11 J -9717053.83 -9717053.70 -9717053.57 0.1654 0.1118

Mercury -31317-12-16 01:55 J -9716761.51 -9716761.42 -9716761.32 0.1781 0.1066

Mercury -31316-10-30 02:09 J -9716443.57 -9716443.41 -9716443.26 0.1730 0.0087

Venus -31316-12-27 05:45 J -9716385.29 -9716385.26 -9716385.23 0.1669 0.1635

Mercury -31315-11-21 17:02 J -9716055.83 -9716055.79 -9716055.75 0.1805 0.1691

Mercury -31307-05-08 10:47 J -9713331.09 -9713331.05 -9713331.02 0.1775 0.1680

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -31306-03-22 03:50 J | -9713013.48 | -9713013.34 | -9713013.20 | 0.1735 | 0.0783 |
| Mercury | -31305-04-13 00:57 J | -9712625.56 | -9712625.46 | -9712625.36 | 0.1799 | 0.0984 |
| Mercury | -31297-08-11 04:47 J | -9709583.33 | -9709583.30 | -9709583.26 | 0.1742 | 0.1695 |
| Mercury | -31296-09-03 09:07 J | -9709195.24 | -9709195.12 | -9709195.00 | 0.1793 | 0.0305 |
| Venus | -31288-05-16 14:52 J | -9706382.98 | -9706382.88 | -9706382.78 | 0.1867 | 0.1496 |
| Mercury | -31286-01-24 17:16 J | -9705764.90 | -9705764.78 | -9705764.66 | 0.1787 | 0.0361 |
| Mercury | -31286-12-09 00:28 J | -9705446.60 | -9705446.48 | -9705446.36 | 0.1724 | 0.1017 |
| Venus | -31284-12-26 05:59 J | -9704698.42 | -9704698.25 | -9704698.07 | 0.1662 | 0.0316 |
| Mercury | -31277-06-16 01:55 J | -9702334.52 | -9702334.42 | -9702334.32 | 0.1781 | 0.0996 |
| Mercury | -31276-04-30 02:38 J | -9702016.54 | -9702016.39 | -9702016.23 | 0.1729 | 0.0201 |
| Mercury | -31275-05-22 17:02 J | -9701628.81 | -9701628.79 | -9701628.77 | 0.1805 | 0.1761 |
| Mercury | -31268-11-06 10:47 J | -9698904.10 | -9698904.05 | -9698904.00 | 0.1775 | 0.1606 |
| Mercury | -31267-09-20 04:19 J | -9698586.46 | -9698586.32 | -9698586.18 | 0.1736 | 0.0683 |
| Mercury | -31266-10-13 00:57 J | -9698198.56 | -9698198.46 | -9698198.36 | 0.1799 | 0.1060 |
| Mercury | -31257-02-10 05:31 J | -9695156.33 | -9695156.27 | -9695156.20 | 0.1742 | 0.1583 |
| Mercury | -31256-03-04 09:07 J | -9694768.24 | -9694768.12 | -9694768.00 | 0.1793 | 0.0379 |
| Venus | -31254-03-14 06:28 J | -9694028.38 | -9694028.23 | -9694028.08 | 0.1856 | 0.0804 |
| Venus | -31252-12-25 05:59 J | -9693011.39 | -9693011.25 | -9693011.11 | 0.1656 | 0.0974 |
| Mercury | -31247-07-25 17:16 J | -9691337.90 | -9691337.78 | -9691337.65 | 0.1787 | 0.0292 |
| Mercury | -31246-06-09 00:57 J | -9691019.58 | -9691019.46 | -9691019.35 | 0.1724 | 0.1114 |
| Earth | -31245-03-12 14:23 J | -9690742.08 | -9690741.90 | -9690741.72 | 0.1680 | 0.0344 |
| Moon | -31245-03-12 17:02 J | -9690741.97 | -9690741.79 | -9690741.62 | 0.1680 | 0.0103 * |
| Mercury | -31238-12-16 01:55 J | -9687907.52 | -9687907.42 | -9687907.31 | 0.1781 | 0.0923 |
| Mercury | -31237-10-29 03:07 J | -9687589.53 | -9687589.37 | -9687589.22 | 0.1730 | 0.0284 |
| Mercury | -31228-05-07 10:47 J | -9684477.11 | -9684477.05 | -9684477.00 | 0.1775 | 0.1540 |
| Mercury | -31227-03-21 05:02 J | -9684159.44 | -9684159.29 | -9684159.15 | 0.1736 | 0.0575 |
| Mercury | -31226-04-13 00:57 J | -9683771.55 | -9683771.46 | -9683771.36 | 0.1799 | 0.1139 |
| Venus | -31222-03-13 20:09 J | -9682340.80 | -9682340.66 | -9682340.53 | 0.1864 | 0.1148 |
| Mercury | -31218-08-11 05:59 J | -9680729.33 | -9680729.25 | -9680729.17 | 0.1741 | 0.1481 |
| Venus | -31218-10-23 16:33 J | -9680655.98 | -9680655.81 | -9680655.64 | 0.1664 | 0.0466 |

Mercury -31217-09-02 09:07 J -9680341.24 -9680341.12 -9680341.01 0.1793 0.0451

Mercury -31207-01-23 17:31 J -9676910.89 -9676910.77 -9676910.65 0.1787 0.0214

Mercury -31207-12-08 01:26 J -9676592.55 -9676592.44 -9676592.33 0.1724 0.1210

Mercury -31198-06-16 02:09 J -9673480.52 -9673480.41 -9673480.31 0.1781 0.0848

Mercury -31197-04-29 03:35 J -9673162.50 -9673162.35 -9673162.20 0.1730 0.0386

Mercury -31189-11-05 10:47 J -9670050.12 -9670050.05 -9670049.99 0.1775 0.1467

Venus -31188-01-08 11:45 J -9669986.15 -9669986.01 -9669985.88 0.1853 0.1129

Mercury -31188-09-19 05:16 J -9669732.43 -9669732.28 -9669732.13 0.1736 0.0482

Mercury -31187-10-12 00:57 J -9669344.55 -9669344.46 -9669344.37 0.1799 0.1214

Venus -31186-10-22 16:19 J -9668968.97 -9668968.82 -9668968.66 0.1658 0.0824

Mercury -31178-02-09 06:28 J -9666302.32 -9666302.23 -9666302.13 0.1742 0.1382

Mercury -31177-03-03 09:07 J -9665914.24 -9665914.12 -9665914.00 0.1793 0.0525

Mercury -31168-07-24 17:31 J -9662483.89 -9662483.77 -9662483.65 0.1786 0.0143

Mercury -31167-06-08 01:55 J -9662165.52 -9662165.42 -9662165.32 0.1724 0.1306

Moon -31166-03-15 14:23 J -9661885.06 -9661884.90 -9661884.75 0.1683 0.0846

Earth -31166-03-15 19:26 J -9661884.83 -9661884.69 -9661884.55 0.1683 0.1112 *

Earth -31160-09-12 12:14 J -9659512.19 -9659511.99 -9659511.79 0.1841 0.0122

Moon -31160-09-12 12:43 J -9659512.19 -9659511.97 -9659511.74 0.1841 0.0046 *

Mercury -31159-12-15 01:55 J -9659053.53 -9659053.42 -9659053.31 0.1781 0.0779

Mercury -31158-10-29 04:04 J -9658735.47 -9658735.33 -9658735.18 0.1729 0.0490

Venus -31156-01-08 00:57 J -9658298.61 -9658298.46 -9658298.31 0.1861 0.0799

Venus -31152-08-20 02:38 J -9656613.56 -9656613.39 -9656613.23 0.1667 0.0626

Mercury -31149-05-06 10:47 J -9655623.12 -9655623.05 -9655622.97 0.1775 0.1391

Mercury -31148-03-20 05:45 J -9655305.41 -9655305.26 -9655305.10 0.1736 0.0381

Mercury -31147-04-12 01:11 J -9654917.54 -9654917.45 -9654917.37 0.1799 0.1290

Mercury -31139-08-10 07:11 J -9651875.31 -9651875.20 -9651875.10 0.1742 0.1279

Mercury -31138-09-02 09:07 J -9651487.23 -9651487.12 -9651487.00 0.1793 0.0607

Mercury -31128-01-22 17:31 J -9648056.89 -9648056.77 -9648056.65 0.1787 0.0070

Mercury -31128-12-07 02:23 J -9647738.49 -9647738.40 -9647738.32 0.1724 0.1402

Venus -31123-11-05 17:59 J -9645943.86 -9645943.75 -9645943.65 0.1850 0.1436

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Venus | -31120-08-19 02:52 J | -9644926.54 | -9644926.38 | -9644926.22 | 0.1660 | 0.0679 |
| Mercury | -31119-06-15 02:09 J | -9644626.52 | -9644626.41 | -9644626.30 | 0.1781 | 0.0704 |
| Mercury | -31118-04-29 04:33 J | -9644308.46 | -9644308.31 | -9644308.17 | 0.1730 | 0.0578 |
| Mercury | -31110-11-05 10:47 J | -9641196.13 | -9641196.05 | -9641195.98 | 0.1774 | 0.1330 |
| Mercury | -31109-09-18 06:28 J | -9640878.39 | -9640878.23 | -9640878.08 | 0.1736 | 0.0276 |
| Mercury | -31108-10-11 01:11 J | -9640490.53 | -9640490.45 | -9640490.37 | 0.1798 | 0.1365 |
| Mercury | -31099-02-08 07:40 J | -9637448.29 | -9637448.18 | -9637448.06 | 0.1742 | 0.1169 |
| Mercury | -31098-03-03 09:07 J | -9637060.23 | -9637060.12 | -9637060.01 | 0.1793 | 0.0672 |
| Venus | -31091-11-05 07:11 J | -9634256.37 | -9634256.20 | -9634256.03 | 0.1858 | 0.0481 |
| Mercury | -31089-07-23 17:31 J | -9633629.89 | -9633629.77 | -9633629.65 | 0.1787 | 0.0037 |
| Mercury | -31088-06-07 02:52 J | -9633311.46 | -9633311.38 | -9633311.31 | 0.1724 | 0.1499 |
| Venus | -31086-06-17 12:57 J | -9632571.12 | -9632570.96 | -9632570.81 | 0.1669 | 0.0781 |
| Mercury | -31080-12-14 02:09 J | -9630199.53 | -9630199.41 | -9630199.30 | 0.1780 | 0.0634 |
| Mercury | -31079-10-28 05:02 J | -9629881.43 | -9629881.29 | -9629881.15 | 0.1730 | 0.0677 |
| Mercury | -31070-05-06 10:47 J | -9626769.13 | -9626769.05 | -9626768.96 | 0.1775 | 0.1251 |
| Mercury | -31069-03-19 06:57 J | -9626451.37 | -9626451.21 | -9626451.06 | 0.1736 | 0.0184 |
| Mercury | -31068-04-11 01:11 J | -9626063.52 | -9626063.45 | -9626063.38 | 0.1798 | 0.1444 |
| Mercury | -31060-08-09 08:09 J | -9623021.28 | -9623021.16 | -9623021.04 | 0.1742 | 0.1075 |
| Mercury | -31059-09-01 09:21 J | -9622633.23 | -9622633.11 | -9622633.00 | 0.1793 | 0.0756 |
| Venus | -31057-09-01 23:45 J | -9621901.56 | -9621901.51 | -9621901.45 | 0.1847 | 0.1737 |
| Venus | -31054-06-16 13:11 J | -9620884.12 | -9620883.95 | -9620883.79 | 0.1662 | 0.0523 |
| Mercury | -31049-01-22 17:31 J | -9619202.89 | -9619202.77 | -9619202.65 | 0.1786 | 0.0084 |
| Mercury | -31049-12-06 03:07 J | -9618884.42 | -9618884.37 | -9618884.31 | 0.1724 | 0.1593 |
| Earth | -31040-03-11 10:19 J | -9615867.13 | -9615867.07 | -9615867.00 | 0.1673 | 0.1559 |
| Mercury | -31040-06-14 02:09 J | -9615772.53 | -9615772.41 | -9615772.30 | 0.1781 | 0.0560 |
| Mercury | -31039-04-28 05:45 J | -9615454.40 | -9615454.26 | -9615454.13 | 0.1730 | 0.0783 |
| Mercury | -31031-11-04 10:47 J | -9612342.14 | -9612342.05 | -9612341.96 | 0.1775 | 0.1178 |
| Mercury | -31030-09-18 07:26 J | -9612024.35 | -9612024.19 | -9612024.04 | 0.1736 | 0.0090 |
| Mercury | -31029-10-10 01:11 J | -9611636.51 | -9611636.45 | -9611636.38 | 0.1799 | 0.1522 |
| Venus | -31025-09-01 12:28 J | -9610214.15 | -9610213.98 | -9610213.81 | 0.1855 | 0.0153 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -31020-02-07 08:38 J | -9608594.26 | -9608594.14 | -9608594.01 | 0.1742 | 0.0968 |
| Venus | -31020-04-13 22:47 J | -9608528.69 | -9608528.55 | -9608528.40 | 0.1671 | 0.0945 |
| Mercury | -31019-03-02 09:21 J | -9608206.22 | -9608206.11 | -9608206.00 | 0.1792 | 0.0830 |
| Mercury | -31010-07-23 17:31 J | -9604775.89 | -9604775.77 | -9604775.65 | 0.1786 | 0.0164 |
| Mercury | -31009-06-06 03:35 J | -9604457.37 | -9604457.35 | -9604457.32 | 0.1724 | 0.1688 |
| Mercury | -31001-12-13 02:09 J | -9601345.53 | -9601345.41 | -9601345.29 | 0.1780 | 0.0485 |

31ST MILLENNIUM BCE

This is a list of transits visible from Mars in the 31st millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|-------------|-------------|-------------|--------|--------|-------|---|
| Mercury | -31000-10-27 05:59 J | -9601027.38 | -9601027.25 | -9601027.12 | 0.1730 | 0.0870 | | |
| Mercury | -30991-05-05 10:47 J | -9597915.14 | -9597915.05 | -9597914.96 | 0.1774 | 0.1112 | | |
| Mercury | -30990-03-19 07:55 J | -9597597.32 | -9597597.17 | -9597597.01 | 0.1736 | 0.0059 | | |
| Mercury | -30989-04-10 01:26 J | -9597209.50 | -9597209.44 | -9597209.39 | 0.1798 | 0.1597 | | |
| Venus | -30988-04-12 23:31 J | -9596841.69 | -9596841.52 | -9596841.35 | 0.1665 | 0.0370 | | |
| Mercury | -30982-09-25 19:55 J | -9594484.70 | -9594484.67 | -9594484.65 | 0.1769 | 0.1709 | | |
| Mercury | -30981-08-08 09:07 J | -9594167.25 | -9594167.12 | -9594166.98 | 0.1742 | 0.0867 | | |
| Mercury | -30980-08-31 09:07 J | -9593779.22 | -9593779.12 | -9593779.01 | 0.1792 | 0.0902 | | |
| Mercury | -30970-01-21 17:45 J | -9590348.89 | -9590348.76 | -9590348.64 | 0.1787 | 0.0244 | | |
| Earth | -30961-03-13 15:07 J | -9587010.05 | -9587009.87 | -9587009.68 | 0.1675 | 0.0142 | | |
| Moon | -30961-03-13 21:21 J | -9587009.80 | -9587009.61 | -9587009.42 | 0.1676 | 0.0169 | * | |
| Mercury | -30961-06-13 02:09 J | -9586918.53 | -9586918.41 | -9586918.29 | 0.1780 | 0.0409 | | |
| Mercury | -30960-04-27 06:28 J | -9586600.35 | -9586600.23 | -9586600.10 | 0.1730 | 0.0974 | | |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Venus | -30959-06-29 18:57 J | -9586171.88 | -9586171.71 | -9586171.54 | 0.1853 | 0.0158 |
| Venus | -30956-04-11 23:16 J | -9585154.55 | -9585154.53 | -9585154.50 | 0.1658 | 0.1638 |
| Venus | -30954-02-09 08:52 J | -9584486.27 | -9584486.13 | -9584486.00 | 0.1674 | 0.1106 |
| Mercury | -30952-11-03 10:47 J | -9583488.14 | -9583488.05 | -9583487.95 | 0.1774 | 0.1038 |
| Mercury | -30951-09-17 08:23 J | -9583170.31 | -9583170.15 | -9583170.00 | 0.1736 | 0.0129 |
| Mercury | -30950-10-10 01:26 J | -9582782.49 | -9582782.44 | -9582782.40 | 0.1798 | 0.1672 |
| Mercury | -30942-03-26 19:55 J | -9580057.72 | -9580057.67 | -9580057.63 | 0.1768 | 0.1640 |
| Mercury | -30941-02-07 09:50 J | -9579740.23 | -9579740.09 | -9579739.95 | 0.1742 | 0.0765 |
| Mercury | -30940-03-01 09:21 J | -9579352.21 | -9579352.11 | -9579352.01 | 0.1792 | 0.0979 |
| Mercury | -30932-06-29 10:47 J | -9576310.09 | -9576310.05 | -9576310.01 | 0.1748 | 0.1680 |
| Mercury | -30931-07-22 17:31 J | -9575921.89 | -9575921.77 | -9575921.64 | 0.1786 | 0.0316 |
| Venus | -30927-06-29 08:23 J | -9574484.20 | -9574484.15 | -9574484.10 | 0.1861 | 0.1772 |
| Venus | -30922-02-08 09:21 J | -9572799.28 | -9572799.11 | -9572798.93 | 0.1667 | 0.0211 |
| Mercury | -30922-12-13 02:09 J | -9572491.53 | -9572491.41 | -9572491.29 | 0.1781 | 0.0339 |
| Mercury | -30921-10-26 06:57 J | -9572173.33 | -9572173.21 | -9572173.09 | 0.1730 | 0.1074 |
| Mercury | -30912-05-04 11:02 J | -9569061.15 | -9569061.04 | -9569060.94 | 0.1774 | 0.0963 |
| Mercury | -30911-03-18 08:52 J | -9568743.28 | -9568743.13 | -9568742.98 | 0.1736 | 0.0224 |
| Mercury | -30910-04-10 01:26 J | -9568355.46 | -9568355.44 | -9568355.41 | 0.1799 | 0.1752 |
| Mercury | -30903-09-24 19:55 J | -9565630.73 | -9565630.67 | -9565630.62 | 0.1768 | 0.1569 |
| Mercury | -30902-08-08 10:19 J | -9565313.22 | -9565313.07 | -9565312.93 | 0.1742 | 0.0662 |
| Mercury | -30901-08-30 09:21 J | -9564925.20 | -9564925.11 | -9564925.01 | 0.1792 | 0.1061 |
| Venus | -30893-04-26 00:28 J | -9562129.65 | -9562129.48 | -9562129.32 | 0.1849 | 0.0473 |
| Mercury | -30893-12-28 11:02 J | -9561883.10 | -9561883.04 | -9561882.97 | 0.1748 | 0.1586 |
| Mercury | -30891-01-20 17:45 J | -9561494.88 | -9561494.76 | -9561494.64 | 0.1786 | 0.0387 |
| Venus | -30890-02-07 09:21 J | -9561112.18 | -9561112.11 | -9561112.03 | 0.1660 | 0.1487 |
| Venus | -30889-12-06 18:14 J | -9560443.85 | -9560443.74 | -9560443.62 | 0.1676 | 0.1278 |
| Earth | -30882-03-16 19:40 J | -9558152.79 | -9558152.68 | -9558152.56 | 0.1678 | 0.1293 |
| Moon | -30882-03-17 01:11 J | -9558152.58 | -9558152.45 | -9558152.32 | 0.1678 | 0.1166 * |
| Mercury | -30882-06-13 02:09 J | -9558064.53 | -9558064.41 | -9558064.29 | 0.1780 | 0.0265 |
| Mercury | -30881-04-26 07:26 J | -9557746.30 | -9557746.19 | -9557746.08 | 0.1730 | 0.1164 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Moon | -30876-09-11 14:09 J | -9555782.06 | -9555781.91 | -9555781.75 | 0.1849 | 0.1092 |
| Earth | -30876-09-11 21:07 J | -9555781.77 | -9555781.62 | -9555781.47 | 0.1849 | 0.1238 * |
| Mercury | -30873-11-02 10:47 J | -9554634.15 | -9554634.05 | -9554633.95 | 0.1774 | 0.0897 |
| Mercury | -30872-09-16 09:35 J | -9554316.26 | -9554316.10 | -9554315.95 | 0.1736 | 0.0332 |
| Mercury | -30863-03-25 19:55 J | -9551203.73 | -9551203.67 | -9551203.61 | 0.1769 | 0.1495 |
| Mercury | -30862-02-06 10:47 J | -9550886.19 | -9550886.05 | -9550885.90 | 0.1742 | 0.0556 |
| Mercury | -30861-02-29 09:21 J | -9550498.20 | -9550498.11 | -9550498.01 | 0.1792 | 0.1127 |
| Venus | -30861-04-25 13:26 J | -9550442.05 | -9550441.94 | -9550441.83 | 0.1859 | 0.1429 |
| Venus | -30857-12-05 19:26 J | -9548756.87 | -9548756.69 | -9548756.51 | 0.1669 | 0.0049 |
| Mercury | -30853-06-28 11:45 J | -9547456.09 | -9547456.01 | -9547455.93 | 0.1748 | 0.1479 |
| Mercury | -30852-07-21 17:45 J | -9547067.88 | -9547067.76 | -9547067.64 | 0.1786 | 0.0464 |
| Mercury | -30843-12-12 02:09 J | -9543637.53 | -9543637.41 | -9543637.29 | 0.1780 | 0.0193 |
| Mercury | -30842-10-26 07:55 J | -9543319.27 | -9543319.17 | -9543319.07 | 0.1730 | 0.1263 |
| Mercury | -30833-05-03 11:02 J | -9540207.15 | -9540207.04 | -9540206.94 | 0.1774 | 0.0819 |
| Mercury | -30832-03-17 09:50 J | -9539889.24 | -9539889.09 | -9539888.94 | 0.1736 | 0.0423 |
| Venus | -30827-02-21 06:43 J | -9538087.37 | -9538087.22 | -9538087.07 | 0.1847 | 0.0774 |
| Venus | -30825-12-04 20:09 J | -9537069.76 | -9537069.66 | -9537069.56 | 0.1662 | 0.1342 |
| Mercury | -30824-09-23 19:55 J | -9536776.74 | -9536776.67 | -9536776.60 | 0.1768 | 0.1428 |
| Mercury | -30823-08-07 11:16 J | -9536459.18 | -9536459.03 | -9536458.88 | 0.1742 | 0.0459 |
| Venus | -30823-10-04 04:04 J | -9536401.41 | -9536401.33 | -9536401.24 | 0.1679 | 0.1442 |
| Mercury | -30822-08-30 09:35 J | -9536071.19 | -9536071.10 | -9536071.01 | 0.1792 | 0.1208 |
| Mercury | -30814-12-28 12:28 J | -9533029.08 | -9533028.98 | -9533028.89 | 0.1748 | 0.1366 |
| Mercury | -30812-01-19 17:45 J | -9532640.88 | -9532640.76 | -9532640.65 | 0.1786 | 0.0531 |
| Mercury | -30803-06-12 02:23 J | -9529210.53 | -9529210.40 | -9529210.28 | 0.1780 | 0.0131 |
| Mercury | -30802-04-26 08:38 J | -9528892.24 | -9528892.14 | -9528892.05 | 0.1730 | 0.1367 |
| Moon | -30797-09-14 23:02 J | -9526923.69 | -9526923.54 | -9526923.39 | 0.1844 | 0.1329 |
| Earth | -30797-09-15 05:02 J | -9526923.35 | -9526923.29 | -9526923.23 | 0.1844 | 0.1745 |
| Venus | -30795-02-20 19:11 J | -9526399.84 | -9526399.70 | -9526399.56 | 0.1855 | 0.1103 |
| Mercury | -30794-11-02 11:02 J | -9525780.15 | -9525780.04 | -9525779.93 | 0.1774 | 0.0746 |
| Mercury | -30793-09-15 10:19 J | -9525462.21 | -9525462.07 | -9525461.92 | 0.1736 | 0.0523 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Venus | -30791-10-03 05:45 J | -9524714.44 | -9524714.26 | -9524714.08 | 0.1671 | 0.0107 |
| Mercury | -30784-03-24 19:55 J | -9522349.75 | -9522349.67 | -9522349.60 | 0.1768 | 0.1356 |
| Mercury | -30783-02-05 11:59 J | -9522032.16 | -9522032.00 | -9522031.85 | 0.1742 | 0.0355 |
| Mercury | -30782-02-28 09:35 J | -9521644.19 | -9521644.10 | -9521644.02 | 0.1792 | 0.1285 |
| Mercury | -30774-06-28 12:43 J | -9518602.07 | -9518601.97 | -9518601.86 | 0.1748 | 0.1275 |
| Mercury | -30773-07-20 17:45 J | -9518213.87 | -9518213.76 | -9518213.64 | 0.1786 | 0.0612 |
| Mercury | -30764-12-11 02:09 J | -9514783.53 | -9514783.41 | -9514783.28 | 0.1780 | 0.0083 |
| Mercury | -30763-10-25 08:52 J | -9514465.21 | -9514465.13 | -9514465.05 | 0.1730 | 0.1455 |
| Venus | -30762-12-19 12:28 J | -9514045.11 | -9514044.98 | -9514044.84 | 0.1843 | 0.1080 |
| Venus | -30759-10-02 06:14 J | -9513027.36 | -9513027.24 | -9513027.11 | 0.1665 | 0.1190 |
| Venus | -30757-07-31 13:40 J | -9512358.98 | -9512358.93 | -9512358.88 | 0.1681 | 0.1612 |
| Moon | -30756-03-12 07:11 J | -9512135.25 | -9512135.20 | -9512135.16 | 0.1668 | 0.1610 |
| Earth | -30756-03-12 12:28 J | -9512135.09 | -9512134.98 | -9512134.86 | 0.1668 | 0.1316 |
| Mercury | -30754-05-03 10:47 J | -9511353.16 | -9511353.05 | -9511352.93 | 0.1774 | 0.0682 |
| Mercury | -30753-03-16 11:02 J | -9511035.18 | -9511035.04 | -9511034.90 | 0.1736 | 0.0631 |
| Mercury | -30745-09-22 19:55 J | -9507922.75 | -9507922.67 | -9507922.59 | 0.1768 | 0.1282 |
| Mercury | -30744-08-06 12:28 J | -9507605.14 | -9507604.98 | -9507604.83 | 0.1742 | 0.0256 |
| Mercury | -30743-08-29 09:35 J | -9507217.18 | -9507217.10 | -9507217.02 | 0.1792 | 0.1358 |
| Mercury | -30735-12-27 13:26 J | -9504175.06 | -9504174.94 | -9504174.82 | 0.1748 | 0.1163 |
| Mercury | -30733-01-19 17:59 J | -9503786.87 | -9503786.75 | -9503786.64 | 0.1786 | 0.0689 |
| Venus | -30730-12-19 00:28 J | -9502357.63 | -9502357.48 | -9502357.32 | 0.1852 | 0.0776 |
| Venus | -30725-07-30 15:21 J | -9500672.03 | -9500671.86 | -9500671.68 | 0.1674 | 0.0272 |
| Mercury | -30724-06-11 02:23 J | -9500356.52 | -9500356.40 | -9500356.28 | 0.1780 | 0.0046 |
| Mercury | -30723-04-25 09:21 J | -9500038.17 | -9500038.11 | -9500038.04 | 0.1730 | 0.1557 |
| Mercury | -30715-11-01 11:02 J | -9496926.16 | -9496926.04 | -9496925.93 | 0.1774 | 0.0603 |
| Mercury | -30714-09-15 11:16 J | -9496608.17 | -9496608.03 | -9496607.89 | 0.1736 | 0.0718 |
| Mercury | -30705-03-23 19:55 J | -9493495.76 | -9493495.67 | -9493495.58 | 0.1768 | 0.1213 |
| Mercury | -30704-02-04 12:57 J | -9493178.11 | -9493177.96 | -9493177.80 | 0.1742 | 0.0148 |
| Mercury | -30703-02-27 09:35 J | -9492790.17 | -9492790.10 | -9492790.02 | 0.1792 | 0.1437 |
| Venus | -30696-10-15 19:11 J | -9490002.81 | -9490002.70 | -9490002.59 | 0.1840 | 0.1367 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -30695-06-27 14:09 J | -9489748.04 | -9489747.91 | -9489747.79 | 0.1748 | 0.1055 |
| Mercury | -30694-07-20 17:45 J | -9489359.87 | -9489359.76 | -9489359.65 | 0.1786 | 0.0759 |
| Venus | -30693-07-29 16:33 J | -9488984.94 | -9488984.81 | -9488984.67 | 0.1667 | 0.1043 |
| Mercury | -30685-12-10 02:23 J | -9485929.52 | -9485929.40 | -9485929.28 | 0.1780 | 0.0109 |
| Mercury | -30684-10-24 09:50 J | -9485611.13 | -9485611.09 | -9485611.05 | 0.1730 | 0.1654 |
| Moon | -30677-03-14 11:59 J | -9483278.19 | -9483278.00 | -9483277.81 | 0.1671 | 0.0219 |
| Earth | -30677-03-14 16:47 J | -9483277.98 | -9483277.80 | -9483277.61 | 0.1671 | 0.0094 * |
| Mercury | -30675-05-02 11:02 J | -9482499.15 | -9482499.04 | -9482498.92 | 0.1774 | 0.0526 |
| Mercury | -30674-03-16 11:59 J | -9482181.14 | -9482181.00 | -9482180.87 | 0.1736 | 0.0824 |
| Mercury | -30666-09-22 19:55 J | -9479068.76 | -9479068.67 | -9479068.58 | 0.1768 | 0.1142 |
| Mercury | -30665-08-05 13:26 J | -9478751.10 | -9478750.94 | -9478750.78 | 0.1742 | 0.0049 |
| Mercury | -30664-08-28 09:50 J | -9478363.16 | -9478363.09 | -9478363.03 | 0.1792 | 0.1516 |
| Venus | -30664-10-15 07:11 J | -9478315.36 | -9478315.20 | -9478315.03 | 0.1849 | 0.0476 |
| Venus | -30659-05-28 01:40 J | -9476629.60 | -9476629.43 | -9476629.26 | 0.1676 | 0.0424 |
| Mercury | -30656-02-12 05:02 J | -9475638.31 | -9475638.29 | -9475638.27 | 0.1762 | 0.1734 |
| Mercury | -30656-12-26 14:23 J | -9475321.03 | -9475320.90 | -9475320.77 | 0.1748 | 0.0961 |
| Mercury | -30654-01-18 17:59 J | -9474932.86 | -9474932.75 | -9474932.65 | 0.1786 | 0.0834 |
| Mercury | -30645-06-10 02:23 J | -9471502.52 | -9471502.40 | -9471502.28 | 0.1780 | 0.0181 |
| Mercury | -30636-10-31 11:02 J | -9468072.16 | -9468072.04 | -9468071.93 | 0.1774 | 0.0462 |
| Mercury | -30635-09-14 12:28 J | -9467754.11 | -9467753.98 | -9467753.85 | 0.1736 | 0.0929 |
| Venus | -30630-08-13 01:26 J | -9465960.51 | -9465960.44 | -9465960.36 | 0.1837 | 0.1651 |
| Venus | -30627-05-27 02:38 J | -9464942.54 | -9464942.39 | -9464942.24 | 0.1669 | 0.0886 |
| Mercury | -30626-03-23 19:55 J | -9464641.76 | -9464641.67 | -9464641.57 | 0.1768 | 0.1068 |
| Mercury | -30625-02-04 14:09 J | -9464324.07 | -9464323.91 | -9464323.76 | 0.1742 | 0.0076 |
| Mercury | -30624-02-26 09:50 J | -9463936.15 | -9463936.09 | -9463936.04 | 0.1792 | 0.1587 |
| Mercury | -30617-08-13 05:02 J | -9461211.33 | -9461211.29 | -9461211.25 | 0.1762 | 0.1663 |
| Mercury | -30616-06-26 15:07 J | -9460894.01 | -9460893.87 | -9460893.74 | 0.1748 | 0.0854 |
| Mercury | -30615-07-19 17:59 J | -9460505.85 | -9460505.75 | -9460505.64 | 0.1786 | 0.0916 |
| Mercury | -30606-12-10 02:23 J | -9457075.52 | -9457075.40 | -9457075.28 | 0.1780 | 0.0254 |
| Earth | -30598-03-17 21:35 J | -9454420.68 | -9454420.60 | -9454420.53 | 0.1674 | 0.1510 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Moon | -30598-03-18 01:11 J | -9454420.56 | -9454420.45 | -9454420.33 | 0.1674 | 0.1349 * |
| Venus | -30598-08-12 12:57 J | -9454273.13 | -9454272.96 | -9454272.79 | 0.1846 | 0.0172 |
| Mercury | -30596-05-01 11:02 J | -9453645.15 | -9453645.04 | -9453644.92 | 0.1774 | 0.0385 |
| Mercury | -30595-03-15 12:57 J | -9453327.09 | -9453326.96 | -9453326.84 | 0.1736 | 0.1019 |
| Venus | -30593-03-24 11:16 J | -9452587.19 | -9452587.03 | -9452586.86 | 0.1679 | 0.0590 |
| Mercury | -30587-09-21 19:55 J | -9450214.77 | -9450214.67 | -9450214.57 | 0.1768 | 0.1001 |
| Mercury | -30586-08-05 14:23 J | -9449897.05 | -9449896.90 | -9449896.74 | 0.1742 | 0.0159 |
| Mercury | -30585-08-27 09:50 J | -9449509.13 | -9449509.09 | -9449509.05 | 0.1792 | 0.1667 |
| Mercury | -30577-02-12 05:02 J | -9446784.34 | -9446784.29 | -9446784.24 | 0.1762 | 0.1596 |
| Mercury | -30577-12-25 15:50 J | -9446466.99 | -9446466.84 | -9446466.70 | 0.1748 | 0.0743 |
| Mercury | -30575-01-17 17:59 J | -9446078.85 | -9446078.75 | -9446078.65 | 0.1786 | 0.0981 |
| Mercury | -30567-05-17 16:04 J | -9443036.86 | -9443036.83 | -9443036.79 | 0.1754 | 0.1691 |
| Mercury | -30566-06-10 02:23 J | -9442648.51 | -9442648.40 | -9442648.28 | 0.1780 | 0.0337 |
| Venus | -30561-03-23 12:43 J | -9440900.12 | -9440899.97 | -9440899.81 | 0.1672 | 0.0734 |
| Mercury | -30557-10-30 11:02 J | -9439218.15 | -9439218.04 | -9439217.92 | 0.1774 | 0.0316 |
| Mercury | -30556-09-13 13:26 J | -9438900.06 | -9438899.94 | -9438899.82 | 0.1736 | 0.1118 |
| Mercury | -30547-03-22 19:55 J | -9435787.77 | -9435787.67 | -9435787.56 | 0.1768 | 0.0928 |
| Mercury | -30546-02-03 15:07 J | -9435470.02 | -9435469.87 | -9435469.72 | 0.1742 | 0.0259 |
| Mercury | -30545-02-26 09:50 J | -9435082.11 | -9435082.09 | -9435082.06 | 0.1792 | 0.1745 |
| Mercury | -30538-08-13 05:02 J | -9432357.35 | -9432357.29 | -9432357.23 | 0.1762 | 0.1522 |
| Mercury | -30537-06-25 16:04 J | -9432039.98 | -9432039.83 | -9432039.69 | 0.1748 | 0.0650 |
| Mercury | -30536-07-18 18:14 J | -9431651.84 | -9431651.74 | -9431651.65 | 0.1786 | 0.1065 |
| Venus | -30532-06-08 19:55 J | -9430230.84 | -9430230.67 | -9430230.50 | 0.1843 | 0.0130 |
| Mercury | -30528-11-15 16:47 J | -9428609.86 | -9428609.80 | -9428609.73 | 0.1755 | 0.1580 |
| Venus | -30527-01-19 21:07 J | -9428544.78 | -9428544.62 | -9428544.46 | 0.1681 | 0.0751 |
| Mercury | -30527-12-09 02:23 J | -9428221.51 | -9428221.40 | -9428221.28 | 0.1780 | 0.0406 |
| Mercury | -30517-04-30 11:02 J | -9424791.16 | -9424791.04 | -9424790.92 | 0.1774 | 0.0243 |
| Mercury | -30516-03-14 14:09 J | -9424473.02 | -9424472.91 | -9424472.80 | 0.1736 | 0.1227 |
| Moon | -30513-09-14 11:59 J | -9423193.19 | -9423193.00 | -9423192.82 | 0.1851 | 0.0306 |
| Earth | -30513-09-14 14:09 J | -9423193.10 | -9423192.91 | -9423192.72 | 0.1851 | 0.0664 * |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -30508-09-20 20:09 J | -9421360.77 | -9421360.66 | -9421360.56 | 0.1768 | 0.0852 |
| Mercury | -30507-08-04 15:35 J | -9421043.00 | -9421042.85 | -9421042.70 | 0.1742 | 0.0359 |
| Venus | -30500-06-08 07:55 J | -9418543.22 | -9418543.17 | -9418543.11 | 0.1852 | 0.1731 |
| Mercury | -30498-02-11 05:02 J | -9417930.36 | -9417930.29 | -9417930.22 | 0.1762 | 0.1452 |
| Mercury | -30498-12-25 16:47 J | -9417612.95 | -9417612.80 | -9417612.65 | 0.1748 | 0.0540 |
| Mercury | -30496-01-16 18:14 J | -9417224.84 | -9417224.74 | -9417224.65 | 0.1786 | 0.1140 |
| Venus | -30495-01-18 22:33 J | -9416857.72 | -9416857.56 | -9416857.39 | 0.1674 | 0.0571 |
| Mercury | -30488-05-16 17:16 J | -9414182.86 | -9414182.78 | -9414182.70 | 0.1754 | 0.1481 |
| Mercury | -30487-06-09 02:38 J | -9413794.51 | -9413794.39 | -9413794.28 | 0.1780 | 0.0480 |
| Mercury | -30478-10-30 11:16 J | -9410364.15 | -9410364.03 | -9410363.91 | 0.1774 | 0.0166 |
| Mercury | -30477-09-12 14:23 J | -9410046.00 | -9410045.90 | -9410045.80 | 0.1736 | 0.1313 |
| Earth | -30472-03-13 15:21 J | -9408403.00 | -9408402.86 | -9408402.71 | 0.1664 | 0.1050 |
| Moon | -30472-03-13 19:11 J | -9408402.81 | -9408402.70 | -9408402.58 | 0.1665 | 0.1230 * |
| Mercury | -30468-03-21 19:55 J | -9406933.77 | -9406933.67 | -9406933.56 | 0.1768 | 0.0787 |
| Mercury | -30467-02-02 16:04 J | -9406615.98 | -9406615.83 | -9406615.68 | 0.1742 | 0.0466 |
| Venus | -30466-04-06 01:55 J | -9406188.59 | -9406188.42 | -9406188.25 | 0.1840 | 0.0424 |
| Venus | -30462-11-17 06:28 J | -9404502.38 | -9404502.23 | -9404502.08 | 0.1684 | 0.0925 |
| Mercury | -30459-08-12 05:02 J | -9403503.36 | -9403503.29 | -9403503.22 | 0.1762 | 0.1383 |
| Mercury | -30458-06-25 17:16 J | -9403185.93 | -9403185.78 | -9403185.63 | 0.1748 | 0.0433 |
| Mercury | -30457-07-17 18:14 J | -9402797.83 | -9402797.74 | -9402797.66 | 0.1786 | 0.1210 |
| Mercury | -30449-11-14 17:45 J | -9399755.85 | -9399755.76 | -9399755.66 | 0.1754 | 0.1375 |
| Mercury | -30448-12-08 02:38 J | -9399367.51 | -9399367.39 | -9399367.27 | 0.1780 | 0.0553 |
| Mercury | -30438-04-30 11:16 J | -9395937.15 | -9395937.03 | -9395936.91 | 0.1774 | 0.0087 |
| Mercury | -30437-03-13 14:52 J | -9395618.96 | -9395618.88 | -9395618.79 | 0.1736 | 0.1419 |
| Venus | -30434-04-05 13:40 J | -9394501.04 | -9394500.93 | -9394500.82 | 0.1850 | 0.1408 |
| Venus | -30430-11-16 08:23 J | -9392815.32 | -9392815.15 | -9392814.97 | 0.1676 | 0.0413 |
| Mercury | -30429-09-19 20:09 J | -9392506.77 | -9392506.66 | -9392506.55 | 0.1768 | 0.0713 |
| Mercury | -30428-08-03 16:33 J | -9392188.95 | -9392188.81 | -9392188.66 | 0.1742 | 0.0560 |
| Mercury | -30419-02-10 05:02 J | -9389076.37 | -9389076.29 | -9389076.21 | 0.1762 | 0.1312 |
| Mercury | -30419-12-24 17:45 J | -9388758.92 | -9388758.76 | -9388758.61 | 0.1748 | 0.0340 |

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| Mercury | -30417-01-16 18:14 J | -9388370.82 | -9388370.74 | -9388370.66 | 0.1786 | 0.1288 |
| Mercury | -30409-05-15 18:43 J | -9385328.83 | -9385328.72 | -9385328.61 | 0.1754 | 0.1259 |
| Mercury | -30408-06-08 02:38 J | -9384940.50 | -9384940.39 | -9384940.27 | 0.1780 | 0.0628 |
| Venus | -30400-01-31 08:38 J | -9382146.30 | -9382146.14 | -9382145.98 | 0.1837 | 0.0705 |
| Mercury | -30399-10-29 11:16 J | -9381510.15 | -9381510.03 | -9381509.91 | 0.1774 | 0.0051 |
| Mercury | -30398-09-12 15:35 J | -9381191.92 | -9381191.85 | -9381191.78 | 0.1736 | 0.1520 |
| Venus | -30396-09-13 16:04 J | -9380459.96 | -9380459.83 | -9380459.69 | 0.1686 | 0.1092 |
| Moon | -30393-03-15 16:19 J | -9379545.98 | -9379545.82 | -9379545.65 | 0.1667 | 0.0497 |
| Earth | -30393-03-15 19:26 J | -9379545.87 | -9379545.69 | -9379545.51 | 0.1667 | 0.0332 * |
| Mercury | -30389-03-20 20:09 J | -9378079.77 | -9378079.66 | -9378079.55 | 0.1768 | 0.0635 |
| Mercury | -30388-02-01 17:16 J | -9377761.93 | -9377761.78 | -9377761.64 | 0.1742 | 0.0665 |
| Mercury | -30380-08-11 05:02 J | -9374649.37 | -9374649.29 | -9374649.20 | 0.1762 | 0.1240 |
| Mercury | -30379-06-24 18:14 J | -9374331.89 | -9374331.74 | -9374331.58 | 0.1748 | 0.0236 |
| Mercury | -30378-07-17 18:28 J | -9373943.81 | -9373943.73 | -9373943.66 | 0.1786 | 0.1371 |
| Mercury | -30370-11-14 18:57 J | -9370901.83 | -9370901.71 | -9370901.59 | 0.1754 | 0.1164 |
| Mercury | -30369-12-07 02:38 J | -9370513.50 | -9370513.39 | -9370513.28 | 0.1780 | 0.0701 |
| Venus | -30368-01-30 19:55 J | -9370458.81 | -9370458.67 | -9370458.54 | 0.1846 | 0.1103 |
| Venus | -30364-09-12 18:28 J | -9368772.90 | -9368772.73 | -9368772.55 | 0.1679 | 0.0253 |
| Mercury | -30359-04-29 11:16 J | -9367083.15 | -9367083.03 | -9367082.91 | 0.1774 | 0.0073 |
| Mercury | -30358-03-13 15:50 J | -9366764.89 | -9366764.84 | -9366764.78 | 0.1736 | 0.1610 |
| Mercury | -30350-09-19 20:09 J | -9363652.78 | -9363652.66 | -9363652.55 | 0.1768 | 0.0571 |
| Mercury | -30349-08-02 17:45 J | -9363334.90 | -9363334.76 | -9363334.62 | 0.1742 | 0.0764 |
| Mercury | -30340-02-09 05:02 J | -9360222.37 | -9360222.29 | -9360222.20 | 0.1762 | 0.1171 |
| Mercury | -30340-12-23 18:57 J | -9359904.86 | -9359904.71 | -9359904.55 | 0.1748 | 0.0122 |
| Mercury | -30338-01-15 18:14 J | -9359516.81 | -9359516.74 | -9359516.67 | 0.1785 | 0.1435 |
| Venus | -30335-11-28 15:07 J | -9358104.01 | -9358103.87 | -9358103.73 | 0.1834 | 0.0988 |
| Venus | -30332-09-11 19:55 J | -9357085.73 | -9357085.67 | -9357085.60 | 0.1671 | 0.1553 |
| Mercury | -30331-07-02 14:23 J | -9356791.91 | -9356791.90 | -9356791.89 | 0.1756 | 0.1748 |
| Mercury | -30330-05-15 19:40 J | -9356474.81 | -9356474.68 | -9356474.56 | 0.1754 | 0.1055 |
| Venus | -30330-07-12 01:26 J | -9356417.56 | -9356417.44 | -9356417.33 | 0.1689 | 0.1267 |

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| Mercury | -30329-06-07 02:52 J | -9356086.49 | -9356086.38 | -9356086.27 | 0.1780 | 0.0780 |
| Mercury | -30320-10-28 11:16 J | -9352656.15 | -9352656.03 | -9352655.91 | 0.1774 | 0.0142 |
| Mercury | -30319-09-11 16:19 J | -9352337.84 | -9352337.82 | -9352337.79 | 0.1736 | 0.1710 |
| Moon | -30314-03-18 17:16 J | -9350688.85 | -9350688.78 | -9350688.70 | 0.1669 | 0.1518 |
| Mercury | -30310-03-20 20:09 J | -9349225.77 | -9349225.66 | -9349225.54 | 0.1768 | 0.0493 |
| Mercury | -30309-02-01 18:14 J | -9348907.87 | -9348907.74 | -9348907.61 | 0.1742 | 0.0865 |
| Venus | -30303-11-28 01:55 J | -9346416.58 | -9346416.42 | -9346416.27 | 0.1843 | 0.0795 |
| Mercury | -30301-08-10 05:16 J | -9345795.38 | -9345795.28 | -9345795.19 | 0.1762 | 0.1098 |
| Mercury | -30300-06-23 19:26 J | -9345477.85 | -9345477.69 | -9345477.54 | 0.1748 | 0.0054 |
| Mercury | -30299-07-16 18:28 J | -9345089.79 | -9345089.73 | -9345089.67 | 0.1786 | 0.1518 |
| Venus | -30298-07-11 04:04 J | -9344730.51 | -9344730.33 | -9344730.15 | 0.1681 | 0.0089 |
| Mercury | -30292-12-31 14:23 J | -9342364.93 | -9342364.90 | -9342364.87 | 0.1756 | 0.1688 |
| Mercury | -30291-11-13 20:23 J | -9342047.79 | -9342047.65 | -9342047.52 | 0.1755 | 0.0945 |
| Mercury | -30290-12-07 02:52 J | -9341659.49 | -9341659.38 | -9341659.28 | 0.1779 | 0.0852 |
| Mercury | -30280-04-28 11:16 J | -9338229.15 | -9338229.03 | -9338228.91 | 0.1774 | 0.0210 |
| Mercury | -30271-09-18 20:09 J | -9334798.77 | -9334798.66 | -9334798.54 | 0.1768 | 0.0421 |
| Mercury | -30270-08-02 18:43 J | -9334480.85 | -9334480.72 | -9334480.59 | 0.1742 | 0.0963 |
| Venus | -30269-09-24 22:04 J | -9334061.71 | -9334061.58 | -9334061.46 | 0.1831 | 0.1259 |
| Venus | -30266-07-10 06:14 J | -9333043.34 | -9333043.24 | -9333043.15 | 0.1674 | 0.1404 |
| Venus | -30264-05-08 10:33 J | -9332375.15 | -9332375.06 | -9332374.96 | 0.1692 | 0.1442 |
| Mercury | -30261-02-09 05:16 J | -9331368.38 | -9331368.28 | -9331368.19 | 0.1762 | 0.1029 |
| Mercury | -30261-12-22 19:55 J | -9331050.82 | -9331050.67 | -9331050.51 | 0.1748 | 0.0085 |
| Mercury | -30259-01-14 18:28 J | -9330662.78 | -9330662.73 | -9330662.68 | 0.1785 | 0.1595 |
| Mercury | -30252-07-01 14:23 J | -9327937.94 | -9327937.90 | -9327937.85 | 0.1756 | 0.1611 |
| Mercury | -30251-05-14 20:38 J | -9327620.77 | -9327620.64 | -9327620.50 | 0.1754 | 0.0847 |
| Mercury | -30250-06-07 02:52 J | -9327232.48 | -9327232.38 | -9327232.28 | 0.1780 | 0.0927 |
| Mercury | -30241-10-27 11:31 J | -9323802.14 | -9323802.02 | -9323801.90 | 0.1774 | 0.0281 |
| Venus | -30237-09-24 08:38 J | -9322374.30 | -9322374.14 | -9322373.97 | 0.1840 | 0.0515 |
| Venus | -30232-05-07 14:09 J | -9320688.09 | -9320687.91 | -9320687.73 | 0.1683 | 0.0074 |
| Mercury | -30231-03-19 20:09 J | -9320371.78 | -9320371.66 | -9320371.54 | 0.1768 | 0.0352 |

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| Mercury | -30230-01-31 19:26 J | -9320053.82 | -9320053.69 | -9320053.57 | 0.1742 | 0.1070 |
| Earth | -30229-09-13 21:35 J | -9319462.80 | -9319462.60 | -9319462.41 | 0.1858 | 0.0511 |
| Moon | -30229-09-14 06:43 J | -9319462.41 | -9319462.22 | -9319462.02 | 0.1857 | 0.0581 * |
| Mercury | -30222-08-10 05:16 J | -9316941.38 | -9316941.28 | -9316941.18 | 0.1762 | 0.0956 |
| Mercury | -30221-06-22 20:38 J | -9316623.80 | -9316623.64 | -9316623.49 | 0.1748 | 0.0188 |
| Mercury | -30220-07-15 18:28 J | -9316235.77 | -9316235.73 | -9316235.69 | 0.1785 | 0.1665 |
| Mercury | -30213-12-30 14:23 J | -9313510.95 | -9313510.90 | -9313510.84 | 0.1756 | 0.1539 |
| Mercury | -30212-11-12 21:21 J | -9313193.75 | -9313193.61 | -9313193.47 | 0.1755 | 0.0741 |
| Mercury | -30211-12-06 02:52 J | -9312805.48 | -9312805.38 | -9312805.28 | 0.1780 | 0.1004 |
| Venus | -30203-07-23 04:47 J | -9310019.39 | -9310019.30 | -9310019.21 | 0.1827 | 0.1524 |
| Mercury | -30202-04-04 21:35 J | -9309763.64 | -9309763.60 | -9309763.56 | 0.1761 | 0.1698 |
| Mercury | -30201-04-27 11:31 J | -9309375.14 | -9309375.02 | -9309374.90 | 0.1774 | 0.0355 |
| Venus | -30200-05-06 16:04 J | -9309000.95 | -9309000.83 | -9309000.72 | 0.1676 | 0.1245 |
| Venus | -30198-03-05 19:55 J | -9308332.72 | -9308332.67 | -9308332.62 | 0.1694 | 0.1616 |
| Mercury | -30192-09-17 20:09 J | -9305944.78 | -9305944.66 | -9305944.54 | 0.1768 | 0.0280 |
| Mercury | -30191-08-01 19:40 J | -9305626.79 | -9305626.68 | -9305626.56 | 0.1742 | 0.1161 |
| Earth | -30188-03-14 19:11 J | -9304670.86 | -9304670.70 | -9304670.53 | 0.1661 | 0.0770 |
| Moon | -30188-03-14 23:16 J | -9304670.70 | -9304670.53 | -9304670.37 | 0.1661 | 0.0918 * |
| Mercury | -30182-02-08 05:16 J | -9302514.38 | -9302514.28 | -9302514.18 | 0.1762 | 0.0884 |
| Mercury | -30182-12-22 20:52 J | -9302196.78 | -9302196.63 | -9302196.47 | 0.1748 | 0.0284 |
| Mercury | -30180-01-13 18:43 J | -9301808.75 | -9301808.72 | -9301808.70 | 0.1785 | 0.1746 |
| Mercury | -30173-06-30 14:23 J | -9299083.96 | -9299083.90 | -9299083.84 | 0.1756 | 0.1475 |
| Mercury | -30172-05-13 22:04 J | -9298766.73 | -9298766.58 | -9298766.43 | 0.1754 | 0.0624 |
| Mercury | -30171-06-06 02:52 J | -9298378.47 | -9298378.38 | -9298378.28 | 0.1779 | 0.1077 |
| Venus | -30171-07-22 15:07 J | -9298332.04 | -9298331.87 | -9298331.70 | 0.1837 | 0.0223 |
| Venus | -30166-03-04 23:16 J | -9296645.70 | -9296645.53 | -9296645.35 | 0.1686 | 0.0242 |
| Mercury | -30163-10-03 22:04 J | -9295336.64 | -9295336.58 | -9295336.51 | 0.1761 | 0.1594 |
| Mercury | -30162-10-27 11:31 J | -9294948.14 | -9294948.02 | -9294947.90 | 0.1774 | 0.0424 |
| Mercury | -30152-03-18 20:23 J | -9291517.77 | -9291517.65 | -9291517.53 | 0.1768 | 0.0202 |
| Mercury | -30151-01-30 20:23 J | -9291199.76 | -9291199.65 | -9291199.55 | 0.1742 | 0.1266 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -30143-08-09 05:16 J | -9288087.39 | -9288087.28 | -9288087.17 | 0.1762 | 0.0811 |
| Mercury | -30142-06-22 21:35 J | -9287769.75 | -9287769.60 | -9287769.45 | 0.1748 | 0.0388 |
| Venus | -30137-05-19 11:45 J | -9285977.04 | -9285977.01 | -9285976.99 | 0.1824 | 0.1790 |
| Venus | -30134-03-04 01:40 J | -9284958.57 | -9284958.43 | -9284958.30 | 0.1679 | 0.1086 |
| Mercury | -30134-12-30 14:23 J | -9284656.97 | -9284656.90 | -9284656.83 | 0.1756 | 0.1403 |
| Mercury | -30133-11-11 22:19 J | -9284339.72 | -9284339.57 | -9284339.42 | 0.1755 | 0.0534 |
| Mercury | -30132-12-05 02:52 J | -9283951.47 | -9283951.38 | -9283951.28 | 0.1779 | 0.1151 |
| Mercury | -30123-04-03 22:47 J | -9280909.63 | -9280909.55 | -9280909.47 | 0.1761 | 0.1487 |
| Mercury | -30122-04-27 11:31 J | -9280521.13 | -9280521.02 | -9280520.90 | 0.1774 | 0.0503 |
| Mercury | -30113-09-16 20:09 J | -9277090.78 | -9277090.66 | -9277090.54 | 0.1767 | 0.0146 |
| Mercury | -30112-07-31 20:52 J | -9276772.73 | -9276772.63 | -9276772.54 | 0.1742 | 0.1366 |
| Earth | -30109-03-16 22:33 J | -9275813.73 | -9275813.56 | -9275813.38 | 0.1663 | 0.0595 |
| Moon | -30109-03-17 04:33 J | -9275813.47 | -9275813.31 | -9275813.16 | 0.1663 | 0.0874 * |
| Venus | -30105-05-18 22:04 J | -9274289.75 | -9274289.58 | -9274289.41 | 0.1834 | 0.0057 |
| Mercury | -30103-02-07 05:16 J | -9273660.39 | -9273660.28 | -9273660.17 | 0.1762 | 0.0742 |
| Mercury | -30103-12-21 22:04 J | -9273342.72 | -9273342.58 | -9273342.43 | 0.1748 | 0.0495 |
| Venus | -30101-12-30 08:52 J | -9272603.30 | -9272603.13 | -9272602.96 | 0.1689 | 0.0408 |
| Mercury | -30094-06-30 14:38 J | -9270229.97 | -9270229.89 | -9270229.82 | 0.1756 | 0.1330 |
| Mercury | -30093-05-12 23:02 J | -9269912.69 | -9269912.54 | -9269912.39 | 0.1755 | 0.0425 |
| Mercury | -30092-06-05 03:07 J | -9269524.46 | -9269524.37 | -9269524.28 | 0.1780 | 0.1230 |
| Mercury | -30084-10-02 23:16 J | -9266482.62 | -9266482.53 | -9266482.43 | 0.1761 | 0.1380 |
| Mercury | -30083-10-26 11:31 J | -9266094.13 | -9266094.02 | -9266093.90 | 0.1773 | 0.0579 |
| Mercury | -30073-03-17 20:23 J | -9262663.77 | -9262663.65 | -9262663.53 | 0.1768 | 0.0069 |
| Venus | -30073-05-18 09:07 J | -9262602.17 | -9262602.12 | -9262602.06 | 0.1843 | 0.1731 |
| Mercury | -30072-01-29 21:21 J | -9262345.69 | -9262345.61 | -9262345.53 | 0.1742 | 0.1464 |
| Venus | -30069-12-29 11:16 J | -9260916.18 | -9260916.03 | -9260915.88 | 0.1681 | 0.0922 |
| Mercury | -30064-08-08 05:16 J | -9259233.39 | -9259233.28 | -9259233.17 | 0.1762 | 0.0670 |
| Mercury | -30063-06-21 22:33 J | -9258915.71 | -9258915.56 | -9258915.41 | 0.1749 | 0.0586 |
| Mercury | -30055-12-29 14:23 J | -9255802.98 | -9255802.90 | -9255802.82 | 0.1756 | 0.1266 |
| Mercury | -30054-11-11 23:45 J | -9255485.67 | -9255485.51 | -9255485.36 | 0.1755 | 0.0314 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -30053-12-04 03:07 J | -9255097.45 | -9255097.37 | -9255097.29 | 0.1779 | 0.1299 |
| Mercury | -30044-04-02 23:59 J | -9252055.61 | -9252055.50 | -9252055.39 | 0.1761 | 0.1269 |
| Mercury | -30043-04-26 11:31 J | -9251667.13 | -9251667.02 | -9251666.90 | 0.1774 | 0.0649 |
| Venus | -30039-03-16 04:47 J | -9250247.47 | -9250247.30 | -9250247.14 | 0.1830 | 0.0338 |
| Venus | -30035-10-27 17:59 J | -9248560.92 | -9248560.75 | -9248560.58 | 0.1692 | 0.0582 |
| Mercury | -30034-09-16 20:23 J | -9248236.77 | -9248236.65 | -9248236.53 | 0.1768 | 0.0024 |
| Mercury | -30033-07-30 21:50 J | -9247918.66 | -9247918.59 | -9247918.53 | 0.1742 | 0.1560 |
| Mercury | -30024-02-06 05:16 J | -9244806.39 | -9244806.28 | -9244806.17 | 0.1762 | 0.0599 |
| Mercury | -30024-12-20 23:16 J | -9244488.68 | -9244488.53 | -9244488.39 | 0.1748 | 0.0694 |
| Mercury | -30015-06-29 14:38 J | -9241375.98 | -9241375.89 | -9241375.81 | 0.1756 | 0.1190 |
| Mercury | -30014-05-12 23:59 J | -9241058.65 | -9241058.50 | -9241058.34 | 0.1755 | 0.0220 |
| Mercury | -30013-06-04 03:07 J | -9240670.44 | -9240670.37 | -9240670.29 | 0.1779 | 0.1378 |
| Venus | -30007-03-15 15:21 J | -9238559.97 | -9238559.86 | -9238559.75 | 0.1840 | 0.1425 |
| Mercury | -30005-10-02 00:28 J | -9237628.60 | -9237628.48 | -9237628.36 | 0.1761 | 0.1168 |
| Mercury | -30004-10-25 11:45 J | -9237240.12 | -9237240.01 | -9237239.90 | 0.1773 | 0.0723 |
| Venus | -30003-10-26 20:52 J | -9236873.79 | -9236873.63 | -9236873.47 | 0.1684 | 0.0762 |

30TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 30th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|-------------|-------------|-------------|--------|--------|-------|---|
| Mercury | -29994-03-17 20:23 J | -9233809.77 | -9233809.65 | -9233809.53 | 0.1767 | 0.0096 | | |
| Mercury | -29993-01-29 22:19 J | -9233491.61 | -9233491.57 | -9233491.52 | 0.1742 | 0.1667 | | |
| Mercury | -29985-08-07 05:31 J | -9230379.39 | -9230379.27 | -9230379.16 | 0.1762 | 0.0529 | | |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -29984-06-20 23:45 J | -9230061.65 | -9230061.51 | -9230061.37 | 0.1748 | 0.0798 |
| Mercury | -29976-12-28 14:38 J | -9226948.99 | -9226948.89 | -9226948.80 | 0.1756 | 0.1120 |
| Mercury | -29975-11-11 00:43 J | -9226631.63 | -9226631.47 | -9226631.32 | 0.1755 | 0.0119 |
| Mercury | -29974-12-04 03:07 J | -9226243.43 | -9226243.37 | -9226243.30 | 0.1779 | 0.1455 |
| Venus | -29973-01-11 11:45 J | -9226205.17 | -9226205.01 | -9226204.85 | 0.1827 | 0.0602 |
| Venus | -29969-08-24 03:21 J | -9224518.52 | -9224518.36 | -9224518.20 | 0.1695 | 0.0753 |
| Mercury | -29966-05-20 23:45 J | -9223518.53 | -9223518.51 | -9223518.48 | 0.1750 | 0.1696 |
| Mercury | -29965-04-02 00:57 J | -9223201.58 | -9223201.46 | -9223201.33 | 0.1761 | 0.1060 |
| Mercury | -29964-04-25 11:45 J | -9222813.12 | -9222813.01 | -9222812.90 | 0.1773 | 0.0797 |
| Mercury | -29955-09-15 20:23 J | -9219382.77 | -9219382.65 | -9219382.53 | 0.1767 | 0.0161 |
| Mercury | -29945-02-06 05:16 J | -9215952.39 | -9215952.28 | -9215952.16 | 0.1761 | 0.0460 |
| Earth | -29945-09-13 03:07 J | -9215732.43 | -9215732.37 | -9215732.31 | 0.1864 | 0.1774 |
| Mercury | -29945-12-20 00:14 J | -9215634.63 | -9215634.49 | -9215634.36 | 0.1749 | 0.0893 |
| Venus | -29941-01-10 21:35 J | -9214517.73 | -9214517.60 | -9214517.46 | 0.1837 | 0.1136 |
| Venus | -29937-08-23 06:28 J | -9212831.39 | -9212831.23 | -9212831.06 | 0.1686 | 0.0599 |
| Mercury | -29936-06-28 14:23 J | -9212521.99 | -9212521.90 | -9212521.80 | 0.1756 | 0.1055 |
| Mercury | -29935-05-12 01:26 J | -9212204.60 | -9212204.44 | -9212204.29 | 0.1754 | 0.0022 |
| Mercury | -29934-06-04 03:07 J | -9211816.43 | -9211816.37 | -9211816.30 | 0.1779 | 0.1526 |
| Mercury | -29927-11-18 23:59 J | -9209091.55 | -9209091.50 | -9209091.46 | 0.1750 | 0.1625 |
| Mercury | -29926-10-02 01:40 J | -9208774.57 | -9208774.43 | -9208774.30 | 0.1761 | 0.0956 |
| Mercury | -29925-10-24 11:45 J | -9208386.12 | -9208386.01 | -9208385.91 | 0.1773 | 0.0868 |
| Mercury | -29915-03-16 20:38 J | -9204955.76 | -9204955.64 | -9204955.52 | 0.1768 | 0.0245 |
| Venus | -29908-11-07 18:43 J | -9202162.87 | -9202162.72 | -9202162.57 | 0.1824 | 0.0871 |
| Mercury | -29906-08-07 05:31 J | -9201525.39 | -9201525.27 | -9201525.16 | 0.1761 | 0.0388 |
| Mercury | -29905-06-20 00:43 J | -9201207.59 | -9201207.47 | -9201207.34 | 0.1748 | 0.0998 |
| Moon | -29904-03-15 16:47 J | -9200938.97 | -9200938.80 | -9200938.63 | 0.1657 | 0.0763 |
| Earth | -29904-03-15 23:16 J | -9200938.71 | -9200938.53 | -9200938.36 | 0.1657 | 0.0488 * |
| Venus | -29903-06-21 12:14 J | -9200476.14 | -9200475.99 | -9200475.84 | 0.1697 | 0.0933 |
| Mercury | -29897-12-27 14:38 J | -9198094.99 | -9198094.89 | -9198094.80 | 0.1756 | 0.0983 |
| Mercury | -29896-11-10 01:40 J | -9197777.59 | -9197777.43 | -9197777.28 | 0.1755 | 0.0092 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -29895-12-03 03:21 J | -9197389.41 | -9197389.36 | -9197389.31 | 0.1779 | 0.1600 |
| Mercury | -29887-05-19 23:45 J | -9194664.56 | -9194664.51 | -9194664.45 | 0.1750 | 0.1559 |
| Mercury | -29886-04-02 02:09 J | -9194347.54 | -9194347.41 | -9194347.27 | 0.1761 | 0.0846 |
| Mercury | -29885-04-24 11:45 J | -9193959.11 | -9193959.01 | -9193958.90 | 0.1773 | 0.0947 |
| Mercury | -29876-09-14 20:23 J | -9190528.77 | -9190528.65 | -9190528.53 | 0.1767 | 0.0301 |
| Venus | -29876-11-07 04:04 J | -9190475.48 | -9190475.33 | -9190475.17 | 0.1833 | 0.0844 |
| Venus | -29871-06-20 15:50 J | -9188789.01 | -9188788.84 | -9188788.67 | 0.1689 | 0.0431 |
| Mercury | -29866-02-05 05:31 J | -9187098.39 | -9187098.27 | -9187098.15 | 0.1762 | 0.0316 |
| Earth | -29866-09-17 15:35 J | -9186873.98 | -9186873.85 | -9186873.73 | 0.1860 | 0.1466 |
| Moon | -29866-09-17 21:07 J | -9186873.70 | -9186873.62 | -9186873.54 | 0.1860 | 0.1713 |
| Mercury | -29866-12-20 01:11 J | -9186780.57 | -9186780.45 | -9186780.33 | 0.1748 | 0.1099 |
| Mercury | -29857-06-27 14:38 J | -9183667.99 | -9183667.89 | -9183667.79 | 0.1756 | 0.0907 |
| Mercury | -29856-05-11 02:23 J | -9183350.56 | -9183350.40 | -9183350.25 | 0.1755 | 0.0203 |
| Mercury | -29855-06-03 03:21 J | -9182962.39 | -9182962.36 | -9182962.32 | 0.1779 | 0.1681 |
| Mercury | -29848-11-17 23:45 J | -9180237.57 | -9180237.51 | -9180237.44 | 0.1750 | 0.1490 |
| Mercury | -29847-10-01 02:38 J | -9179920.53 | -9179920.39 | -9179920.24 | 0.1761 | 0.0745 |
| Mercury | -29846-10-24 11:45 J | -9179532.11 | -9179532.01 | -9179531.91 | 0.1773 | 0.1019 |
| Venus | -29842-09-05 01:40 J | -9178120.56 | -9178120.43 | -9178120.29 | 0.1821 | 0.1129 |
| Mercury | -29837-02-21 02:38 J | -9176490.42 | -9176490.39 | -9176490.36 | 0.1767 | 0.1724 |
| Venus | -29837-04-17 21:07 J | -9176433.75 | -9176433.62 | -9176433.48 | 0.1700 | 0.1113 |
| Mercury | -29836-03-15 20:23 J | -9176101.76 | -9176101.65 | -9176101.53 | 0.1767 | 0.0384 |
| Mercury | -29827-08-06 05:31 J | -9172671.39 | -9172671.27 | -9172671.15 | 0.1761 | 0.0242 |
| Mercury | -29826-06-20 01:40 J | -9172353.54 | -9172353.43 | -9172353.31 | 0.1749 | 0.1194 |
| Earth | -29825-03-18 02:09 J | -9172081.57 | -9172081.41 | -9172081.25 | 0.1659 | 0.0860 |
| Moon | -29825-03-18 02:09 J | -9172081.56 | -9172081.41 | -9172081.25 | 0.1659 | 0.1004 * |
| Mercury | -29818-12-27 14:23 J | -9169241.00 | -9169240.90 | -9169240.79 | 0.1756 | 0.0846 |
| Mercury | -29817-11-09 02:52 J | -9168923.53 | -9168923.38 | -9168923.22 | 0.1755 | 0.0311 |
| Mercury | -29816-12-02 03:21 J | -9168535.38 | -9168535.36 | -9168535.34 | 0.1779 | 0.1748 |
| Venus | -29810-09-04 11:16 J | -9166433.19 | -9166433.03 | -9166432.87 | 0.1830 | 0.0573 |
| Mercury | -29808-05-18 23:59 J | -9165810.57 | -9165810.50 | -9165810.43 | 0.1750 | 0.1416 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -29807-04-01 03:21 J | -9165493.51 | -9165493.36 | -9165493.21 | 0.1761 | 0.0635 |
| Mercury | -29806-04-24 11:45 J | -9165105.10 | -9165105.01 | -9165104.91 | 0.1773 | 0.1092 |
| Venus | -29805-04-17 01:26 J | -9164746.61 | -9164746.44 | -9164746.26 | 0.1691 | 0.0268 |
| Mercury | -29798-08-22 03:21 J | -9162063.42 | -9162063.36 | -9162063.30 | 0.1767 | 0.1615 |
| Mercury | -29797-09-13 20:38 J | -9161674.76 | -9161674.64 | -9161674.53 | 0.1767 | 0.0455 |
| Mercury | -29787-02-04 05:31 J | -9158244.39 | -9158244.27 | -9158244.15 | 0.1761 | 0.0172 |
| Mercury | -29787-12-19 02:23 J | -9157926.50 | -9157926.40 | -9157926.30 | 0.1748 | 0.1298 |
| Mercury | -29778-06-27 14:38 J | -9154814.00 | -9154813.89 | -9154813.78 | 0.1756 | 0.0768 |
| Mercury | -29777-05-10 03:21 J | -9154496.51 | -9154496.36 | -9154496.21 | 0.1755 | 0.0402 |
| Venus | -29776-07-02 09:07 J | -9154078.23 | -9154078.12 | -9154078.01 | 0.1817 | 0.1378 |
| Venus | -29773-04-16 04:19 J | -9153059.38 | -9153059.32 | -9153059.26 | 0.1684 | 0.1590 |
| Venus | -29771-02-13 05:59 J | -9152391.37 | -9152391.25 | -9152391.14 | 0.1703 | 0.1297 |
| Mercury | -29769-11-16 23:45 J | -9151383.58 | -9151383.51 | -9151383.43 | 0.1750 | 0.1354 |
| Mercury | -29768-09-30 03:50 J | -9151066.49 | -9151066.34 | -9151066.19 | 0.1761 | 0.0532 |
| Mercury | -29767-10-23 11:59 J | -9150678.10 | -9150678.00 | -9150677.91 | 0.1773 | 0.1165 |
| Mercury | -29758-02-20 04:04 J | -9147636.41 | -9147636.33 | -9147636.25 | 0.1767 | 0.1498 |
| Mercury | -29757-03-14 20:23 J | -9147247.76 | -9147247.65 | -9147247.53 | 0.1767 | 0.0522 |
| Mercury | -29748-08-05 05:31 J | -9143817.39 | -9143817.27 | -9143817.15 | 0.1762 | 0.0096 |
| Mercury | -29747-06-19 02:52 J | -9143499.47 | -9143499.38 | -9143499.29 | 0.1748 | 0.1400 |
| Venus | -29744-07-01 18:14 J | -9142390.91 | -9142390.74 | -9142390.58 | 0.1827 | 0.0303 |
| Venus | -29739-02-12 10:19 J | -9140704.25 | -9140704.07 | -9140703.89 | 0.1694 | 0.0093 |
| Mercury | -29739-12-26 14:38 J | -9140387.00 | -9140386.89 | -9140386.78 | 0.1755 | 0.0698 |
| Mercury | -29738-11-09 03:50 J | -9140069.49 | -9140069.34 | -9140069.19 | 0.1755 | 0.0505 |
| Mercury | -29729-05-17 23:59 J | -9136956.58 | -9136956.50 | -9136956.42 | 0.1750 | 0.1281 |
| Mercury | -29728-03-31 04:33 J | -9136639.47 | -9136639.31 | -9136639.16 | 0.1761 | 0.0429 |
| Mercury | -29727-04-23 11:59 J | -9136251.09 | -9136251.00 | -9136250.92 | 0.1773 | 0.1240 |
| Mercury | -29719-08-21 04:19 J | -9133209.41 | -9133209.32 | -9133209.22 | 0.1767 | 0.1405 |
| Mercury | -29718-09-13 20:38 J | -9132820.75 | -9132820.64 | -9132820.53 | 0.1767 | 0.0597 |
| Venus | -29710-04-29 16:04 J | -9130035.90 | -9130035.83 | -9130035.75 | 0.1814 | 0.1630 |
| Mercury | -29708-02-03 05:31 J | -9129390.39 | -9129390.27 | -9129390.15 | 0.1761 | 0.0030 |

Mercury -29708-12-18 03:21 J -9129072.44 -9129072.36 -9129072.28 0.1749 0.1494

Venus -29707-02-11 13:26 J -9129017.03 -9129016.94 -9129016.84 0.1687 0.1426

Venus -29706-12-11 14:23 J -9128348.98 -9128348.90 -9128348.81 0.1706 0.1487

Earth -29699-03-14 23:31 J -9126063.58 -9126063.52 -9126063.46 0.1651 0.1554

Moon -29699-03-15 04:47 J -9126063.41 -9126063.30 -9126063.19 0.1651 0.1297

Mercury -29699-06-26 14:38 J -9125960.01 -9125959.89 -9125959.78 0.1756 0.0633

Mercury -29698-05-10 04:33 J -9125642.46 -9125642.31 -9125642.16 0.1755 0.0616

Mercury -29690-11-16 23:59 J -9122529.59 -9122529.50 -9122529.42 0.1750 0.1209

Mercury -29689-09-29 05:02 J -9122212.45 -9122212.29 -9122212.14 0.1761 0.0325

Mercury -29688-10-22 11:59 J -9121824.08 -9121824.00 -9121823.92 0.1773 0.1312

Mercury -29679-02-19 05:02 J -9118782.39 -9118782.29 -9118782.18 0.1767 0.1289

Mercury -29678-03-14 20:38 J -9118393.75 -9118393.64 -9118393.53 0.1767 0.0672

Venus -29678-04-29 01:26 J -9118348.61 -9118348.44 -9118348.27 0.1824 0.0060

Venus -29674-12-10 19:40 J -9116661.86 -9116661.68 -9116661.50 0.1697 0.0081

Mercury -29669-08-04 05:31 J -9114963.39 -9114963.27 -9114963.15 0.1761 0.0047

Mercury -29668-06-18 03:50 J -9114645.40 -9114645.34 -9114645.28 0.1749 0.1596

Mercury -29660-12-25 14:38 J -9111533.00 -9111532.89 -9111532.78 0.1755 0.0558

Mercury -29659-11-08 04:47 J -9111215.44 -9111215.30 -9111215.16 0.1755 0.0705

Mercury -29650-05-17 23:59 J -9108102.59 -9108102.50 -9108102.42 0.1750 0.1146

Mercury -29649-03-30 05:45 J -9107785.42 -9107785.26 -9107785.11 0.1761 0.0219

Mercury -29648-04-22 11:59 J -9107397.07 -9107397.00 -9107396.92 0.1773 0.1388

Venus -29646-04-28 11:02 J -9106661.09 -9106661.04 -9106660.99 0.1833 0.1751

Venus -29642-12-09 22:47 J -9104974.66 -9104974.55 -9104974.43 0.1689 0.1259

Mercury -29641-10-07 09:21 J -9104672.13 -9104672.11 -9104672.09 0.1744 0.1709

Mercury -29640-08-20 05:45 J -9104355.38 -9104355.26 -9104355.15 0.1767 0.1183

Venus -29640-10-07 23:16 J -9104306.56 -9104306.53 -9104306.49 0.1709 0.1668

Mercury -29639-09-12 20:38 J -9103966.75 -9103966.64 -9103966.53 0.1767 0.0737

Mercury -29629-02-03 05:31 J -9100536.39 -9100536.27 -9100536.15 0.1761 0.0123

Mercury -29629-12-17 04:19 J -9100218.35 -9100218.32 -9100218.28 0.1748 0.1696

Moon -29620-03-17 01:11 J -9097206.62 -9097206.45 -9097206.28 0.1654 0.0415

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Earth | -29620-03-17 02:52 J | -9097206.57 | -9097206.38 | -9097206.20 | 0.1654 | 0.0210 * |
| Mercury | -29620-06-25 14:38 J | -9097106.00 | -9097105.89 | -9097105.77 | 0.1755 | 0.0485 |
| Mercury | -29619-05-09 05:31 J | -9096788.41 | -9096788.27 | -9096788.13 | 0.1755 | 0.0813 |
| Venus | -29612-02-23 08:09 J | -9094306.33 | -9094306.16 | -9094305.99 | 0.1820 | 0.0231 |
| Mercury | -29611-11-15 23:59 J | -9093675.60 | -9093675.50 | -9093675.41 | 0.1750 | 0.1076 |
| Mercury | -29610-09-29 05:59 J | -9093358.41 | -9093358.25 | -9093358.09 | 0.1761 | 0.0117 |
| Mercury | -29609-10-21 11:59 J | -9092970.07 | -9092970.00 | -9092969.93 | 0.1773 | 0.1460 |
| Venus | -29608-10-07 04:19 J | -9092619.50 | -9092619.32 | -9092619.14 | 0.1700 | 0.0261 |
| Mercury | -29601-04-07 09:21 J | -9090245.14 | -9090245.11 | -9090245.07 | 0.1744 | 0.1640 |
| Mercury | -29600-02-18 05:59 J | -9089928.37 | -9089928.25 | -9089928.12 | 0.1767 | 0.1084 |
| Mercury | -29599-03-13 20:38 J | -9089539.75 | -9089539.64 | -9089539.53 | 0.1767 | 0.0814 |
| Mercury | -29590-08-04 05:31 J | -9086109.39 | -9086109.27 | -9086109.15 | 0.1761 | 0.0195 |
| Moon | -29582-09-16 09:21 J | -9083144.31 | -9083144.11 | -9083143.91 | 0.1866 | 0.0216 |
| Earth | -29582-09-16 19:11 J | -9083143.90 | -9083143.70 | -9083143.49 | 0.1866 | 0.0163 |
| Mercury | -29581-12-24 14:38 J | -9082679.01 | -9082678.89 | -9082678.78 | 0.1755 | 0.0422 |
| Venus | -29580-02-22 17:31 J | -9082618.87 | -9082618.77 | -9082618.67 | 0.1830 | 0.1463 |
| Mercury | -29580-11-07 05:59 J | -9082361.38 | -9082361.25 | -9082361.11 | 0.1755 | 0.0920 |
| Venus | -29576-10-06 08:09 J | -9080932.30 | -9080932.16 | -9080932.03 | 0.1692 | 0.1091 |
| Mercury | -29571-05-16 23:59 J | -9079248.60 | -9079248.50 | -9079248.40 | 0.1750 | 0.1001 |
| Mercury | -29570-03-30 06:43 J | -9078931.38 | -9078931.22 | -9078931.07 | 0.1761 | 0.0042 |
| Mercury | -29569-04-21 11:59 J | -9078543.06 | -9078543.00 | -9078542.94 | 0.1773 | 0.1535 |
| Mercury | -29562-10-07 09:21 J | -9075818.16 | -9075818.11 | -9075818.06 | 0.1744 | 0.1572 |
| Mercury | -29561-08-19 06:43 J | -9075501.35 | -9075501.22 | -9075501.09 | 0.1767 | 0.0973 |
| Mercury | -29560-09-11 20:52 J | -9075112.74 | -9075112.63 | -9075112.53 | 0.1767 | 0.0892 |
| Mercury | -29550-02-02 05:31 J | -9071682.39 | -9071682.27 | -9071682.15 | 0.1761 | 0.0261 |
| Venus | -29547-12-21 15:35 J | -9070264.01 | -9070263.85 | -9070263.69 | 0.1817 | 0.0481 |
| Venus | -29542-08-04 13:11 J | -9068577.12 | -9068576.95 | -9068576.78 | 0.1703 | 0.0438 |
| Moon | -29541-03-18 22:47 J | -9068349.67 | -9068349.55 | -9068349.42 | 0.1655 | 0.1197 |
| Earth | -29541-03-19 05:31 J | -9068349.40 | -9068349.27 | -9068349.13 | 0.1656 | 0.1124 |
| Mercury | -29541-06-24 14:38 J | -9068252.01 | -9068251.89 | -9068251.77 | 0.1755 | 0.0347 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -29540-05-08 06:28 J | -9067934.36 | -9067934.23 | -9067934.11 | 0.1755 | 0.1011 |
| Mercury | -29532-11-14 23:45 J | -9064821.61 | -9064821.51 | -9064821.41 | 0.1749 | 0.0940 |
| Mercury | -29531-09-28 07:11 J | -9064504.36 | -9064504.20 | -9064504.04 | 0.1761 | 0.0097 |
| Mercury | -29530-10-21 12:14 J | -9064116.04 | -9064115.99 | -9064115.95 | 0.1773 | 0.1608 |
| Mercury | -29522-04-07 09:21 J | -9061391.16 | -9061391.11 | -9061391.05 | 0.1744 | 0.1503 |
| Mercury | -29521-02-18 07:26 J | -9061074.33 | -9061074.19 | -9061074.05 | 0.1767 | 0.0860 |
| Mercury | -29520-03-12 20:38 J | -9060685.74 | -9060685.64 | -9060685.54 | 0.1767 | 0.0955 |
| Venus | -29515-12-21 00:28 J | -9058576.61 | -9058576.48 | -9058576.35 | 0.1827 | 0.1188 |
| Mercury | -29511-08-03 05:45 J | -9057255.38 | -9057255.26 | -9057255.14 | 0.1761 | 0.0339 |
| Venus | -29510-08-03 17:16 J | -9056889.93 | -9056889.78 | -9056889.63 | 0.1694 | 0.0923 |
| Mercury | -29502-12-24 14:38 J | -9053825.01 | -9053824.89 | -9053824.77 | 0.1755 | 0.0276 |
| Mercury | -29501-11-06 06:57 J | -9053507.33 | -9053507.21 | -9053507.09 | 0.1755 | 0.1113 |
| Mercury | -29492-05-15 23:59 J | -9050394.61 | -9050394.50 | -9050394.40 | 0.1750 | 0.0864 |
| Mercury | -29491-03-29 07:40 J | -9050077.33 | -9050077.18 | -9050077.02 | 0.1761 | 0.0199 |
| Mercury | -29490-04-21 12:14 J | -9049689.03 | -9049688.99 | -9049688.96 | 0.1773 | 0.1683 |
| Mercury | -29483-10-06 09:21 J | -9046964.17 | -9046964.11 | -9046964.04 | 0.1744 | 0.1436 |
| Mercury | -29482-08-19 07:40 J | -9046647.32 | -9046647.18 | -9046647.03 | 0.1768 | 0.0768 |
| Mercury | -29481-09-10 20:52 J | -9046258.73 | -9046258.63 | -9046258.54 | 0.1767 | 0.1034 |
| Venus | -29481-10-17 22:47 J | -9046221.70 | -9046221.55 | -9046221.39 | 0.1814 | 0.0737 |
| Venus | -29476-05-31 21:50 J | -9044534.76 | -9044534.59 | -9044534.43 | 0.1706 | 0.0622 |
| Mercury | -29472-01-08 07:40 J | -9043217.20 | -9043217.18 | -9043217.16 | 0.1774 | 0.1749 |
| Mercury | -29471-02-01 05:31 J | -9042828.38 | -9042828.27 | -9042828.15 | 0.1761 | 0.0403 |
| Mercury | -29462-06-24 14:38 J | -9039398.01 | -9039397.89 | -9039397.77 | 0.1755 | 0.0207 |
| Mercury | -29461-05-07 07:40 J | -9039080.29 | -9039080.18 | -9039080.07 | 0.1755 | 0.1223 |
| Mercury | -29453-11-13 23:59 J | -9035967.61 | -9035967.50 | -9035967.39 | 0.1750 | 0.0794 |
| Mercury | -29452-09-27 08:09 J | -9035650.31 | -9035650.16 | -9035650.00 | 0.1761 | 0.0301 |
| Mercury | -29451-10-20 12:14 J | -9035262.01 | -9035261.99 | -9035261.98 | 0.1773 | 0.1755 |
| Venus | -29449-10-17 07:11 J | -9034534.35 | -9034534.20 | -9034534.06 | 0.1823 | 0.0910 |
| Venus | -29444-05-31 02:23 J | -9032847.56 | -9032847.40 | -9032847.24 | 0.1697 | 0.0752 |
| Mercury | -29443-04-06 09:21 J | -9032537.18 | -9032537.11 | -9032537.04 | 0.1744 | 0.1367 |

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| Mercury | -29442-02-17 08:38 J | -9032220.29 | -9032220.14 | -9032220.00 | 0.1767 | 0.0654 |
| Mercury | -29441-03-11 20:52 J | -9031831.73 | -9031831.63 | -9031831.54 | 0.1767 | 0.1107 |
| Mercury | -29433-07-09 07:55 J | -9028790.22 | -9028790.17 | -9028790.11 | 0.1774 | 0.1658 |
| Mercury | -29432-08-02 05:45 J | -9028401.38 | -9028401.26 | -9028401.15 | 0.1761 | 0.0479 |
| Mercury | -29423-12-23 14:38 J | -9024971.01 | -9024970.89 | -9024970.77 | 0.1755 | 0.0141 |
| Mercury | -29422-11-06 07:55 J | -9024653.27 | -9024653.17 | -9024653.07 | 0.1755 | 0.1311 |
| Earth | -29415-03-16 03:50 J | -9022331.45 | -9022331.34 | -9022331.22 | 0.1648 | 0.1255 |
| Moon | -29415-03-16 05:45 J | -9022331.42 | -9022331.26 | -9022331.11 | 0.1648 | 0.1024 * |
| Venus | -29415-08-15 06:14 J | -9022179.38 | -9022179.24 | -9022179.09 | 0.1810 | 0.0980 |
| Mercury | -29413-05-14 23:59 J | -9021540.61 | -9021540.50 | -9021540.40 | 0.1749 | 0.0732 |
| Mercury | -29412-03-28 08:52 J | -9021223.28 | -9021223.13 | -9021222.98 | 0.1761 | 0.0412 |
| Venus | -29410-03-29 06:14 J | -9020492.39 | -9020492.24 | -9020492.08 | 0.1709 | 0.0809 |
| Mercury | -29404-10-05 09:21 J | -9018110.19 | -9018110.11 | -9018110.03 | 0.1744 | 0.1300 |
| Mercury | -29403-08-18 09:07 J | -9017793.27 | -9017793.12 | -9017792.97 | 0.1767 | 0.0550 |
| Mercury | -29402-09-10 20:38 J | -9017404.73 | -9017404.64 | -9017404.55 | 0.1767 | 0.1175 |
| Mercury | -29393-01-08 08:38 J | -9014363.21 | -9014363.14 | -9014363.06 | 0.1774 | 0.1542 |
| Mercury | -29392-01-31 05:45 J | -9013974.38 | -9013974.26 | -9013974.15 | 0.1761 | 0.0550 |
| Mercury | -29383-06-23 14:38 J | -9010544.01 | -9010543.89 | -9010543.77 | 0.1755 | 0.0081 |
| Venus | -29383-08-14 14:38 J | -9010492.05 | -9010491.89 | -9010491.74 | 0.1820 | 0.0656 |
| Mercury | -29382-05-07 08:38 J | -9010226.23 | -9010226.14 | -9010226.05 | 0.1755 | 0.1418 |
| Venus | -29378-03-28 11:31 J | -9008805.18 | -9008805.02 | -9008804.85 | 0.1700 | 0.0584 |
| Mercury | -29374-11-13 23:59 J | -9007113.61 | -9007113.50 | -9007113.39 | 0.1749 | 0.0659 |
| Mercury | -29373-09-26 09:07 J | -9006796.27 | -9006796.12 | -9006795.97 | 0.1761 | 0.0506 |
| Mercury | -29364-04-05 09:21 J | -9003683.19 | -9003683.11 | -9003683.02 | 0.1744 | 0.1230 |
| Mercury | -29363-02-16 09:35 J | -9003366.26 | -9003366.10 | -9003365.95 | 0.1768 | 0.0446 |
| Mercury | -29362-03-11 20:52 J | -9002977.71 | -9002977.63 | -9002977.54 | 0.1767 | 0.1251 |
| Mercury | -29354-07-09 09:21 J | -8999936.20 | -8999936.11 | -8999936.01 | 0.1774 | 0.1428 |
| Mercury | -29353-08-01 05:45 J | -8999547.38 | -8999547.26 | -8999547.15 | 0.1761 | 0.0619 |
| Venus | -29349-06-11 13:55 J | -8998137.04 | -8998136.92 | -8998136.79 | 0.1807 | 0.1218 |
| Venus | -29344-01-23 14:38 J | -8996450.03 | -8996449.89 | -8996449.75 | 0.1712 | 0.0998 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -29344-12-22 14:38 J | -8996117.01 | -8996116.89 | -8996116.77 | 0.1755 | 0.0023 |
| Mercury | -29343-11-05 09:07 J | -8995799.19 | -8995799.12 | -8995799.04 | 0.1755 | 0.1521 |
| Earth | -29336-03-18 06:28 J | -8993474.41 | -8993474.23 | -8993474.04 | 0.1650 | 0.0075 |
| Moon | -29336-03-18 12:57 J | -8993474.15 | -8993473.96 | -8993473.78 | 0.1651 | 0.0038 * |
| Mercury | -29334-05-14 23:59 J | -8992686.61 | -8992686.50 | -8992686.39 | 0.1749 | 0.0584 |
| Mercury | -29333-03-27 09:50 J | -8992369.23 | -8992369.09 | -8992368.94 | 0.1761 | 0.0612 |
| Mercury | -29325-10-04 09:21 J | -8989256.20 | -8989256.11 | -8989256.02 | 0.1744 | 0.1162 |
| Mercury | -29324-08-17 10:04 J | -8988939.23 | -8988939.08 | -8988938.92 | 0.1767 | 0.0339 |
| Mercury | -29323-09-09 20:52 J | -8988550.71 | -8988550.63 | -8988550.55 | 0.1767 | 0.1327 |
| Venus | -29317-06-10 21:35 J | -8986449.76 | -8986449.60 | -8986449.43 | 0.1817 | 0.0397 |
| Mercury | -29315-02-24 18:57 J | -8985825.72 | -8985825.71 | -8985825.70 | 0.1738 | 0.1721 |
| Mercury | -29314-01-07 09:50 J | -8985509.20 | -8985509.09 | -8985508.99 | 0.1774 | 0.1332 |
| Mercury | -29313-01-31 05:45 J | -8985120.37 | -8985120.26 | -8985120.15 | 0.1761 | 0.0690 |
| Venus | -29312-01-22 19:55 J | -8984762.84 | -8984762.67 | -8984762.49 | 0.1703 | 0.0401 |
| Mercury | -29304-06-22 14:38 J | -8981690.01 | -8981689.89 | -8981689.76 | 0.1755 | 0.0102 |
| Mercury | -29303-05-06 09:35 J | -8981372.16 | -8981372.10 | -8981372.05 | 0.1755 | 0.1613 |
| Earth | -29298-09-15 20:52 J | -8979413.78 | -8979413.63 | -8979413.48 | 0.1872 | 0.1253 |
| Moon | -29298-09-16 02:23 J | -8979413.53 | -8979413.40 | -8979413.27 | 0.1872 | 0.1357 * |
| Mercury | -29295-11-12 23:59 J | -8978259.62 | -8978259.50 | -8978259.39 | 0.1749 | 0.0525 |
| Mercury | -29294-09-26 10:33 J | -8977942.21 | -8977942.06 | -8977941.92 | 0.1761 | 0.0719 |
| Mercury | -29285-04-04 09:21 J | -8974829.20 | -8974829.11 | -8974829.02 | 0.1744 | 0.1093 |
| Mercury | -29284-02-15 10:47 J | -8974512.21 | -8974512.05 | -8974511.89 | 0.1767 | 0.0229 |
| Mercury | -29283-03-10 20:52 J | -8974123.70 | -8974123.63 | -8974123.56 | 0.1767 | 0.1391 |
| Venus | -29283-04-08 21:21 J | -8974094.71 | -8974094.61 | -8974094.51 | 0.1803 | 0.1457 |
| Venus | -29279-11-20 22:47 J | -8972407.67 | -8972407.55 | -8972407.42 | 0.1715 | 0.1193 |
| Mercury | -29276-08-25 18:57 J | -8971398.74 | -8971398.71 | -8971398.68 | 0.1738 | 0.1652 |
| Mercury | -29275-07-08 10:19 J | -8971082.18 | -8971082.07 | -8971081.95 | 0.1774 | 0.1223 |
| Mercury | -29274-08-01 05:45 J | -8970693.37 | -8970693.26 | -8970693.15 | 0.1761 | 0.0766 |
| Mercury | -29265-12-21 14:38 J | -8967263.01 | -8967262.89 | -8967262.76 | 0.1755 | 0.0163 |
| Mercury | -29264-11-04 10:04 J | -8966945.11 | -8966945.08 | -8966945.05 | 0.1755 | 0.1716 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Earth | -29257-03-20 09:07 J | -8964617.21 | -8964617.12 | -8964617.02 | 0.1652 | 0.1395 |
| Moon | -29257-03-20 11:02 J | -8964617.09 | -8964617.04 | -8964616.98 | 0.1652 | 0.1551 * |
| Mercury | -29255-05-13 23:59 J | -8963832.62 | -8963832.50 | -8963832.38 | 0.1749 | 0.0447 |
| Mercury | -29254-03-27 10:47 J | -8963515.18 | -8963515.05 | -8963514.91 | 0.1761 | 0.0817 |
| Venus | -29251-04-08 05:16 J | -8962407.45 | -8962407.28 | -8962407.11 | 0.1813 | 0.0146 |
| Venus | -29247-11-20 05:02 J | -8960720.46 | -8960720.29 | -8960720.11 | 0.1706 | 0.0233 |
| Mercury | -29246-10-04 09:21 J | -8960402.21 | -8960402.11 | -8960402.01 | 0.1743 | 0.1026 |
| Mercury | -29245-08-16 11:02 J | -8960085.19 | -8960085.04 | -8960084.88 | 0.1768 | 0.0139 |
| Mercury | -29244-09-08 20:52 J | -8959696.69 | -8959696.63 | -8959696.56 | 0.1767 | 0.1470 |
| Mercury | -29236-02-23 18:57 J | -8956971.76 | -8956971.71 | -8956971.67 | 0.1738 | 0.1590 |
| Mercury | -29235-01-06 11:16 J | -8956655.16 | -8956655.03 | -8956654.91 | 0.1774 | 0.1104 |
| Mercury | -29234-01-30 05:45 J | -8956266.37 | -8956266.26 | -8956266.16 | 0.1760 | 0.0831 |
| Mercury | -29225-06-21 14:52 J | -8952836.00 | -8952835.88 | -8952835.76 | 0.1755 | 0.0227 |
| Venus | -29219-04-07 13:55 J | -8950719.95 | -8950719.92 | -8950719.90 | 0.1823 | 0.1792 |
| Venus | -29217-02-04 05:31 J | -8950052.33 | -8950052.27 | -8950052.21 | 0.1800 | 0.1677 |
| Mercury | -29216-11-11 23:59 J | -8949405.62 | -8949405.50 | -8949405.38 | 0.1749 | 0.0377 |
| Mercury | -29215-09-25 11:31 J | -8949088.16 | -8949088.02 | -8949087.89 | 0.1761 | 0.0917 |
| Venus | -29215-11-19 09:21 J | -8949033.17 | -8949033.11 | -8949033.05 | 0.1697 | 0.1577 |
| Venus | -29213-09-17 07:26 J | -8948365.30 | -8948365.19 | -8948365.09 | 0.1718 | 0.1381 |
| Mercury | -29206-04-04 09:21 J | -8945975.21 | -8945975.11 | -8945975.01 | 0.1744 | 0.0957 |
| Mercury | -29205-02-15 11:45 J | -8945658.16 | -8945658.01 | -8945657.85 | 0.1767 | 0.0041 |
| Mercury | -29204-03-09 21:07 J | -8945269.68 | -8945269.62 | -8945269.57 | 0.1767 | 0.1545 |
| Mercury | -29197-08-24 18:57 J | -8942544.77 | -8942544.71 | -8942544.65 | 0.1738 | 0.1517 |
| Mercury | -29196-07-07 11:31 J | -8942228.15 | -8942228.02 | -8942227.89 | 0.1774 | 0.1013 |
| Mercury | -29195-07-31 05:45 J | -8941839.36 | -8941839.26 | -8941839.15 | 0.1761 | 0.0908 |
| Mercury | -29186-12-21 14:52 J | -8938409.00 | -8938408.88 | -8938408.76 | 0.1755 | 0.0295 |
| Venus | -29185-02-03 12:28 J | -8938365.15 | -8938364.98 | -8938364.81 | 0.1810 | 0.0107 |
| Venus | -29181-09-16 13:26 J | -8936678.12 | -8936677.94 | -8936677.76 | 0.1709 | 0.0043 |
| Mercury | -29176-05-12 23:59 J | -8934978.62 | -8934978.50 | -8934978.38 | 0.1749 | 0.0315 |
| Mercury | -29175-03-26 12:14 J | -8934661.12 | -8934660.99 | -8934660.87 | 0.1761 | 0.1029 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -29167-10-03 09:21 J | -8931548.21 | -8931548.11 | -8931548.01 | 0.1744 | 0.0887 |
| Mercury | -29166-08-16 12:14 J | -8931231.14 | -8931230.99 | -8931230.83 | 0.1767 | 0.0094 |
| Mercury | -29165-09-07 20:52 J | -8930842.67 | -8930842.63 | -8930842.58 | 0.1766 | 0.1613 |
| Mercury | -29157-02-23 18:57 J | -8928117.77 | -8928117.71 | -8928117.65 | 0.1738 | 0.1449 |
| Mercury | -29156-01-05 12:14 J | -8927801.13 | -8927800.99 | -8927800.86 | 0.1774 | 0.0897 |
| Mercury | -29155-01-29 05:45 J | -8927412.36 | -8927412.26 | -8927412.16 | 0.1761 | 0.0982 |
| Venus | -29153-02-02 20:38 J | -8926677.73 | -8926677.64 | -8926677.54 | 0.1820 | 0.1522 |
| Venus | -29149-09-15 18:14 J | -8924990.84 | -8924990.74 | -8924990.64 | 0.1700 | 0.1404 |
| Venus | -29147-07-15 15:21 J | -8924322.93 | -8924322.86 | -8924322.80 | 0.1721 | 0.1579 |
| Mercury | -29146-06-21 14:52 J | -8923982.00 | -8923981.88 | -8923981.76 | 0.1755 | 0.0363 |
| Mercury | -29137-11-10 23:59 J | -8920551.62 | -8920551.50 | -8920551.38 | 0.1749 | 0.0239 |
| Mercury | -29136-09-24 12:28 J | -8920234.10 | -8920233.98 | -8920233.86 | 0.1761 | 0.1119 |
| Moon | -29131-03-17 02:23 J | -8918599.56 | -8918599.40 | -8918599.24 | 0.1645 | 0.0818 |
| Earth | -29131-03-17 08:52 J | -8918599.29 | -8918599.13 | -8918598.98 | 0.1646 | 0.0946 * |
| Mercury | -29127-04-03 09:21 J | -8917121.21 | -8917121.11 | -8917121.00 | 0.1743 | 0.0819 |
| Mercury | -29126-02-14 12:57 J | -8916804.12 | -8916803.96 | -8916803.81 | 0.1768 | 0.0189 |
| Mercury | -29125-03-08 21:07 J | -8916415.65 | -8916415.62 | -8916415.59 | 0.1766 | 0.1689 |
| Venus | -29120-11-30 20:23 J | -8914322.81 | -8914322.65 | -8914322.48 | 0.1807 | 0.0344 |
| Mercury | -29118-08-24 18:57 J | -8913690.78 | -8913690.71 | -8913690.64 | 0.1738 | 0.1387 |
| Mercury | -29117-07-06 12:57 J | -8913374.11 | -8913373.96 | -8913373.82 | 0.1774 | 0.0785 |
| Mercury | -29116-07-30 05:45 J | -8912985.35 | -8912985.26 | -8912985.16 | 0.1760 | 0.1049 |
| Venus | -29115-07-14 22:04 J | -8912635.76 | -8912635.58 | -8912635.41 | 0.1712 | 0.0145 |
| Mercury | -29107-12-20 14:52 J | -8909555.00 | -8909554.88 | -8909554.77 | 0.1755 | 0.0433 |
| Mercury | -29097-05-11 23:59 J | -8906124.62 | -8906124.50 | -8906124.38 | 0.1749 | 0.0175 |
| Mercury | -29096-03-25 13:11 J | -8905807.06 | -8905806.95 | -8905806.84 | 0.1761 | 0.1228 |
| Mercury | -29088-10-02 09:21 J | -8902694.22 | -8902694.11 | -8902694.00 | 0.1743 | 0.0751 |
| Venus | -29088-11-30 04:04 J | -8902635.45 | -8902635.33 | -8902635.21 | 0.1817 | 0.1264 |
| Mercury | -29087-08-15 13:26 J | -8902377.10 | -8902376.94 | -8902376.78 | 0.1767 | 0.0291 |
| Mercury | -29086-09-07 21:07 J | -8901988.62 | -8901988.62 | -8901988.62 | 0.1766 | 0.1764 |
| Venus | -29083-07-14 03:07 J | -8900948.49 | -8900948.37 | -8900948.25 | 0.1703 | 0.1233 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -29078-02-22 18:57 J | -8899263.79 | -8899263.71 | -8899263.63 | 0.1738 | 0.1316 |
| Mercury | -29077-01-05 13:11 J | -8898947.10 | -8898946.95 | -8898946.80 | 0.1774 | 0.0690 |
| Mercury | -29076-01-28 05:45 J | -8898558.35 | -8898558.26 | -8898558.16 | 0.1760 | 0.1122 |
| Mercury | -29068-05-27 12:43 J | -8895517.01 | -8895516.97 | -8895516.93 | 0.1780 | 0.1701 |
| Mercury | -29067-06-20 14:52 J | -8895128.00 | -8895127.88 | -8895127.76 | 0.1755 | 0.0505 |
| Mercury | -29058-11-10 23:59 J | -8891697.62 | -8891697.50 | -8891697.38 | 0.1749 | 0.0107 |
| Mercury | -29057-09-23 13:40 J | -8891380.03 | -8891379.93 | -8891379.83 | 0.1761 | 0.1333 |
| Venus | -29054-09-28 04:04 J | -8890280.49 | -8890280.33 | -8890280.17 | 0.1803 | 0.0581 |
| Moon | -29052-03-19 09:21 J | -8889742.31 | -8889742.11 | -8889741.92 | 0.1647 | 0.0191 |
| Earth | -29052-03-19 11:02 J | -8889742.22 | -8889742.04 | -8889741.86 | 0.1647 | 0.0368 * |
| Venus | -29049-05-11 06:28 J | -8888593.41 | -8888593.23 | -8888593.06 | 0.1715 | 0.0330 |
| Mercury | -29048-04-02 09:21 J | -8888267.22 | -8888267.11 | -8888267.00 | 0.1744 | 0.0681 |
| Mercury | -29047-02-13 14:09 J | -8887950.07 | -8887949.91 | -8887949.76 | 0.1767 | 0.0402 |
| Mercury | -29039-08-23 18:57 J | -8884836.79 | -8884836.71 | -8884836.63 | 0.1738 | 0.1245 |
| Mercury | -29038-07-06 13:55 J | -8884520.07 | -8884519.92 | -8884519.77 | 0.1774 | 0.0579 |
| Mercury | -29037-07-29 05:59 J | -8884131.34 | -8884131.25 | -8884131.16 | 0.1761 | 0.1200 |
| Mercury | -29029-11-25 13:11 J | -8881090.02 | -8881089.95 | -8881089.88 | 0.1780 | 0.1596 |
| Mercury | -29028-12-19 14:52 J | -8880700.99 | -8880700.88 | -8880700.77 | 0.1755 | 0.0575 |
| Venus | -29022-09-27 11:02 J | -8878593.18 | -8878593.04 | -8878592.90 | 0.1813 | 0.1002 |
| Mercury | -29018-05-11 23:59 J | -8877270.62 | -8877270.50 | -8877270.38 | 0.1749 | 0.0054 |
| Mercury | -29017-03-24 14:09 J | -8876953.00 | -8876952.91 | -8876952.82 | 0.1761 | 0.1427 |
| Venus | -29017-05-10 11:59 J | -8876906.14 | -8876906.00 | -8876905.86 | 0.1706 | 0.1058 |
| Mercury | -29009-10-01 09:21 J | -8873840.22 | -8873840.11 | -8873840.00 | 0.1743 | 0.0613 |
| Mercury | -29008-08-14 14:23 J | -8873523.05 | -8873522.90 | -8873522.75 | 0.1768 | 0.0497 |

29TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 29th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|-------------|-------------|-------------|--------|--------|-------|---|
| Mercury | -28999-02-21 18:57 J | -8870409.80 | -8870409.71 | -8870409.63 | 0.1738 | 0.1182 | | |
| Mercury | -28998-01-04 14:38 J | -8870093.04 | -8870092.89 | -8870092.74 | 0.1774 | 0.0460 | | |
| Mercury | -28997-01-28 05:45 J | -8869704.34 | -8869704.26 | -8869704.17 | 0.1760 | 0.1266 | | |
| Mercury | -28990-07-15 04:47 J | -8866979.31 | -8866979.30 | -8866979.30 | 0.1732 | 0.1726 | | |
| Mercury | -28989-05-26 13:55 J | -8866663.01 | -8866662.92 | -8866662.84 | 0.1780 | 0.1486 | | |
| Mercury | -28988-06-19 14:52 J | -8866273.99 | -8866273.88 | -8866273.77 | 0.1755 | 0.0647 | | |
| Venus | -28988-07-25 11:59 J | -8866238.15 | -8866238.00 | -8866237.85 | 0.1800 | 0.0807 | | |
| Venus | -28983-03-08 14:23 J | -8864551.07 | -8864550.90 | -8864550.73 | 0.1718 | 0.0521 | | |
| Mercury | -28979-11-09 23:59 J | -8862843.62 | -8862843.50 | -8862843.38 | 0.1749 | 0.0071 | | |
| Mercury | -28978-09-23 14:38 J | -8862525.97 | -8862525.89 | -8862525.82 | 0.1761 | 0.1528 | | |
| Mercury | -28969-04-01 09:21 J | -8859413.22 | -8859413.11 | -8859412.99 | 0.1743 | 0.0543 | | |
| Mercury | -28968-02-12 15:07 J | -8859096.01 | -8859095.87 | -8859095.72 | 0.1767 | 0.0609 | | |
| Mercury | -28960-08-22 18:57 J | -8855982.80 | -8855982.71 | -8855982.62 | 0.1738 | 0.1110 | | |
| Mercury | -28959-07-05 14:52 J | -8855666.03 | -8855665.88 | -8855665.72 | 0.1774 | 0.0371 | | |
| Mercury | -28958-07-29 05:59 J | -8855277.33 | -8855277.25 | -8855277.17 | 0.1760 | 0.1341 | | |
| Venus | -28956-07-24 18:57 J | -8854550.86 | -8854550.71 | -8854550.55 | 0.1810 | 0.0766 | | |
| Venus | -28951-03-07 20:38 J | -8852863.79 | -8852863.64 | -8852863.48 | 0.1709 | 0.0885 | | |
| Mercury | -28950-01-13 04:33 J | -8852552.34 | -8852552.31 | -8852552.28 | 0.1732 | 0.1665 | | |
| Mercury | -28950-11-25 14:23 J | -8852236.00 | -8852235.90 | -8852235.80 | 0.1780 | 0.1374 | | |
| Mercury | -28949-12-18 14:52 J | -8851846.99 | -8851846.88 | -8851846.77 | 0.1755 | 0.0718 | | |
| Mercury | -28939-05-10 23:59 J | -8848416.62 | -8848416.50 | -8848416.38 | 0.1749 | 0.0110 | | |
| Mercury | -28938-03-24 15:21 J | -8848098.91 | -8848098.86 | -8848098.81 | 0.1761 | 0.1641 | | |
| Earth | -28935-09-18 10:47 J | -8846825.25 | -8846825.05 | -8846824.86 | 0.1874 | 0.0627 | | |
| Moon | -28935-09-18 19:55 J | -8846824.83 | -8846824.67 | -8846824.52 | 0.1873 | 0.1165 | | |
| Mercury | -28930-10-01 09:21 J | -8844986.22 | -8844986.11 | -8844985.99 | 0.1743 | 0.0475 | | |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -28929-08-13 15:35 J | -8844668.99 | -8844668.85 | -8844668.70 | 0.1767 | 0.0709 |
| Venus | -28922-05-22 19:55 J | -8842195.81 | -8842195.67 | -8842195.53 | 0.1796 | 0.1032 |
| Mercury | -28920-02-20 18:57 J | -8841555.80 | -8841555.71 | -8841555.62 | 0.1738 | 0.1042 |
| Mercury | -28919-01-03 15:35 J | -8841239.00 | -8841238.85 | -8841238.69 | 0.1774 | 0.0257 |
| Mercury | -28918-01-27 05:59 J | -8840850.32 | -8840850.25 | -8840850.18 | 0.1760 | 0.1415 |
| Venus | -28917-01-03 22:33 J | -8840508.72 | -8840508.56 | -8840508.40 | 0.1721 | 0.0715 |
| Mercury | -28911-07-14 04:33 J | -8838125.35 | -8838125.31 | -8838125.26 | 0.1732 | 0.1595 |
| Mercury | -28910-05-26 14:52 J | -8837808.99 | -8837808.88 | -8837808.76 | 0.1780 | 0.1270 |
| Mercury | -28909-06-18 14:52 J | -8837419.98 | -8837419.88 | -8837419.77 | 0.1755 | 0.0792 |
| Mercury | -28900-11-09 00:14 J | -8833989.61 | -8833989.49 | -8833989.37 | 0.1749 | 0.0196 |
| Mercury | -28899-09-22 15:35 J | -8833671.87 | -8833671.85 | -8833671.82 | 0.1761 | 0.1729 |
| Mercury | -28890-04-01 09:21 J | -8830559.22 | -8830559.11 | -8830558.99 | 0.1743 | 0.0406 |
| Venus | -28890-05-22 02:38 J | -8830508.56 | -8830508.39 | -8830508.23 | 0.1806 | 0.0520 |
| Mercury | -28889-02-12 16:19 J | -8830241.96 | -8830241.82 | -8830241.68 | 0.1768 | 0.0815 |
| Venus | -28885-01-03 05:02 J | -8828821.46 | -8828821.29 | -8828821.13 | 0.1712 | 0.0699 |
| Mercury | -28881-08-21 18:57 J | -8827128.81 | -8827128.71 | -8827128.61 | 0.1738 | 0.0977 |
| Mercury | -28880-07-04 16:19 J | -8826811.98 | -8826811.82 | -8826811.66 | 0.1774 | 0.0144 |
| Mercury | -28879-07-28 05:59 J | -8826423.31 | -8826423.25 | -8826423.19 | 0.1760 | 0.1482 |
| Mercury | -28871-01-12 04:33 J | -8823698.36 | -8823698.31 | -8823698.25 | 0.1732 | 0.1527 |
| Mercury | -28871-11-24 15:35 J | -8823381.97 | -8823381.85 | -8823381.73 | 0.1780 | 0.1159 |
| Mercury | -28870-12-18 14:52 J | -8822992.98 | -8822992.88 | -8822992.77 | 0.1755 | 0.0864 |
| Mercury | -28860-05-10 00:14 J | -8819562.61 | -8819562.49 | -8819562.37 | 0.1749 | 0.0260 |
| Venus | -28856-03-19 03:50 J | -8818153.46 | -8818153.34 | -8818153.22 | 0.1793 | 0.1258 |
| Venus | -28852-10-31 06:28 J | -8816466.38 | -8816466.23 | -8816466.08 | 0.1724 | 0.0910 |
| Mercury | -28851-09-30 09:21 J | -8816132.22 | -8816132.11 | -8816131.99 | 0.1743 | 0.0338 |
| Mercury | -28850-08-13 16:47 J | -8815814.94 | -8815814.80 | -8815814.67 | 0.1768 | 0.0916 |
| Earth | -28847-03-18 13:55 J | -8814867.09 | -8814866.92 | -8814866.75 | 0.1643 | 0.0630 |
| Moon | -28847-03-18 15:21 J | -8814867.03 | -8814866.86 | -8814866.70 | 0.1643 | 0.0463 * |
| Mercury | -28841-02-20 18:57 J | -8812701.81 | -8812701.71 | -8812701.61 | 0.1738 | 0.0906 |
| Mercury | -28840-01-02 16:47 J | -8812384.96 | -8812384.80 | -8812384.65 | 0.1774 | 0.0069 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -28839-01-26 05:59 J | -8811996.30 | -8811996.25 | -8811996.19 | 0.1760 | 0.1558 |
| Mercury | -28832-07-13 04:33 J | -8809271.37 | -8809271.31 | -8809271.25 | 0.1732 | 0.1462 |
| Mercury | -28831-05-25 16:19 J | -8808954.95 | -8808954.82 | -8808954.69 | 0.1780 | 0.1042 |
| Mercury | -28830-06-18 15:07 J | -8808565.97 | -8808565.87 | -8808565.77 | 0.1754 | 0.0936 |
| Venus | -28824-03-18 10:33 J | -8806466.23 | -8806466.06 | -8806465.89 | 0.1803 | 0.0285 |
| Mercury | -28821-11-07 23:59 J | -8805135.62 | -8805135.50 | -8805135.38 | 0.1749 | 0.0322 |
| Venus | -28820-10-30 13:55 J | -8804779.09 | -8804778.92 | -8804778.75 | 0.1715 | 0.0527 |
| Mercury | -28811-03-31 09:35 J | -8801705.22 | -8801705.10 | -8801704.99 | 0.1743 | 0.0268 |
| Mercury | -28810-02-11 17:16 J | -8801387.90 | -8801387.78 | -8801387.65 | 0.1767 | 0.1024 |
| Mercury | -28802-08-21 18:57 J | -8798274.81 | -8798274.71 | -8798274.60 | 0.1738 | 0.0835 |
| Mercury | -28801-07-03 17:16 J | -8797957.93 | -8797957.78 | -8797957.62 | 0.1774 | 0.0078 |
| Mercury | -28800-07-27 06:14 J | -8797569.28 | -8797569.24 | -8797569.20 | 0.1760 | 0.1637 |
| Mercury | -28792-01-11 04:33 J | -8794844.38 | -8794844.31 | -8794844.24 | 0.1732 | 0.1394 |
| Mercury | -28792-11-23 16:47 J | -8794527.93 | -8794527.80 | -8794527.67 | 0.1780 | 0.0942 |
| Mercury | -28791-12-17 15:07 J | -8794138.97 | -8794138.87 | -8794138.78 | 0.1754 | 0.1006 |
| Venus | -28790-01-14 12:14 J | -8794111.08 | -8794110.99 | -8794110.89 | 0.1789 | 0.1464 |
| Venus | -28786-08-28 14:38 J | -8792424.02 | -8792423.89 | -8792423.75 | 0.1727 | 0.1103 |
| Mercury | -28781-05-09 00:14 J | -8790708.61 | -8790708.49 | -8790708.37 | 0.1749 | 0.0398 |
| Mercury | -28772-09-29 09:21 J | -8787278.23 | -8787278.11 | -8787277.99 | 0.1743 | 0.0204 |
| Mercury | -28771-08-12 17:45 J | -8786960.88 | -8786960.76 | -8786960.64 | 0.1768 | 0.1125 |
| Moon | -28768-03-20 10:33 J | -8786010.23 | -8786010.06 | -8786009.88 | 0.1644 | 0.0475 |
| Earth | -28768-03-20 16:04 J | -8786009.99 | -8786009.83 | -8786009.66 | 0.1645 | 0.0680 * |
| Mercury | -28762-02-19 18:57 J | -8783847.82 | -8783847.71 | -8783847.60 | 0.1738 | 0.0770 |
| Mercury | -28761-01-02 17:59 J | -8783530.90 | -8783530.75 | -8783530.59 | 0.1774 | 0.0183 |
| Mercury | -28760-01-25 05:59 J | -8783142.28 | -8783142.25 | -8783142.22 | 0.1760 | 0.1699 |
| Venus | -28758-01-13 18:14 J | -8782423.91 | -8782423.74 | -8782423.57 | 0.1800 | 0.0049 |
| Venus | -28754-08-27 21:50 J | -8780736.76 | -8780736.59 | -8780736.41 | 0.1718 | 0.0338 |
| Mercury | -28753-07-12 04:47 J | -8780417.38 | -8780417.30 | -8780417.23 | 0.1732 | 0.1323 |
| Mercury | -28752-05-24 17:31 J | -8780100.91 | -8780100.77 | -8780100.63 | 0.1780 | 0.0832 |
| Mercury | -28751-06-17 15:07 J | -8779711.96 | -8779711.87 | -8779711.78 | 0.1755 | 0.1079 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -28742-11-08 00:14 J | -8776281.61 | -8776281.49 | -8776281.37 | 0.1749 | 0.0469 |
| Mercury | -28732-03-30 09:35 J | -8772851.22 | -8772851.10 | -8772850.98 | 0.1743 | 0.0135 |
| Mercury | -28731-02-10 18:28 J | -8772533.84 | -8772533.73 | -8772533.62 | 0.1768 | 0.1232 |
| Venus | -28726-01-13 01:26 J | -8770736.52 | -8770736.44 | -8770736.37 | 0.1810 | 0.1616 |
| Venus | -28725-11-10 20:38 J | -8770068.69 | -8770068.64 | -8770068.58 | 0.1786 | 0.1671 |
| Mercury | -28723-08-20 18:57 J | -8769420.82 | -8769420.71 | -8769420.60 | 0.1738 | 0.0700 |
| Mercury | -28722-07-03 18:28 J | -8769103.89 | -8769103.73 | -8769103.58 | 0.1774 | 0.0272 |
| Venus | -28720-06-24 22:19 J | -8768381.68 | -8768381.57 | -8768381.45 | 0.1731 | 0.1305 |
| Mercury | -28713-01-11 04:33 J | -8765990.39 | -8765990.31 | -8765990.23 | 0.1732 | 0.1261 |
| Mercury | -28713-11-22 18:14 J | -8765673.89 | -8765673.74 | -8765673.60 | 0.1780 | 0.0718 |
| Mercury | -28712-12-16 15:07 J | -8765284.96 | -8765284.87 | -8765284.78 | 0.1754 | 0.1149 |
| Mercury | -28703-04-14 17:02 J | -8762243.81 | -8762243.79 | -8762243.76 | 0.1786 | 0.1756 |
| Mercury | -28702-05-09 00:14 J | -8761854.61 | -8761854.49 | -8761854.38 | 0.1749 | 0.0537 |
| Mercury | -28693-09-28 09:35 J | -8758424.22 | -8758424.10 | -8758423.98 | 0.1743 | 0.0061 |
| Venus | -28693-11-10 02:52 J | -8758381.55 | -8758381.38 | -8758381.21 | 0.1797 | 0.0173 |
| Mercury | -28692-08-11 18:57 J | -8758106.81 | -8758106.71 | -8758106.61 | 0.1768 | 0.1331 |
| Venus | -28688-06-24 06:14 J | -8756694.42 | -8756694.24 | -8756694.06 | 0.1721 | 0.0153 |
| Mercury | -28683-02-18 18:57 J | -8754993.82 | -8754993.71 | -8754993.60 | 0.1737 | 0.0631 |
| Mercury | -28682-01-01 19:11 J | -8754676.86 | -8754676.70 | -8754676.55 | 0.1774 | 0.0385 |
| Mercury | -28674-07-12 04:33 J | -8751563.39 | -8751563.31 | -8751563.22 | 0.1732 | 0.1190 |
| Mercury | -28673-05-23 18:43 J | -8751246.87 | -8751246.72 | -8751246.57 | 0.1780 | 0.0615 |
| Mercury | -28672-06-16 15:07 J | -8750857.95 | -8750857.87 | -8750857.78 | 0.1754 | 0.1223 |
| Mercury | -28664-10-13 17:31 J | -8747816.83 | -8747816.77 | -8747816.71 | 0.1787 | 0.1657 |
| Mercury | -28663-11-07 00:14 J | -8747427.60 | -8747427.49 | -8747427.38 | 0.1749 | 0.0609 |
| Venus | -28661-11-09 09:21 J | -8746694.22 | -8746694.11 | -8746694.00 | 0.1807 | 0.1374 |
| Venus | -28656-06-23 12:28 J | -8745007.06 | -8745006.98 | -8745006.90 | 0.1712 | 0.1537 |
| Venus | -28654-04-22 06:43 J | -8744339.31 | -8744339.22 | -8744339.13 | 0.1734 | 0.1497 |
| Mercury | -28653-03-29 09:35 J | -8743997.22 | -8743997.10 | -8743996.98 | 0.1743 | 0.0053 |
| Mercury | -28652-02-09 19:40 J | -8743679.77 | -8743679.68 | -8743679.59 | 0.1768 | 0.1438 |
| Moon | -28651-09-17 05:16 J | -8743095.49 | -8743095.28 | -8743095.08 | 0.1879 | 0.0720 |

Earth -28651-09-17 11:31 J -8743095.20 -8743095.02 -8743094.83 0.1879 0.0831 *
 Mercury -28644-08-19 18:57 J -8740566.82 -8740566.71 -8740566.60 0.1738 0.0563
 Mercury -28643-07-02 19:40 J -8740249.83 -8740249.68 -8740249.52 0.1774 0.0497
 Earth -28642-03-17 17:59 J -8739991.80 -8739991.75 -8739991.70 0.1639 0.1570
 Mercury -28634-01-10 04:47 J -8737136.39 -8737136.30 -8737136.21 0.1732 0.1120
 Mercury -28634-11-22 19:11 J -8736819.85 -8736819.70 -8736819.55 0.1780 0.0505
 Mercury -28633-12-15 15:07 J -8736430.95 -8736430.87 -8736430.79 0.1754 0.1296
 Venus -28627-09-07 10:33 J -8734339.22 -8734339.06 -8734338.89 0.1793 0.0397
 Mercury -28625-06-01 14:23 J -8733705.92 -8733705.90 -8733705.87 0.1727 0.1663
 Mercury -28624-04-13 18:14 J -8733389.82 -8733389.74 -8733389.66 0.1787 0.1538
 Mercury -28623-05-08 00:14 J -8733000.60 -8733000.49 -8733000.38 0.1749 0.0685
 Venus -28622-04-21 14:23 J -8732652.08 -8732651.90 -8732651.72 0.1724 0.0040
 Mercury -28614-09-28 09:35 J -8729570.22 -8729570.10 -8729569.98 0.1743 0.0095
 Mercury -28613-08-10 20:09 J -8729252.74 -8729252.66 -8729252.59 0.1768 0.1537
 Mercury -28604-02-17 18:57 J -8726139.82 -8726139.71 -8726139.59 0.1737 0.0495
 Mercury -28604-12-31 20:09 J -8725822.81 -8725822.66 -8725822.51 0.1774 0.0590
 Mercury -28595-07-11 04:33 J -8722709.40 -8722709.31 -8722709.22 0.1732 0.1057
 Venus -28595-09-06 16:33 J -8722651.94 -8722651.81 -8722651.68 0.1803 0.1127
 Mercury -28594-05-23 19:55 J -8722392.82 -8722392.67 -8722392.51 0.1780 0.0390
 Mercury -28593-06-15 15:21 J -8722003.94 -8722003.86 -8722003.79 0.1754 0.1368
 Venus -28590-04-20 21:07 J -8720964.73 -8720964.62 -8720964.52 0.1715 0.1360
 Venus -28588-02-16 13:55 J -8720296.95 -8720296.92 -8720296.90 0.1737 0.1710
 Mercury -28586-12-01 14:23 J -8719278.94 -8719278.90 -8719278.85 0.1727 0.1597
 Mercury -28585-10-12 18:57 J -8718962.81 -8718962.71 -8718962.62 0.1786 0.1429
 Mercury -28584-11-06 00:14 J -8718573.60 -8718573.49 -8718573.38 0.1749 0.0747
 Mercury -28574-03-29 09:35 J -8715143.22 -8715143.10 -8715142.98 0.1743 0.0162
 Mercury -28573-02-09 20:38 J -8714825.69 -8714825.64 -8714825.58 0.1768 0.1645
 Mercury -28565-08-18 18:57 J -8711712.82 -8711712.71 -8711712.59 0.1737 0.0426
 Mercury -28564-07-01 20:52 J -8711395.78 -8711395.63 -8711395.49 0.1774 0.0701
 Earth -28563-03-19 19:55 J -8711134.85 -8711134.67 -8711134.49 0.1641 0.0295

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Moon | -28563-03-20 02:23 J | -8711134.59 | -8711134.40 | -8711134.21 | 0.1641 | 0.0042 * |
| Venus | -28561-07-04 19:11 J | -8710296.86 | -8710296.70 | -8710296.54 | 0.1790 | 0.0607 |
| Venus | -28556-02-15 22:04 J | -8708609.76 | -8708609.58 | -8708609.40 | 0.1728 | 0.0238 |
| Mercury | -28555-01-09 04:33 J | -8708282.40 | -8708282.31 | -8708282.21 | 0.1732 | 0.0988 |
| Mercury | -28555-11-21 20:23 J | -8707965.81 | -8707965.65 | -8707965.49 | 0.1780 | 0.0291 |
| Mercury | -28554-12-15 15:07 J | -8707576.93 | -8707576.87 | -8707576.80 | 0.1754 | 0.1438 |
| Mercury | -28546-06-01 14:23 J | -8704851.95 | -8704851.90 | -8704851.84 | 0.1726 | 0.1529 |
| Mercury | -28545-04-12 19:26 J | -8704535.79 | -8704535.69 | -8704535.58 | 0.1787 | 0.1320 |
| Mercury | -28544-05-07 00:28 J | -8704146.59 | -8704146.48 | -8704146.38 | 0.1749 | 0.0828 |
| Mercury | -28535-09-27 09:35 J | -8700716.22 | -8700716.10 | -8700715.98 | 0.1743 | 0.0225 |
| Mercury | -28534-08-10 21:07 J | -8700398.64 | -8700398.62 | -8700398.59 | 0.1768 | 0.1746 |
| Venus | -28529-07-04 01:11 J | -8698609.60 | -8698609.45 | -8698609.31 | 0.1800 | 0.0906 |
| Mercury | -28525-02-17 18:57 J | -8697285.82 | -8697285.71 | -8697285.59 | 0.1738 | 0.0358 |
| Mercury | -28525-12-30 21:35 J | -8696968.74 | -8696968.60 | -8696968.46 | 0.1774 | 0.0812 |
| Venus | -28524-02-15 05:16 J | -8696922.40 | -8696922.28 | -8696922.15 | 0.1718 | 0.1181 |
| Mercury | -28516-07-10 04:47 J | -8693855.40 | -8693855.30 | -8693855.20 | 0.1732 | 0.0915 |
| Mercury | -28515-05-22 21:07 J | -8693538.78 | -8693538.62 | -8693538.46 | 0.1780 | 0.0182 |
| Mercury | -28514-06-15 15:21 J | -8693149.92 | -8693149.86 | -8693149.80 | 0.1754 | 0.1514 |
| Mercury | -28507-11-30 14:23 J | -8690424.96 | -8690424.90 | -8690424.83 | 0.1726 | 0.1462 |
| Mercury | -28506-10-12 20:09 J | -8690108.78 | -8690108.66 | -8690108.54 | 0.1787 | 0.1207 |
| Mercury | -28505-11-05 00:28 J | -8689719.59 | -8689719.48 | -8689719.38 | 0.1749 | 0.0898 |
| Mercury | -28495-03-28 09:35 J | -8686289.22 | -8686289.10 | -8686288.98 | 0.1743 | 0.0297 |
| Venus | -28495-05-02 03:21 J | -8686254.51 | -8686254.36 | -8686254.20 | 0.1786 | 0.0819 |
| Venus | -28491-12-14 05:59 J | -8684567.43 | -8684567.25 | -8684567.08 | 0.1731 | 0.0438 |
| Mercury | -28486-08-18 19:11 J | -8682858.82 | -8682858.70 | -8682858.59 | 0.1737 | 0.0291 |
| Mercury | -28485-06-30 21:50 J | -8682541.72 | -8682541.59 | -8682541.45 | 0.1774 | 0.0905 |
| Earth | -28484-03-21 21:50 J | -8682277.74 | -8682277.59 | -8682277.44 | 0.1642 | 0.0998 |
| Moon | -28484-03-22 02:23 J | -8682277.55 | -8682277.40 | -8682277.26 | 0.1642 | 0.0960 * |
| Mercury | -28476-01-08 04:33 J | -8679428.41 | -8679428.31 | -8679428.20 | 0.1732 | 0.0853 |
| Mercury | -28476-11-20 21:50 J | -8679111.75 | -8679111.59 | -8679111.43 | 0.1780 | 0.0065 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -28475-12-14 15:21 J | -8678722.91 | -8678722.86 | -8678722.81 | 0.1754 | 0.1583 |
| Mercury | -28467-05-31 14:38 J | -8675997.96 | -8675997.89 | -8675997.83 | 0.1727 | 0.1393 |
| Mercury | -28466-04-12 20:52 J | -8675681.76 | -8675681.63 | -8675681.51 | 0.1786 | 0.1091 |
| Mercury | -28465-05-06 00:14 J | -8675292.59 | -8675292.49 | -8675292.39 | 0.1749 | 0.0966 |
| Venus | -28463-05-01 08:52 J | -8674567.29 | -8674567.13 | -8674566.97 | 0.1796 | 0.0674 |
| Venus | -28459-12-13 13:26 J | -8672880.08 | -8672879.94 | -8672879.79 | 0.1721 | 0.0992 |
| Mercury | -28456-09-26 09:35 J | -8671862.21 | -8671862.10 | -8671861.98 | 0.1743 | 0.0374 |
| Mercury | -28446-02-16 19:11 J | -8668431.82 | -8668431.70 | -8668431.59 | 0.1737 | 0.0224 |
| Mercury | -28446-12-30 22:33 J | -8668114.69 | -8668114.56 | -8668114.43 | 0.1774 | 0.1018 |
| Mercury | -28437-07-09 04:47 J | -8665001.41 | -8665001.30 | -8665001.20 | 0.1732 | 0.0780 |
| Mercury | -28436-05-21 22:19 J | -8664684.73 | -8664684.57 | -8664684.42 | 0.1780 | 0.0058 |
| Mercury | -28435-06-14 15:21 J | -8664295.90 | -8664295.86 | -8664295.82 | 0.1754 | 0.1657 |
| Venus | -28429-02-27 11:45 J | -8662212.15 | -8662212.01 | -8662211.87 | 0.1783 | 0.1030 |
| Mercury | -28428-11-29 14:23 J | -8661570.97 | -8661570.90 | -8661570.82 | 0.1726 | 0.1329 |
| Mercury | -28427-10-11 21:21 J | -8661254.74 | -8661254.61 | -8661254.48 | 0.1787 | 0.0991 |
| Mercury | -28426-11-05 00:28 J | -8660865.58 | -8660865.48 | -8660865.39 | 0.1748 | 0.1038 |
| Venus | -28425-10-10 13:26 J | -8660525.10 | -8660524.94 | -8660524.77 | 0.1734 | 0.0638 |
| Mercury | -28416-03-27 09:35 J | -8657435.22 | -8657435.10 | -8657434.98 | 0.1743 | 0.0436 |
| Mercury | -28407-08-17 19:11 J | -8654004.82 | -8654004.70 | -8654004.58 | 0.1737 | 0.0150 |
| Mercury | -28406-06-30 23:16 J | -8653687.65 | -8653687.53 | -8653687.41 | 0.1774 | 0.1127 |
| Mercury | -28397-01-08 04:47 J | -8650574.41 | -8650574.30 | -8650574.19 | 0.1732 | 0.0712 |
| Venus | -28397-02-26 17:16 J | -8650524.94 | -8650524.78 | -8650524.61 | 0.1793 | 0.0455 |
| Mercury | -28397-11-19 22:47 J | -8650257.71 | -8650257.55 | -8650257.39 | 0.1780 | 0.0144 |
| Mercury | -28396-12-13 15:21 J | -8649868.87 | -8649868.86 | -8649868.84 | 0.1754 | 0.1730 |
| Venus | -28393-10-09 22:04 J | -8648837.73 | -8648837.58 | -8648837.42 | 0.1724 | 0.0816 |
| Mercury | -28388-05-30 14:23 J | -8647143.97 | -8647143.90 | -8647143.82 | 0.1726 | 0.1261 |
| Mercury | -28387-04-11 22:04 J | -8646827.72 | -8646827.58 | -8646827.44 | 0.1787 | 0.0873 |
| Mercury | -28386-05-06 00:28 J | -8646438.57 | -8646438.48 | -8646438.39 | 0.1748 | 0.1112 |
| Mercury | -28377-09-25 09:35 J | -8643008.21 | -8643008.10 | -8643007.98 | 0.1743 | 0.0512 |
| Mercury | -28367-02-15 19:11 J | -8639577.82 | -8639577.70 | -8639577.58 | 0.1737 | 0.0088 |

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| Mercury | -28367-12-29 23:31 J | -8639260.63 | -8639260.52 | -8639260.40 | 0.1774 | 0.1223 |
| Venus | -28364-12-24 20:38 J | -8638169.76 | -8638169.64 | -8638169.52 | 0.1779 | 0.1223 |
| Venus | -28359-08-07 21:21 J | -8636482.77 | -8636482.61 | -8636482.45 | 0.1737 | 0.0834 |
| Moon | -28358-03-18 18:28 J | -8636259.81 | -8636259.73 | -8636259.66 | 0.1637 | 0.1469 |
| Earth | -28358-03-19 00:14 J | -8636259.61 | -8636259.49 | -8636259.37 | 0.1637 | 0.1228 |
| Mercury | -28358-07-09 04:33 J | -8636147.42 | -8636147.31 | -8636147.20 | 0.1732 | 0.0649 |
| Mercury | -28357-05-20 23:31 J | -8635830.67 | -8635830.52 | -8635830.36 | 0.1780 | 0.0265 |
| Mercury | -28349-11-28 14:23 J | -8632716.98 | -8632716.90 | -8632716.81 | 0.1727 | 0.1194 |
| Mercury | -28348-10-10 22:33 J | -8632400.70 | -8632400.56 | -8632400.41 | 0.1787 | 0.0765 |
| Mercury | -28347-11-04 00:28 J | -8632011.57 | -8632011.48 | -8632011.39 | 0.1748 | 0.1178 |
| Mercury | -28337-03-26 09:50 J | -8628581.21 | -8628581.09 | -8628580.98 | 0.1743 | 0.0583 |
| Venus | -28332-12-24 01:26 J | -8626482.61 | -8626482.44 | -8626482.27 | 0.1789 | 0.0235 |
| Mercury | -28328-08-16 19:11 J | -8625150.82 | -8625150.70 | -8625150.58 | 0.1737 | 0.0029 |
| Mercury | -28327-06-30 00:14 J | -8624833.59 | -8624833.49 | -8624833.39 | 0.1774 | 0.1332 |
| Venus | -28327-08-07 05:45 J | -8624795.43 | -8624795.26 | -8624795.10 | 0.1727 | 0.0621 |
| Mercury | -28318-01-07 04:47 J | -8621720.42 | -8621720.30 | -8621720.19 | 0.1732 | 0.0578 |
| Mercury | -28318-11-19 23:59 J | -8621403.66 | -8621403.50 | -8621403.35 | 0.1780 | 0.0357 |
| Mercury | -28309-05-29 14:38 J | -8618289.98 | -8618289.89 | -8618289.81 | 0.1726 | 0.1126 |
| Mercury | -28308-04-10 23:16 J | -8617973.68 | -8617973.53 | -8617973.38 | 0.1787 | 0.0654 |
| Mercury | -28307-05-05 00:28 J | -8617584.56 | -8617584.48 | -8617584.39 | 0.1748 | 0.1256 |
| Mercury | -28300-10-20 00:28 J | -8614859.51 | -8614859.48 | -8614859.46 | 0.1721 | 0.1663 |
| Venus | -28300-12-23 07:26 J | -8614795.23 | -8614795.19 | -8614795.15 | 0.1800 | 0.1743 |
| Mercury | -28299-08-31 22:04 J | -8614543.63 | -8614543.58 | -8614543.53 | 0.1793 | 0.1706 |
| Mercury | -28298-09-25 09:35 J | -8614154.21 | -8614154.10 | -8614153.98 | 0.1742 | 0.0648 |
| Venus | -28298-10-22 05:16 J | -8614127.38 | -8614127.28 | -8614127.18 | 0.1776 | 0.1420 |
| Venus | -28293-06-04 04:47 J | -8612440.45 | -8612440.30 | -8612440.16 | 0.1740 | 0.1041 |
| Mercury | -28288-02-14 19:11 J | -8610723.82 | -8610723.70 | -8610723.58 | 0.1737 | 0.0073 |
| Moon | -28288-09-19 17:59 J | -8610506.94 | -8610506.75 | -8610506.56 | 0.1880 | 0.0839 |
| Earth | -28288-09-20 03:50 J | -8610506.49 | -8610506.34 | -8610506.18 | 0.1880 | 0.1201 |
| Mercury | -28288-12-29 00:57 J | -8610406.55 | -8610406.46 | -8610406.37 | 0.1774 | 0.1439 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Moon | -28279-03-20 23:02 J | -8607402.74 | -8607402.54 | -8607402.34 | 0.1638 | 0.0149 |
| Earth | -28279-03-21 02:23 J | -8607402.59 | -8607402.40 | -8607402.22 | 0.1638 | 0.0053 * |
| Mercury | -28279-07-08 04:47 J | -8607293.41 | -8607293.30 | -8607293.19 | 0.1732 | 0.0503 |
| Mercury | -28278-05-21 00:43 J | -8606976.63 | -8606976.47 | -8606976.32 | 0.1780 | 0.0471 |
| Mercury | -28270-11-28 14:23 J | -8603862.99 | -8603862.90 | -8603862.80 | 0.1726 | 0.1060 |
| Mercury | -28269-10-09 23:45 J | -8603546.66 | -8603546.51 | -8603546.35 | 0.1787 | 0.0548 |
| Mercury | -28268-11-03 00:28 J | -8603157.55 | -8603157.48 | -8603157.40 | 0.1748 | 0.1327 |
| Venus | -28266-10-21 10:19 J | -8602440.24 | -8602440.07 | -8602439.90 | 0.1786 | 0.0027 |
| Venus | -28261-06-03 13:55 J | -8600753.10 | -8600752.92 | -8600752.75 | 0.1731 | 0.0436 |
| Mercury | -28260-04-20 00:28 J | -8600432.52 | -8600432.48 | -8600432.44 | 0.1721 | 0.1593 |
| Mercury | -28259-03-01 22:33 J | -8600116.63 | -8600116.56 | -8600116.49 | 0.1793 | 0.1604 |
| Mercury | -28258-03-26 09:50 J | -8599727.20 | -8599727.09 | -8599726.98 | 0.1743 | 0.0720 |
| Mercury | -28249-08-15 19:11 J | -8596296.82 | -8596296.70 | -8596296.58 | 0.1737 | 0.0134 |
| Mercury | -28248-06-29 01:11 J | -8595979.52 | -8595979.45 | -8595979.37 | 0.1774 | 0.1536 |
| Mercury | -28239-01-06 04:33 J | -8592866.42 | -8592866.31 | -8592866.19 | 0.1732 | 0.0447 |
| Mercury | -28239-11-19 01:26 J | -8592549.59 | -8592549.44 | -8592549.29 | 0.1780 | 0.0584 |
| Venus | -28234-10-20 15:35 J | -8590752.94 | -8590752.85 | -8590752.76 | 0.1796 | 0.1512 |
| Venus | -28232-08-18 14:23 J | -8590084.97 | -8590084.90 | -8590084.83 | 0.1773 | 0.1603 |
| Mercury | -28230-05-29 14:38 J | -8589435.99 | -8589435.89 | -8589435.80 | 0.1726 | 0.0989 |
| Mercury | -28229-04-10 00:28 J | -8589119.63 | -8589119.48 | -8589119.32 | 0.1786 | 0.0433 |
| Mercury | -28228-05-04 00:28 J | -8588730.55 | -8588730.48 | -8588730.41 | 0.1748 | 0.1395 |
| Venus | -28227-04-01 12:43 J | -8588398.10 | -8588397.97 | -8588397.85 | 0.1743 | 0.1238 |
| Mercury | -28221-10-19 00:28 J | -8586005.53 | -8586005.48 | -8586005.43 | 0.1721 | 0.1527 |
| Mercury | -28220-08-30 23:16 J | -8585689.62 | -8585689.53 | -8585689.45 | 0.1793 | 0.1490 |
| Mercury | -28219-09-24 09:50 J | -8585300.20 | -8585300.09 | -8585299.98 | 0.1743 | 0.0794 |
| Mercury | -28209-02-14 19:11 J | -8581869.82 | -8581869.70 | -8581869.58 | 0.1737 | 0.0203 |
| Mercury | -28209-12-28 01:55 J | -8581552.47 | -8581552.42 | -8581552.36 | 0.1774 | 0.1646 |
| Earth | -28200-03-23 04:04 J | -8578545.44 | -8578545.33 | -8578545.22 | 0.1640 | 0.1332 |
| Moon | -28200-03-23 08:38 J | -8578545.26 | -8578545.14 | -8578545.02 | 0.1640 | 0.1257 * |
| Mercury | -28200-07-07 04:47 J | -8578439.42 | -8578439.30 | -8578439.18 | 0.1732 | 0.0369 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Venus | -28200-08-17 18:28 J | -8578397.90 | -8578397.73 | -8578397.56 | 0.1783 | 0.0187 |
| Mercury | -28199-05-20 01:40 J | -8578122.57 | -8578122.43 | -8578122.28 | 0.1780 | 0.0680 |
| Venus | -28195-03-31 21:35 J | -8576710.78 | -8576710.60 | -8576710.43 | 0.1734 | 0.0239 |
| Mercury | -28191-11-27 14:23 J | -8575009.00 | -8575008.90 | -8575008.80 | 0.1726 | 0.0927 |
| Mercury | -28190-10-10 00:57 J | -8574692.61 | -8574692.46 | -8574692.30 | 0.1787 | 0.0331 |
| Mercury | -28189-11-02 00:43 J | -8574303.54 | -8574303.47 | -8574303.41 | 0.1748 | 0.1469 |
| Mercury | -28181-04-19 00:28 J | -8571578.54 | -8571578.48 | -8571578.42 | 0.1721 | 0.1461 |
| Mercury | -28180-02-28 23:59 J | -8571262.60 | -8571262.50 | -8571262.39 | 0.1793 | 0.1365 |
| Mercury | -28179-03-25 09:50 J | -8570873.20 | -8570873.09 | -8570872.99 | 0.1742 | 0.0859 |
| Mercury | -28170-08-15 19:11 J | -8567442.82 | -8567442.70 | -8567442.58 | 0.1737 | 0.0273 |
| Mercury | -28169-06-28 02:38 J | -8567125.41 | -8567125.39 | -8567125.37 | 0.1774 | 0.1751 |
| Venus | -28168-08-16 23:16 J | -8566710.64 | -8566710.53 | -8566710.41 | 0.1793 | 0.1280 |
| Venus | -28163-03-31 05:16 J | -8565023.33 | -8565023.28 | -8565023.23 | 0.1724 | 0.1648 |
| Venus | -28161-01-27 19:11 J | -8564355.79 | -8564355.70 | -8564355.60 | 0.1747 | 0.1459 |
| Mercury | -28160-01-05 04:47 J | -8564012.42 | -8564012.30 | -8564012.18 | 0.1732 | 0.0299 |
| Mercury | -28160-11-18 02:23 J | -8563695.54 | -8563695.40 | -8563695.26 | 0.1780 | 0.0787 |
| Mercury | -28151-05-28 14:38 J | -8560582.00 | -8560581.89 | -8560581.79 | 0.1726 | 0.0856 |
| Mercury | -28150-04-10 01:40 J | -8560265.58 | -8560265.43 | -8560265.27 | 0.1787 | 0.0217 |
| Mercury | -28149-05-03 00:43 J | -8559876.52 | -8559876.47 | -8559876.42 | 0.1748 | 0.1542 |
| Mercury | -28142-10-19 00:28 J | -8557151.55 | -8557151.48 | -8557151.41 | 0.1721 | 0.1394 |
| Mercury | -28141-08-30 00:14 J | -8556835.60 | -8556835.49 | -8556835.37 | 0.1793 | 0.1273 |
| Mercury | -28140-09-23 09:50 J | -8556446.19 | -8556446.09 | -8556445.99 | 0.1743 | 0.0932 |
| Venus | -28134-06-15 03:21 J | -8554355.52 | -8554355.36 | -8554355.19 | 0.1780 | 0.0388 |
| Mercury | -28130-02-13 19:11 J | -8553015.82 | -8553015.70 | -8553015.58 | 0.1737 | 0.0341 |
| Venus | -28129-01-27 04:47 J | -8552668.48 | -8552668.30 | -8552668.13 | 0.1737 | 0.0055 |
| Mercury | -28121-07-06 04:47 J | -8549585.42 | -8549585.30 | -8549585.18 | 0.1732 | 0.0238 |
| Mercury | -28120-05-19 03:07 J | -8549268.50 | -8549268.37 | -8549268.23 | 0.1780 | 0.0905 |
| Mercury | -28112-11-26 14:38 J | -8546155.00 | -8546154.89 | -8546154.79 | 0.1726 | 0.0786 |
| Mercury | -28111-10-09 02:23 J | -8545838.56 | -8545838.40 | -8545838.24 | 0.1787 | 0.0117 |
| Mercury | -28110-11-02 00:43 J | -8545449.52 | -8545449.47 | -8545449.43 | 0.1748 | 0.1609 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -28102-04-19 00:28 J | -8542724.56 | -8542724.48 | -8542724.41 | 0.1721 | 0.1327 |
| Venus | -28102-06-14 08:09 J | -8542668.29 | -8542668.16 | -8542668.02 | 0.1790 | 0.1068 |
| Mercury | -28101-02-29 01:11 J | -8542408.57 | -8542408.45 | -8542408.33 | 0.1793 | 0.1150 |
| Mercury | -28100-03-24 09:50 J | -8542019.18 | -8542019.09 | -8542018.99 | 0.1743 | 0.1007 |
| Venus | -28097-01-26 13:11 J | -8540981.04 | -8540980.95 | -8540980.86 | 0.1727 | 0.1463 |
| Venus | -28096-11-24 02:38 J | -8540313.44 | -8540313.39 | -8540313.34 | 0.1751 | 0.1669 |
| Mercury | -28091-08-14 19:11 J | -8538588.82 | -8538588.70 | -8538588.58 | 0.1737 | 0.0413 |
| Mercury | -28081-01-05 04:47 J | -8535158.42 | -8535158.30 | -8535158.18 | 0.1731 | 0.0163 |
| Mercury | -28081-11-17 03:21 J | -8534841.49 | -8534841.36 | -8534841.23 | 0.1780 | 0.0997 |
| Earth | -28074-03-20 06:43 J | -8532527.38 | -8532527.22 | -8532527.07 | 0.1635 | 0.0879 |
| Moon | -28074-03-20 09:07 J | -8532527.25 | -8532527.12 | -8532526.98 | 0.1635 | 0.1038 * |
| Mercury | -28072-05-27 14:38 J | -8531728.00 | -8531727.89 | -8531727.79 | 0.1726 | 0.0724 |
| Mercury | -28071-04-09 02:52 J | -8531411.54 | -8531411.38 | -8531411.22 | 0.1787 | 0.0041 |
| Mercury | -28070-05-03 00:43 J | -8531022.50 | -8531022.47 | -8531022.44 | 0.1748 | 0.1684 |
| Venus | -28068-04-11 11:59 J | -8530313.16 | -8530313.00 | -8530312.84 | 0.1776 | 0.0588 |
| Venus | -28064-11-23 12:14 J | -8528626.17 | -8528625.99 | -8528625.81 | 0.1740 | 0.0173 |
| Mercury | -28063-10-18 00:28 J | -8528297.56 | -8528297.48 | -8528297.40 | 0.1721 | 0.1264 |
| Mercury | -28062-08-30 01:40 J | -8527981.55 | -8527981.43 | -8527981.29 | 0.1793 | 0.1039 |
| Mercury | -28061-09-22 09:50 J | -8527592.18 | -8527592.09 | -8527592.00 | 0.1742 | 0.1069 |
| Mercury | -28051-02-12 19:11 J | -8524161.81 | -8524161.70 | -8524161.58 | 0.1737 | 0.0483 |
| Mercury | -28042-07-06 04:47 J | -8520731.42 | -8520731.30 | -8520731.18 | 0.1732 | 0.0096 |
| Mercury | -28041-05-18 04:04 J | -8520414.45 | -8520414.33 | -8520414.20 | 0.1780 | 0.1109 |
| Venus | -28036-04-10 16:19 J | -8518625.97 | -8518625.82 | -8518625.67 | 0.1786 | 0.0846 |
| Mercury | -28033-11-25 14:38 J | -8517301.00 | -8517300.89 | -8517300.78 | 0.1726 | 0.0656 |
| Mercury | -28032-10-08 03:21 J | -8516984.51 | -8516984.36 | -8516984.20 | 0.1787 | 0.0120 |
| Venus | -28032-11-22 20:52 J | -8516938.75 | -8516938.63 | -8516938.51 | 0.1730 | 0.1273 |
| Mercury | -28023-04-18 00:28 J | -8513870.57 | -8513870.48 | -8513870.40 | 0.1721 | 0.1195 |
| Mercury | -28022-02-28 02:23 J | -8513554.54 | -8513554.40 | -8513554.27 | 0.1793 | 0.0936 |
| Mercury | -28021-03-23 09:50 J | -8513165.18 | -8513165.09 | -8513165.00 | 0.1742 | 0.1145 |
| Mercury | -28012-08-13 19:11 J | -8509734.81 | -8509734.70 | -8509734.58 | 0.1737 | 0.0555 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Earth | -28004-09-19 02:38 J | -8506776.60 | -8506776.39 | -8506776.19 | 0.1884 | 0.0335 |
| Moon | -28004-09-19 06:14 J | -8506776.43 | -8506776.24 | -8506776.06 | 0.1884 | 0.0170 * |
| Mercury | -28002-01-04 04:47 J | -8506304.42 | -8506304.30 | -8506304.18 | 0.1731 | 0.0046 |
| Venus | -28002-02-06 20:38 J | -8506270.80 | -8506270.64 | -8506270.49 | 0.1773 | 0.0790 |
| Mercury | -28002-11-17 04:47 J | -8505987.41 | -8505987.30 | -8505987.19 | 0.1780 | 0.1219 |

28TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 28th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|-------------|-------------|-------------|--------|----------|-------|---|
| Venus | -27998-09-20 19:26 J | -8504583.86 | -8504583.69 | -8504583.51 | 0.1744 | 0.0382 | | |
| Moon | -27995-03-22 04:33 J | -8503670.48 | -8503670.31 | -8503670.14 | 0.1636 | 0.0460 | | |
| Earth | -27995-03-22 08:23 J | -8503670.33 | -8503670.15 | -8503669.97 | 0.1636 | 0.0389 * | | |
| Mercury | -27993-05-26 14:38 J | -8502874.00 | -8502873.89 | -8502873.78 | 0.1726 | 0.0583 | | |
| Mercury | -27992-04-08 04:04 J | -8502557.49 | -8502557.33 | -8502557.17 | 0.1787 | 0.0221 | | |
| Mercury | -27984-10-17 00:28 J | -8499443.57 | -8499443.48 | -8499443.39 | 0.1721 | 0.1128 | | |
| Mercury | -27983-08-29 02:52 J | -8499127.52 | -8499127.38 | -8499127.23 | 0.1793 | 0.0822 | | |
| Mercury | -27982-09-22 10:04 J | -8498738.17 | -8498738.08 | -8498738.00 | 0.1743 | 0.1219 | | |
| Mercury | -27974-03-09 10:33 J | -8496013.09 | -8496013.06 | -8496013.04 | 0.1716 | 0.1658 | | |
| Mercury | -27972-02-11 19:11 J | -8495307.81 | -8495307.70 | -8495307.59 | 0.1737 | 0.0621 | | |
| Venus | -27970-02-06 00:57 J | -8494583.62 | -8494583.46 | -8494583.30 | 0.1783 | 0.0640 | | |
| Venus | -27966-09-20 05:16 J | -8492896.42 | -8492896.28 | -8492896.14 | 0.1733 | 0.1089 | | |
| Mercury | -27963-07-05 04:47 J | -8491877.42 | -8491877.30 | -8491877.18 | 0.1731 | 0.0052 | | |
| Mercury | -27962-05-18 05:02 J | -8491560.39 | -8491560.29 | -8491560.18 | 0.1780 | 0.1314 | | |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -27954-11-25 14:23 J | -8488447.01 | -8488446.90 | -8488446.78 | 0.1726 | 0.0523 |
| Mercury | -27953-10-07 04:47 J | -8488130.46 | -8488130.30 | -8488130.15 | 0.1787 | 0.0329 |
| Mercury | -27944-04-17 00:28 J | -8485016.57 | -8485016.48 | -8485016.39 | 0.1721 | 0.1062 |
| Mercury | -27943-02-27 03:50 J | -8484700.49 | -8484700.34 | -8484700.20 | 0.1793 | 0.0702 |
| Mercury | -27942-03-23 09:50 J | -8484311.17 | -8484311.09 | -8484311.01 | 0.1742 | 0.1281 |
| Venus | -27937-12-04 05:45 J | -8482228.40 | -8482228.26 | -8482228.12 | 0.1769 | 0.0971 |
| Mercury | -27935-09-07 10:19 J | -8481586.11 | -8481586.07 | -8481586.02 | 0.1716 | 0.1592 |
| Mercury | -27934-07-20 01:55 J | -8481270.43 | -8481270.42 | -8481270.41 | 0.1799 | 0.1792 |
| Mercury | -27933-08-12 19:26 J | -8480880.80 | -8480880.69 | -8480880.58 | 0.1737 | 0.0694 |
| Venus | -27932-07-18 02:52 J | -8480541.55 | -8480541.38 | -8480541.21 | 0.1747 | 0.0586 |
| Mercury | -27923-01-03 04:47 J | -8477450.42 | -8477450.30 | -8477450.18 | 0.1731 | 0.0116 |
| Mercury | -27923-11-16 05:45 J | -8477133.35 | -8477133.26 | -8477133.17 | 0.1780 | 0.1421 |
| Moon | -27916-03-24 04:33 J | -8474813.37 | -8474813.31 | -8474813.25 | 0.1637 | 0.1549 |
| Mercury | -27914-05-26 14:38 J | -8474020.01 | -8474019.89 | -8474019.78 | 0.1726 | 0.0449 |
| Mercury | -27913-04-07 05:16 J | -8473703.43 | -8473703.28 | -8473703.12 | 0.1787 | 0.0437 |
| Mercury | -27905-10-16 00:28 J | -8470589.58 | -8470589.48 | -8470589.39 | 0.1721 | 0.0997 |
| Venus | -27905-12-03 09:35 J | -8470541.26 | -8470541.10 | -8470540.93 | 0.1779 | 0.0433 |
| Mercury | -27904-08-28 04:04 J | -8470273.48 | -8470273.33 | -8470273.18 | 0.1793 | 0.0607 |
| Mercury | -27903-09-21 10:04 J | -8469884.16 | -8469884.08 | -8469884.01 | 0.1742 | 0.1356 |
| Venus | -27900-07-17 12:14 J | -8468854.14 | -8468853.99 | -8468853.83 | 0.1737 | 0.0887 |
| Mercury | -27895-03-08 10:19 J | -8467159.12 | -8467159.07 | -8467159.02 | 0.1716 | 0.1530 |
| Mercury | -27894-01-18 02:52 J | -8466843.44 | -8466843.38 | -8466843.33 | 0.1799 | 0.1667 |
| Mercury | -27893-02-11 19:11 J | -8466453.80 | -8466453.70 | -8466453.59 | 0.1737 | 0.0760 |
| Mercury | -27884-07-04 04:47 J | -8463023.42 | -8463023.30 | -8463023.18 | 0.1731 | 0.0180 |
| Mercury | -27883-05-17 06:28 J | -8462706.30 | -8462706.23 | -8462706.15 | 0.1780 | 0.1538 |
| Mercury | -27875-11-24 14:38 J | -8459593.01 | -8459592.89 | -8459592.78 | 0.1726 | 0.0382 |
| Mercury | -27874-10-07 05:45 J | -8459276.41 | -8459276.26 | -8459276.11 | 0.1787 | 0.0541 |
| Venus | -27871-10-01 14:38 J | -8458186.02 | -8458185.89 | -8458185.76 | 0.1766 | 0.1159 |
| Moon | -27869-03-18 09:50 J | -8457652.10 | -8457652.09 | -8457652.08 | 0.1632 | 0.1627 |
| Venus | -27866-05-15 09:50 J | -8456499.25 | -8456499.09 | -8456498.93 | 0.1750 | 0.0799 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -27865-04-16 00:28 J | -8456162.58 | -8456162.48 | -8456162.38 | 0.1721 | 0.0929 |
| Mercury | -27864-02-26 04:47 J | -8455846.45 | -8455846.30 | -8455846.14 | 0.1793 | 0.0487 |
| Mercury | -27863-03-22 10:04 J | -8455457.15 | -8455457.08 | -8455457.01 | 0.1742 | 0.1428 |
| Mercury | -27856-09-06 10:19 J | -8452732.13 | -8452732.07 | -8452732.01 | 0.1716 | 0.1461 |
| Mercury | -27855-07-19 03:07 J | -8452416.45 | -8452416.37 | -8452416.29 | 0.1799 | 0.1570 |
| Mercury | -27854-08-12 19:26 J | -8452026.80 | -8452026.69 | -8452026.59 | 0.1737 | 0.0832 |
| Mercury | -27844-01-02 04:47 J | -8448596.42 | -8448596.30 | -8448596.18 | 0.1731 | 0.0252 |
| Mercury | -27844-11-15 06:43 J | -8448279.28 | -8448279.22 | -8448279.15 | 0.1780 | 0.1626 |
| Venus | -27839-09-30 18:28 J | -8446498.90 | -8446498.73 | -8446498.56 | 0.1776 | 0.0236 |
| Mercury | -27835-05-25 14:23 J | -8445166.01 | -8445165.90 | -8445165.78 | 0.1726 | 0.0323 |
| Mercury | -27834-04-07 06:28 J | -8444849.37 | -8444849.23 | -8444849.08 | 0.1787 | 0.0654 |
| Venus | -27834-05-14 20:09 J | -8444811.82 | -8444811.66 | -8444811.50 | 0.1740 | 0.0694 |
| Mercury | -27826-10-16 00:28 J | -8441735.59 | -8441735.48 | -8441735.38 | 0.1721 | 0.0865 |
| Mercury | -27825-08-27 05:31 J | -8441419.43 | -8441419.27 | -8441419.12 | 0.1793 | 0.0377 |
| Mercury | -27824-09-20 10:04 J | -8441030.14 | -8441030.08 | -8441030.02 | 0.1742 | 0.1494 |
| Mercury | -27816-03-07 10:33 J | -8438305.13 | -8438305.06 | -8438305.00 | 0.1716 | 0.1394 |
| Mercury | -27815-01-17 03:50 J | -8437989.43 | -8437989.34 | -8437989.24 | 0.1799 | 0.1450 |
| Mercury | -27814-02-10 19:26 J | -8437599.80 | -8437599.69 | -8437599.59 | 0.1737 | 0.0901 |
| Venus | -27807-09-29 22:47 J | -8434811.61 | -8434811.55 | -8434811.49 | 0.1786 | 0.1664 |
| Mercury | -27805-07-03 04:47 J | -8434169.41 | -8434169.30 | -8434169.18 | 0.1731 | 0.0325 |
| Venus | -27805-07-29 00:14 J | -8434143.60 | -8434143.49 | -8434143.38 | 0.1763 | 0.1331 |
| Mercury | -27804-05-16 07:26 J | -8433852.22 | -8433852.19 | -8433852.15 | 0.1780 | 0.1738 |
| Venus | -27800-03-11 17:16 J | -8432456.93 | -8432456.78 | -8432456.64 | 0.1754 | 0.1006 |
| Mercury | -27796-11-23 14:38 J | -8430739.01 | -8430738.89 | -8430738.78 | 0.1726 | 0.0255 |
| Mercury | -27795-10-06 06:57 J | -8430422.35 | -8430422.21 | -8430422.07 | 0.1787 | 0.0752 |
| Earth | -27790-03-21 13:11 J | -8428795.13 | -8428794.95 | -8428794.78 | 0.1633 | 0.0532 |
| Moon | -27790-03-21 18:28 J | -8428794.91 | -8428794.73 | -8428794.56 | 0.1633 | 0.0645 * |
| Mercury | -27786-04-16 00:28 J | -8427308.59 | -8427308.48 | -8427308.38 | 0.1721 | 0.0795 |
| Mercury | -27785-02-26 05:59 J | -8426992.41 | -8426992.25 | -8426992.09 | 0.1793 | 0.0272 |
| Mercury | -27784-03-21 10:04 J | -8426603.13 | -8426603.08 | -8426603.03 | 0.1742 | 0.1568 |

Mercury -27777-09-05 10:19 J -8423878.14 -8423878.07 -8423878.00 0.1715 0.1333
 Mercury -27776-07-18 04:33 J -8423562.41 -8423562.31 -8423562.20 0.1799 0.1333
 Mercury -27775-08-11 19:26 J -8423172.79 -8423172.69 -8423172.59 0.1737 0.0970
 Venus -27773-07-28 03:07 J -8422456.54 -8422456.37 -8422456.20 0.1773 0.0041
 Venus -27768-03-11 03:07 J -8420769.54 -8420769.37 -8420769.19 0.1743 0.0489
 Mercury -27765-01-02 04:47 J -8419742.42 -8419742.30 -8419742.18 0.1731 0.0383
 Mercury -27756-05-24 14:38 J -8416312.01 -8416311.89 -8416311.77 0.1726 0.0177
 Mercury -27755-04-06 07:40 J -8415995.32 -8415995.18 -8415995.04 0.1787 0.0865
 Mercury -27747-10-15 00:28 J -8412881.59 -8412881.48 -8412881.38 0.1721 0.0731
 Mercury -27746-08-27 06:43 J -8412565.38 -8412565.22 -8412565.06 0.1793 0.0166
 Mercury -27745-09-19 10:04 J -8412176.12 -8412176.08 -8412176.04 0.1742 0.1640
 Venus -27741-07-27 06:57 J -8410769.31 -8410769.21 -8410769.11 0.1783 0.1445
 Venus -27739-05-26 09:21 J -8410101.19 -8410101.11 -8410101.02 0.1759 0.1507
 Mercury -27737-03-06 10:19 J -8409451.15 -8409451.07 -8409450.99 0.1715 0.1264
 Mercury -27736-01-16 05:02 J -8409135.41 -8409135.29 -8409135.17 0.1799 0.1231
 Mercury -27735-02-09 19:26 J -8408745.79 -8408745.69 -8408745.60 0.1737 0.1038
 Venus -27734-01-06 23:16 J -8408414.65 -8408414.53 -8408414.40 0.1757 0.1236
 Mercury -27726-07-03 04:47 J -8405315.41 -8405315.30 -8405315.18 0.1731 0.0461
 Moon -27720-09-18 04:19 J -8403046.44 -8403046.32 -8403046.19 0.1887 0.1549
 Mercury -27717-11-22 14:23 J -8401885.02 -8401884.90 -8401884.78 0.1726 0.0127
 Mercury -27716-10-05 08:09 J -8401568.29 -8401568.16 -8401568.02 0.1787 0.0973
 Earth -27711-03-23 14:23 J -8399938.06 -8399937.90 -8399937.73 0.1634 0.0728
 Moon -27711-03-23 19:26 J -8399937.83 -8399937.69 -8399937.54 0.1634 0.0921 *
 Mercury -27707-04-15 00:28 J -8398454.59 -8398454.48 -8398454.37 0.1721 0.0664
 Venus -27707-05-25 12:14 J -8398414.16 -8398413.99 -8398413.82 0.1770 0.0157
 Mercury -27706-02-25 07:26 J -8398138.35 -8398138.19 -8398138.03 0.1793 0.0064
 Mercury -27705-03-20 10:04 J -8397749.10 -8397749.08 -8397749.06 0.1742 0.1703
 Venus -27702-01-06 10:04 J -8396727.26 -8396727.08 -8396726.91 0.1747 0.0276
 Mercury -27698-09-05 10:19 J -8395024.15 -8395024.07 -8395023.98 0.1715 0.1197
 Mercury -27697-07-17 05:45 J -8394708.39 -8394708.26 -8394708.14 0.1799 0.1121

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -27696-08-10 19:26 J | -8394318.78 | -8394318.69 | -8394318.60 | 0.1737 | 0.1110 |
| Mercury | -27686-01-01 04:47 J | -8390888.41 | -8390888.30 | -8390888.18 | 0.1731 | 0.0530 |
| Mercury | -27677-05-23 14:38 J | -8387458.01 | -8387457.89 | -8387457.77 | 0.1726 | 0.0066 |
| Mercury | -27676-04-05 08:52 J | -8387141.26 | -8387141.13 | -8387141.01 | 0.1787 | 0.1076 |
| Venus | -27675-05-24 15:50 J | -8386726.96 | -8386726.84 | -8386726.72 | 0.1779 | 0.1243 |
| Venus | -27673-03-22 18:57 J | -8386058.75 | -8386058.71 | -8386058.66 | 0.1756 | 0.1678 |
| Venus | -27670-01-05 19:40 J | -8385039.70 | -8385039.68 | -8385039.66 | 0.1737 | 0.1722 |
| Venus | -27669-11-03 06:28 J | -8384372.33 | -8384372.23 | -8384372.13 | 0.1761 | 0.1448 |
| Mercury | -27668-10-14 00:28 J | -8384027.60 | -8384027.48 | -8384027.37 | 0.1720 | 0.0600 |
| Mercury | -27667-08-26 07:40 J | -8383711.34 | -8383711.18 | -8383711.02 | 0.1793 | 0.0050 |
| Mercury | -27658-03-06 10:19 J | -8380597.16 | -8380597.07 | -8380596.98 | 0.1715 | 0.1135 |
| Mercury | -27657-01-16 06:28 J | -8380281.36 | -8380281.23 | -8380281.09 | 0.1799 | 0.0994 |
| Mercury | -27656-02-08 19:26 J | -8379891.78 | -8379891.69 | -8379891.60 | 0.1736 | 0.1176 |
| Mercury | -27649-07-26 20:23 J | -8377166.67 | -8377166.65 | -8377166.62 | 0.1711 | 0.1653 |
| Mercury | -27647-07-02 04:47 J | -8376461.41 | -8376461.30 | -8376461.18 | 0.1731 | 0.0594 |
| Venus | -27641-03-21 21:07 J | -8374371.79 | -8374371.62 | -8374371.45 | 0.1766 | 0.0352 |
| Earth | -27641-09-21 14:38 J | -8374188.00 | -8374187.89 | -8374187.77 | 0.1885 | 0.1557 |
| Moon | -27641-09-21 23:31 J | -8374187.63 | -8374187.52 | -8374187.40 | 0.1885 | 0.1517 |
| Mercury | -27638-11-22 14:38 J | -8373031.01 | -8373030.89 | -8373030.77 | 0.1726 | 0.0046 |
| Mercury | -27637-10-04 09:21 J | -8372714.23 | -8372714.11 | -8372714.00 | 0.1787 | 0.1179 |
| Venus | -27637-11-02 17:16 J | -8372684.96 | -8372684.78 | -8372684.61 | 0.1750 | 0.0079 |
| Mercury | -27628-04-14 00:28 J | -8369600.60 | -8369600.48 | -8369600.37 | 0.1721 | 0.0531 |
| Mercury | -27627-02-24 08:23 J | -8369284.31 | -8369284.15 | -8369283.99 | 0.1793 | 0.0175 |
| Mercury | -27619-09-04 10:19 J | -8366170.16 | -8366170.07 | -8366169.98 | 0.1715 | 0.1066 |
| Mercury | -27618-07-17 06:57 J | -8365854.35 | -8365854.21 | -8365854.08 | 0.1799 | 0.0902 |
| Mercury | -27617-08-09 19:26 J | -8365464.77 | -8365464.69 | -8365464.61 | 0.1736 | 0.1248 |
| Mercury | -27609-01-25 20:23 J | -8362739.69 | -8362739.65 | -8362739.61 | 0.1710 | 0.1592 |
| Venus | -27609-03-21 00:14 J | -8362684.63 | -8362684.49 | -8362684.35 | 0.1776 | 0.1029 |
| Mercury | -27608-12-31 04:47 J | -8362034.41 | -8362034.30 | -8362034.18 | 0.1731 | 0.0664 |
| Venus | -27605-11-02 03:07 J | -8360997.46 | -8360997.37 | -8360997.29 | 0.1740 | 0.1529 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Venus | -27603-08-31 12:28 J | -8360330.03 | -8360329.98 | -8360329.93 | 0.1764 | 0.1682 |
| Mercury | -27598-05-23 14:23 J | -8358604.02 | -8358603.90 | -8358603.78 | 0.1726 | 0.0102 |
| Mercury | -27597-04-04 10:04 J | -8358287.19 | -8358287.08 | -8358286.97 | 0.1787 | 0.1293 |
| Mercury | -27589-10-13 00:28 J | -8355173.60 | -8355173.48 | -8355173.37 | 0.1721 | 0.0464 |
| Mercury | -27588-08-25 09:07 J | -8354857.28 | -8354857.12 | -8354856.97 | 0.1793 | 0.0279 |
| Moon | -27585-03-19 12:57 J | -8353920.07 | -8353919.96 | -8353919.85 | 0.1631 | 0.1303 |
| Earth | -27585-03-19 18:43 J | -8353919.81 | -8353919.72 | -8353919.63 | 0.1631 | 0.1430 |
| Mercury | -27579-03-05 10:19 J | -8351743.16 | -8351743.07 | -8351742.97 | 0.1715 | 0.0999 |
| Mercury | -27578-01-15 07:40 J | -8351427.33 | -8351427.18 | -8351427.04 | 0.1799 | 0.0782 |
| Mercury | -27577-02-08 19:26 J | -8351037.77 | -8351037.69 | -8351037.61 | 0.1737 | 0.1318 |
| Venus | -27575-01-17 05:59 J | -8350329.42 | -8350329.25 | -8350329.09 | 0.1763 | 0.0542 |
| Venus | -27571-08-30 23:59 J | -8348642.68 | -8348642.50 | -8348642.33 | 0.1754 | 0.0153 |
| Mercury | -27570-07-26 20:23 J | -8348312.70 | -8348312.65 | -8348312.60 | 0.1710 | 0.1524 |
| Mercury | -27568-07-01 05:02 J | -8347607.40 | -8347607.29 | -8347607.19 | 0.1731 | 0.0734 |
| Mercury | -27559-11-21 14:38 J | -8344177.01 | -8344176.89 | -8344176.77 | 0.1726 | 0.0169 |
| Mercury | -27558-10-04 10:19 J | -8343860.16 | -8343860.07 | -8343859.97 | 0.1787 | 0.1390 |
| Mercury | -27549-04-13 00:28 J | -8340746.60 | -8340746.48 | -8340746.37 | 0.1720 | 0.0398 |
| Mercury | -27548-02-23 09:35 J | -8340430.26 | -8340430.10 | -8340429.95 | 0.1793 | 0.0381 |
| Venus | -27543-01-16 09:07 J | -8338642.26 | -8338642.12 | -8338641.97 | 0.1773 | 0.0837 |
| Mercury | -27540-09-03 10:19 J | -8337316.17 | -8337316.07 | -8337315.97 | 0.1715 | 0.0939 |
| Mercury | -27539-07-16 08:23 J | -8337000.30 | -8337000.15 | -8337000.00 | 0.1799 | 0.0665 |
| Venus | -27539-08-30 10:47 J | -8336955.16 | -8336955.05 | -8336954.94 | 0.1743 | 0.1338 |
| Mercury | -27538-08-09 19:26 J | -8336610.76 | -8336610.69 | -8336610.62 | 0.1736 | 0.1385 |
| Mercury | -27530-01-24 20:23 J | -8333885.71 | -8333885.65 | -8333885.59 | 0.1710 | 0.1458 |
| Mercury | -27530-12-06 05:59 J | -8333570.27 | -8333570.25 | -8333570.22 | 0.1806 | 0.1778 |
| Mercury | -27529-12-30 04:47 J | -8333180.40 | -8333180.30 | -8333180.19 | 0.1731 | 0.0799 |
| Mercury | -27519-05-22 14:38 J | -8329750.01 | -8329749.89 | -8329749.77 | 0.1726 | 0.0232 |
| Mercury | -27518-04-04 11:02 J | -8329433.12 | -8329433.04 | -8329432.95 | 0.1787 | 0.1500 |
| Mercury | -27510-10-13 00:14 J | -8326319.60 | -8326319.49 | -8326319.37 | 0.1720 | 0.0332 |
| Venus | -27510-11-14 15:35 J | -8326287.01 | -8326286.85 | -8326286.70 | 0.1759 | 0.0713 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -27509-08-24 10:04 J | -8326003.23 | -8326003.08 | -8326002.92 | 0.1793 | 0.0492 |
| Moon | -27506-03-22 14:09 J | -8325063.10 | -8325062.91 | -8325062.72 | 0.1632 | 0.0363 |
| Earth | -27506-03-22 19:40 J | -8325062.87 | -8325062.68 | -8325062.50 | 0.1632 | 0.0187 * |
| Venus | -27505-06-27 06:43 J | -8324600.39 | -8324600.22 | -8324600.04 | 0.1757 | 0.0364 |
| Mercury | -27500-03-04 10:19 J | -8322889.17 | -8322889.07 | -8322888.97 | 0.1715 | 0.0869 |
| Mercury | -27499-01-14 08:38 J | -8322573.29 | -8322573.14 | -8322572.98 | 0.1799 | 0.0567 |
| Mercury | -27498-02-07 19:26 J | -8322183.75 | -8322183.69 | -8322183.63 | 0.1736 | 0.1455 |
| Mercury | -27491-07-25 20:23 J | -8319458.72 | -8319458.65 | -8319458.58 | 0.1710 | 0.1395 |
| Mercury | -27490-06-06 06:43 J | -8319143.28 | -8319143.22 | -8319143.16 | 0.1806 | 0.1663 |
| Mercury | -27489-06-30 05:02 J | -8318753.40 | -8318753.29 | -8318753.19 | 0.1731 | 0.0871 |
| Mercury | -27480-11-20 14:23 J | -8315323.02 | -8315322.90 | -8315322.78 | 0.1725 | 0.0293 |
| Mercury | -27479-10-03 11:45 J | -8315006.08 | -8315006.01 | -8315005.95 | 0.1787 | 0.1607 |
| Venus | -27478-11-13 18:14 J | -8314599.90 | -8314599.74 | -8314599.58 | 0.1769 | 0.0640 |
| Venus | -27473-06-26 17:31 J | -8312912.90 | -8312912.77 | -8312912.63 | 0.1747 | 0.1131 |
| Mercury | -27470-04-13 00:28 J | -8311892.60 | -8311892.48 | -8311892.37 | 0.1721 | 0.0266 |
| Mercury | -27469-02-23 10:47 J | -8311576.20 | -8311576.05 | -8311575.90 | 0.1793 | 0.0604 |
| Mercury | -27461-09-02 10:19 J | -8308462.17 | -8308462.07 | -8308461.97 | 0.1715 | 0.0801 |
| Mercury | -27460-07-15 09:21 J | -8308146.26 | -8308146.11 | -8308145.95 | 0.1799 | 0.0453 |
| Mercury | -27459-08-08 19:40 J | -8307756.74 | -8307756.68 | -8307756.63 | 0.1737 | 0.1531 |
| Mercury | -27451-01-23 20:23 J | -8305031.72 | -8305031.65 | -8305031.58 | 0.1710 | 0.1330 |
| Mercury | -27451-12-05 07:26 J | -8304716.27 | -8304716.19 | -8304716.11 | 0.1806 | 0.1551 |
| Mercury | -27450-12-30 05:02 J | -8304326.39 | -8304326.29 | -8304326.19 | 0.1731 | 0.0939 |
| Venus | -27444-09-11 00:28 J | -8302244.62 | -8302244.48 | -8302244.33 | 0.1756 | 0.0894 |
| Mercury | -27440-05-21 14:38 J | -8300896.01 | -8300895.89 | -8300895.78 | 0.1726 | 0.0367 |
| Mercury | -27439-04-03 11:59 J | -8300579.04 | -8300579.00 | -8300578.95 | 0.1787 | 0.1708 |
| Venus | -27439-04-24 13:26 J | -8300558.10 | -8300557.94 | -8300557.77 | 0.1760 | 0.0582 |
| Mercury | -27431-10-12 00:14 J | -8297465.60 | -8297465.49 | -8297465.37 | 0.1720 | 0.0202 |
| Mercury | -27430-08-24 11:16 J | -8297149.18 | -8297149.03 | -8297148.88 | 0.1793 | 0.0701 |
| Earth | -27427-03-24 20:38 J | -8296205.77 | -8296205.64 | -8296205.50 | 0.1633 | 0.1071 |
| Moon | -27427-03-24 23:02 J | -8296205.67 | -8296205.54 | -8296205.40 | 0.1633 | 0.1181 * |

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| Mercury | -27421-03-03 10:19 J | -8294035.18 | -8294035.07 | -8294034.97 | 0.1715 | 0.0740 |
| Mercury | -27420-01-13 10:19 J | -8293719.23 | -8293719.07 | -8293718.91 | 0.1799 | 0.0330 |
| Mercury | -27419-02-06 19:26 J | -8293329.73 | -8293329.69 | -8293329.64 | 0.1736 | 0.1593 |
| Mercury | -27412-07-24 20:23 J | -8290604.73 | -8290604.65 | -8290604.57 | 0.1710 | 0.1262 |
| Venus | -27412-09-10 03:21 J | -8290557.52 | -8290557.36 | -8290557.19 | 0.1766 | 0.0451 |
| Mercury | -27411-06-05 07:55 J | -8290289.26 | -8290289.17 | -8290289.07 | 0.1806 | 0.1439 |
| Mercury | -27410-06-30 05:02 J | -8289899.39 | -8289899.29 | -8289899.20 | 0.1731 | 0.1007 |
| Venus | -27407-04-24 00:57 J | -8288870.61 | -8288870.46 | -8288870.31 | 0.1750 | 0.0933 |
| Mercury | -27401-11-19 14:38 J | -8286469.01 | -8286468.89 | -8286468.78 | 0.1726 | 0.0435 |
| Mercury | -27391-04-12 00:28 J | -8283038.60 | -8283038.48 | -8283038.37 | 0.1720 | 0.0140 |
| Mercury | -27390-02-22 11:59 J | -8282722.14 | -8282722.00 | -8282721.86 | 0.1793 | 0.0819 |
| Mercury | -27382-09-02 10:19 J | -8279608.18 | -8279608.07 | -8279607.96 | 0.1715 | 0.0670 |
| Mercury | -27381-07-14 10:33 J | -8279292.22 | -8279292.06 | -8279291.90 | 0.1799 | 0.0240 |
| Mercury | -27380-08-07 19:26 J | -8278902.72 | -8278902.69 | -8278902.66 | 0.1736 | 0.1667 |
| Venus | -27378-07-09 10:33 J | -8278202.20 | -8278202.06 | -8278201.93 | 0.1753 | 0.1055 |
| Venus | -27373-02-19 20:09 J | -8276515.81 | -8276515.66 | -8276515.50 | 0.1764 | 0.0799 |
| Mercury | -27372-01-22 20:23 J | -8276177.74 | -8276177.65 | -8276177.57 | 0.1710 | 0.1204 |
| Mercury | -27372-12-04 08:38 J | -8275862.25 | -8275862.14 | -8275862.03 | 0.1806 | 0.1325 |
| Mercury | -27371-12-29 05:02 J | -8275472.39 | -8275472.29 | -8275472.20 | 0.1731 | 0.1075 |
| Mercury | -27361-05-20 14:23 J | -8272042.01 | -8272041.90 | -8272041.78 | 0.1725 | 0.0501 |
| Moon | -27357-09-20 09:07 J | -8270458.34 | -8270458.12 | -8270457.90 | 0.1888 | 0.0452 |
| Earth | -27357-09-20 11:45 J | -8270458.22 | -8270458.01 | -8270457.81 | 0.1888 | 0.0055 * |
| Mercury | -27352-10-11 00:28 J | -8268611.60 | -8268611.48 | -8268611.37 | 0.1720 | 0.0089 |
| Mercury | -27351-08-23 12:28 J | -8268295.11 | -8268294.98 | -8268294.84 | 0.1793 | 0.0924 |
| Venus | -27346-07-08 12:28 J | -8266515.15 | -8266514.98 | -8266514.81 | 0.1763 | 0.0263 |
| Mercury | -27342-03-03 10:19 J | -8265181.18 | -8265181.07 | -8265180.96 | 0.1715 | 0.0604 |
| Mercury | -27341-01-13 11:16 J | -8264865.19 | -8264865.03 | -8264864.87 | 0.1799 | 0.0119 |
| Venus | -27341-02-19 07:26 J | -8264828.35 | -8264828.19 | -8264828.02 | 0.1754 | 0.0718 |
| Mercury | -27333-07-23 20:23 J | -8261750.74 | -8261750.65 | -8261750.57 | 0.1710 | 0.1134 |
| Mercury | -27332-06-04 09:21 J | -8261435.23 | -8261435.11 | -8261434.99 | 0.1806 | 0.1213 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -27331-06-29 05:02 J | -8261045.38 | -8261045.29 | -8261045.20 | 0.1731 | 0.1146 |
| Mercury | -27324-12-14 06:28 J | -8258320.25 | -8258320.23 | -8258320.20 | 0.1705 | 0.1649 |
| Mercury | -27322-11-19 14:38 J | -8257615.01 | -8257614.89 | -8257614.78 | 0.1725 | 0.0570 |
| Venus | -27314-07-07 15:21 J | -8254827.93 | -8254827.86 | -8254827.80 | 0.1773 | 0.1621 |
| Mercury | -27312-04-11 00:14 J | -8254184.60 | -8254184.49 | -8254184.37 | 0.1720 | 0.0063 |
| Venus | -27312-05-05 19:55 J | -8254159.79 | -8254159.67 | -8254159.55 | 0.1749 | 0.1221 |
| Mercury | -27311-02-21 13:11 J | -8253868.08 | -8253867.95 | -8253867.82 | 0.1793 | 0.1029 |
| Venus | -27308-12-17 02:09 J | -8252473.55 | -8252473.41 | -8252473.27 | 0.1767 | 0.1034 |
| Mercury | -27303-09-01 10:04 J | -8250754.19 | -8250754.08 | -8250753.96 | 0.1715 | 0.0545 |
| Mercury | -27302-07-14 11:59 J | -8250438.16 | -8250438.00 | -8250437.84 | 0.1799 | 0.0006 |
| Earth | -27301-03-21 00:57 J | -8250187.60 | -8250187.46 | -8250187.32 | 0.1630 | 0.1082 |
| Moon | -27301-03-21 04:47 J | -8250187.45 | -8250187.30 | -8250187.15 | 0.1630 | 0.0881 * |
| Mercury | -27293-01-22 20:23 J | -8247323.74 | -8247323.65 | -8247323.56 | 0.1710 | 0.1067 |
| Mercury | -27293-12-03 09:50 J | -8247008.21 | -8247008.09 | -8247007.96 | 0.1806 | 0.1100 |
| Mercury | -27292-12-28 05:02 J | -8246618.38 | -8246618.29 | -8246618.21 | 0.1731 | 0.1213 |
| Mercury | -27284-06-14 06:28 J | -8243893.27 | -8243893.23 | -8243893.19 | 0.1705 | 0.1584 |
| Mercury | -27282-05-20 14:38 J | -8243188.00 | -8243187.89 | -8243187.78 | 0.1726 | 0.0640 |
| Venus | -27280-05-04 21:50 J | -8242472.76 | -8242472.59 | -8242472.42 | 0.1760 | 0.0083 |
| Venus | -27276-12-16 13:55 J | -8240786.09 | -8240785.92 | -8240785.74 | 0.1757 | 0.0499 |
| Mercury | -27273-10-10 00:14 J | -8239757.61 | -8239757.49 | -8239757.37 | 0.1720 | 0.0092 |
| Mercury | -27272-08-22 13:40 J | -8239441.05 | -8239440.93 | -8239440.81 | 0.1793 | 0.1136 |
| Mercury | -27263-03-02 10:19 J | -8236327.19 | -8236327.07 | -8236326.96 | 0.1715 | 0.0472 |
| Mercury | -27262-01-12 12:28 J | -8236011.14 | -8236010.98 | -8236010.82 | 0.1799 | 0.0105 |
| Mercury | -27254-07-23 20:23 J | -8232896.75 | -8232896.65 | -8232896.56 | 0.1710 | 0.1007 |
| Mercury | -27253-06-03 10:33 J | -8232581.19 | -8232581.06 | -8232580.92 | 0.1806 | 0.0984 |
| Mercury | -27252-06-28 05:02 J | -8232191.37 | -8232191.29 | -8232191.21 | 0.1731 | 0.1284 |
| Venus | -27248-05-04 00:28 J | -8230785.58 | -8230785.48 | -8230785.38 | 0.1769 | 0.1431 |
| Venus | -27246-03-03 05:45 J | -8230117.36 | -8230117.26 | -8230117.16 | 0.1746 | 0.1384 |
| Mercury | -27245-12-13 06:28 J | -8229466.28 | -8229466.23 | -8229466.18 | 0.1705 | 0.1521 |
| Mercury | -27243-11-18 14:23 J | -8228761.01 | -8228760.90 | -8228760.79 | 0.1725 | 0.0702 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Venus | -27242-10-14 08:52 J | -8228431.26 | -8228431.13 | -8228431.01 | 0.1771 | 0.1252 |
| Mercury | -27233-04-10 00:28 J | -8225330.60 | -8225330.48 | -8225330.36 | 0.1720 | 0.0155 |
| Mercury | -27232-02-20 14:23 J | -8225014.01 | -8225013.90 | -8225013.79 | 0.1793 | 0.1249 |
| Mercury | -27224-08-31 10:19 J | -8221900.19 | -8221900.07 | -8221899.96 | 0.1715 | 0.0403 |
| Mercury | -27223-07-13 12:57 J | -8221584.11 | -8221583.96 | -8221583.80 | 0.1799 | 0.0214 |
| Moon | -27222-03-23 22:47 J | -8221330.73 | -8221330.55 | -8221330.38 | 0.1630 | 0.0024 |
| Earth | -27222-03-24 02:09 J | -8221330.60 | -8221330.41 | -8221330.23 | 0.1630 | 0.0167 * |
| Mercury | -27214-01-21 20:09 J | -8218469.75 | -8218469.66 | -8218469.56 | 0.1710 | 0.0941 |
| Venus | -27214-03-02 06:57 J | -8218430.38 | -8218430.21 | -8218430.04 | 0.1756 | 0.0102 |
| Mercury | -27214-12-03 11:02 J | -8218154.18 | -8218154.04 | -8218153.89 | 0.1806 | 0.0879 |
| Mercury | -27213-12-27 05:02 J | -8217764.36 | -8217764.29 | -8217764.22 | 0.1731 | 0.1351 |
| Venus | -27210-10-13 20:52 J | -8216743.81 | -8216743.63 | -8216743.45 | 0.1760 | 0.0285 |
| Mercury | -27205-06-13 06:28 J | -8215039.29 | -8215039.23 | -8215039.17 | 0.1705 | 0.1455 |
| Mercury | -27203-05-19 14:38 J | -8214334.00 | -8214333.89 | -8214333.78 | 0.1725 | 0.0775 |
| Mercury | -27194-10-10 00:14 J | -8210903.60 | -8210903.49 | -8210903.37 | 0.1720 | 0.0220 |
| Mercury | -27193-08-21 14:52 J | -8210586.99 | -8210586.88 | -8210586.78 | 0.1793 | 0.1348 |
| Mercury | -27184-03-01 10:04 J | -8207473.19 | -8207473.08 | -8207472.96 | 0.1715 | 0.0347 |
| Mercury | -27183-01-11 13:55 J | -8207157.08 | -8207156.92 | -8207156.76 | 0.1799 | 0.0331 |
| Venus | -27182-03-01 09:07 J | -8206743.24 | -8206743.12 | -8206743.00 | 0.1766 | 0.1229 |
| Venus | -27181-12-28 15:21 J | -8206074.93 | -8206074.86 | -8206074.78 | 0.1743 | 0.1545 |
| Venus | -27176-08-10 14:23 J | -8204388.99 | -8204388.90 | -8204388.80 | 0.1774 | 0.1493 |
| Mercury | -27175-07-22 20:23 J | -8204042.75 | -8204042.65 | -8204042.55 | 0.1710 | 0.0870 |
| Mercury | -27174-06-03 11:45 J | -8203727.15 | -8203727.01 | -8203726.86 | 0.1806 | 0.0763 |
| Mercury | -27173-06-27 05:02 J | -8203337.36 | -8203337.29 | -8203337.22 | 0.1731 | 0.1421 |
| Mercury | -27166-12-13 06:28 J | -8200612.29 | -8200612.23 | -8200612.16 | 0.1705 | 0.1390 |
| Mercury | -27164-11-17 14:38 J | -8199906.99 | -8199906.89 | -8199906.79 | 0.1725 | 0.0844 |
| Mercury | -27154-04-10 00:14 J | -8196476.60 | -8196476.49 | -8196476.37 | 0.1720 | 0.0287 |
| Mercury | -27153-02-20 15:35 J | -8196159.94 | -8196159.85 | -8196159.76 | 0.1793 | 0.1462 |
| Venus | -27149-12-27 16:19 J | -8194387.99 | -8194387.82 | -8194387.66 | 0.1753 | 0.0280 |
| Mercury | -27145-08-30 10:19 J | -8193046.19 | -8193046.07 | -8193045.96 | 0.1715 | 0.0274 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -27144-07-12 14:09 J | -8192730.07 | -8192729.91 | -8192729.76 | 0.1799 | 0.0422 |
| Venus | -27144-08-10 03:07 J | -8192701.55 | -8192701.37 | -8192701.19 | 0.1764 | 0.0063 |
| Moon | -27143-03-25 20:23 J | -8192473.74 | -8192473.65 | -8192473.55 | 0.1631 | 0.1388 |
| Earth | -27143-03-26 03:07 J | -8192473.46 | -8192473.37 | -8192473.28 | 0.1631 | 0.1414 |
| Mercury | -27135-01-20 20:09 J | -8189615.76 | -8189615.66 | -8189615.55 | 0.1710 | 0.0810 |
| Mercury | -27135-12-02 12:28 J | -8189300.13 | -8189299.98 | -8189299.83 | 0.1806 | 0.0647 |
| Mercury | -27134-12-27 05:02 J | -8188910.35 | -8188910.29 | -8188910.23 | 0.1731 | 0.1490 |
| Mercury | -27126-06-13 06:28 J | -8186185.30 | -8186185.23 | -8186185.16 | 0.1705 | 0.1325 |
| Mercury | -27125-04-23 10:19 J | -8185870.10 | -8185870.07 | -8185870.04 | 0.1812 | 0.1765 |
| Mercury | -27124-05-18 14:38 J | -8185479.99 | -8185479.89 | -8185479.79 | 0.1725 | 0.0909 |
| Venus | -27117-12-26 18:28 J | -8182700.86 | -8182700.73 | -8182700.59 | 0.1763 | 0.1049 |
| Mercury | -27115-10-09 00:28 J | -8182049.60 | -8182049.48 | -8182049.37 | 0.1720 | 0.0352 |
| Venus | -27115-10-26 01:40 J | -8182032.46 | -8182032.43 | -8182032.40 | 0.1740 | 0.1697 |
| Mercury | -27114-08-21 16:04 J | -8181732.91 | -8181732.83 | -8181732.76 | 0.1793 | 0.1564 |
| Venus | -27112-08-09 15:21 J | -8181013.94 | -8181013.86 | -8181013.79 | 0.1753 | 0.1569 |
| Venus | -27110-06-07 20:23 J | -8180346.69 | -8180346.65 | -8180346.61 | 0.1778 | 0.1728 |
| Mercury | -27105-02-29 10:19 J | -8178619.19 | -8178619.07 | -8178618.96 | 0.1715 | 0.0210 |
| Mercury | -27104-01-10 14:52 J | -8178303.03 | -8178302.88 | -8178302.73 | 0.1799 | 0.0540 |
| Mercury | -27096-07-21 20:23 J | -8175188.76 | -8175188.65 | -8175188.55 | 0.1710 | 0.0741 |
| Mercury | -27095-06-02 13:11 J | -8174873.11 | -8174872.95 | -8174872.80 | 0.1806 | 0.0539 |
| Mercury | -27094-06-27 05:02 J | -8174483.34 | -8174483.29 | -8174483.24 | 0.1731 | 0.1562 |
| Mercury | -27087-12-12 06:28 J | -8171758.31 | -8171758.23 | -8171758.15 | 0.1705 | 0.1261 |
| Mercury | -27086-10-23 10:33 J | -8171443.12 | -8171443.06 | -8171443.00 | 0.1812 | 0.1667 |
| Mercury | -27085-11-16 14:38 J | -8171052.99 | -8171052.89 | -8171052.79 | 0.1725 | 0.0978 |
| Venus | -27083-10-25 02:09 J | -8170345.57 | -8170345.41 | -8170345.24 | 0.1749 | 0.0443 |
| Venus | -27078-06-07 09:50 J | -8168659.27 | -8168659.09 | -8168658.91 | 0.1767 | 0.0154 |
| Mercury | -27075-04-09 00:14 J | -8167622.60 | -8167622.49 | -8167622.37 | 0.1720 | 0.0418 |
| Mercury | -27074-02-19 16:33 J | -8167305.86 | -8167305.81 | -8167305.75 | 0.1793 | 0.1672 |
| Earth | -27073-09-19 07:26 J | -8166728.27 | -8166728.19 | -8166728.10 | 0.1891 | 0.1710 |
| Mercury | -27066-08-30 10:19 J | -8164192.19 | -8164192.07 | -8164191.96 | 0.1715 | 0.0154 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -27065-07-11 15:35 J | -8163876.00 | -8163875.85 | -8163875.70 | 0.1799 | 0.0657 |
| Mercury | -27056-01-19 20:23 J | -8160761.76 | -8160761.65 | -8160761.55 | 0.1710 | 0.0675 |
| Mercury | -27056-12-01 13:40 J | -8160446.09 | -8160445.93 | -8160445.77 | 0.1806 | 0.0426 |
| Mercury | -27055-12-26 05:02 J | -8160056.33 | -8160056.29 | -8160056.25 | 0.1731 | 0.1629 |
| Venus | -27051-10-24 03:50 J | -8158658.48 | -8158658.34 | -8158658.19 | 0.1759 | 0.0863 |
| Mercury | -27047-06-12 06:28 J | -8157331.31 | -8157331.23 | -8157331.15 | 0.1705 | 0.1195 |
| Mercury | -27046-04-23 11:31 J | -8157016.10 | -8157016.02 | -8157015.94 | 0.1812 | 0.1541 |
| Venus | -27046-06-06 21:50 J | -8156971.70 | -8156971.59 | -8156971.48 | 0.1757 | 0.1358 |
| Mercury | -27045-05-17 14:38 J | -8156625.98 | -8156625.89 | -8156625.79 | 0.1725 | 0.1051 |
| Mercury | -27036-10-08 00:14 J | -8153195.60 | -8153195.49 | -8153195.37 | 0.1720 | 0.0486 |
| Mercury | -27035-08-20 17:16 J | -8152878.80 | -8152878.78 | -8152878.77 | 0.1793 | 0.1778 |
| Mercury | -27026-02-28 10:19 J | -8149765.19 | -8149765.07 | -8149764.95 | 0.1715 | 0.0080 |
| Mercury | -27025-01-10 16:04 J | -8149448.98 | -8149448.83 | -8149448.69 | 0.1800 | 0.0754 |
| Earth | -27017-03-22 07:55 J | -8146455.34 | -8146455.17 | -8146455.01 | 0.1628 | 0.0723 |
| Moon | -27017-03-22 11:31 J | -8146455.21 | -8146455.02 | -8146454.84 | 0.1629 | 0.0521 * |
| Mercury | -27017-07-20 20:09 J | -8146334.77 | -8146334.66 | -8146334.55 | 0.1710 | 0.0612 |
| Venus | -27017-08-21 11:31 J | -8146303.18 | -8146303.02 | -8146302.86 | 0.1746 | 0.0613 |
| Mercury | -27016-06-01 14:23 J | -8146019.05 | -8146018.90 | -8146018.74 | 0.1806 | 0.0311 |
| Mercury | -27015-06-26 05:02 J | -8145629.30 | -8145629.29 | -8145629.27 | 0.1730 | 0.1701 |
| Venus | -27012-04-03 16:04 J | -8144617.00 | -8144616.83 | -8144616.65 | 0.1771 | 0.0379 |
| Mercury | -27008-12-11 06:28 J | -8142904.32 | -8142904.23 | -8142904.14 | 0.1705 | 0.1131 |
| Mercury | -27007-10-22 12:14 J | -8142589.09 | -8142588.99 | -8142588.90 | 0.1812 | 0.1427 |
| Mercury | -27006-11-16 14:38 J | -8142198.98 | -8142198.89 | -8142198.80 | 0.1725 | 0.1113 |

27TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 27th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|---|-------------|-------------|-------------|--------|--------|---|
| Mercury | -26998-05-03 16:47 J | | -8139473.83 | -8139473.80 | -8139473.77 | 0.1700 | 0.1637 | |
| Mercury | -26996-04-08 00:28 J | | -8138768.59 | -8138768.48 | -8138768.37 | 0.1720 | 0.0553 | |
| Mercury | -26987-08-29 10:19 J | | -8135338.19 | -8135338.07 | -8135337.95 | 0.1715 | 0.0047 | |
| Mercury | -26986-07-11 16:47 J | | -8135021.94 | -8135021.80 | -8135021.66 | 0.1799 | 0.0867 | |
| Venus | -26985-08-20 13:26 J | | -8134616.10 | -8134615.94 | -8134615.79 | 0.1756 | 0.0686 | |
| Venus | -26980-04-03 05:02 J | | -8132929.43 | -8132929.29 | -8132929.16 | 0.1760 | 0.1157 | |
| Mercury | -26977-01-19 20:09 J | | -8131907.77 | -8131907.66 | -8131907.54 | 0.1710 | 0.0546 | |
| Mercury | -26977-11-30 14:52 J | | -8131592.04 | -8131591.88 | -8131591.72 | 0.1806 | 0.0206 | |
| Mercury | -26968-06-11 06:28 J | | -8128477.32 | -8128477.23 | -8128477.14 | 0.1705 | 0.1064 | |
| Mercury | -26967-04-22 12:43 J | | -8128162.08 | -8128161.97 | -8128161.86 | 0.1812 | 0.1316 | |
| Mercury | -26966-05-17 14:38 J | | -8127771.97 | -8127771.89 | -8127771.80 | 0.1725 | 0.1188 | |
| Mercury | -26959-11-01 16:47 J | | -8125046.84 | -8125046.80 | -8125046.76 | 0.1700 | 0.1579 | |
| Mercury | -26957-10-07 00:14 J | | -8124341.60 | -8124341.49 | -8124341.37 | 0.1720 | 0.0619 | |
| Venus | -26951-06-18 21:50 J | | -8122260.74 | -8122260.59 | -8122260.44 | 0.1743 | 0.0766 | |
| Mercury | -26947-02-27 10:19 J | | -8120911.19 | -8120911.07 | -8120910.96 | 0.1715 | 0.0090 | |
| Mercury | -26946-01-09 17:31 J | | -8120594.90 | -8120594.77 | -8120594.64 | 0.1799 | 0.0985 | |
| Venus | -26946-01-29 22:19 J | | -8120574.73 | -8120574.57 | -8120574.40 | 0.1774 | 0.0604 | |
| Earth | -26938-03-25 09:07 J | | -8117598.30 | -8117598.12 | -8117597.95 | 0.1629 | 0.0527 | |
| Moon | -26938-03-25 14:52 J | | -8117598.06 | -8117597.88 | -8117597.71 | 0.1629 | 0.0482 | * |
| Mercury | -26938-07-20 20:23 J | | -8117480.77 | -8117480.65 | -8117480.54 | 0.1710 | 0.0476 | |
| Mercury | -26937-05-31 15:35 J | | -8117165.01 | -8117164.85 | -8117164.69 | 0.1806 | 0.0093 | |
| Mercury | -26929-12-10 06:28 J | | -8114050.33 | -8114050.23 | -8114050.14 | 0.1705 | 0.1000 | |
| Mercury | -26928-10-21 13:26 J | | -8113735.06 | -8113734.94 | -8113734.82 | 0.1812 | 0.1199 | |
| Mercury | -26927-11-15 14:38 J | | -8113344.97 | -8113344.89 | -8113344.81 | 0.1725 | 0.1257 | |
| Mercury | -26919-05-02 16:47 J | | -8110619.85 | -8110619.80 | -8110619.75 | 0.1700 | 0.1510 | |
| Venus | -26919-06-17 23:02 J | | -8110573.71 | -8110573.54 | -8110573.38 | 0.1753 | 0.0510 | |

Mercury -26917-04-07 00:28 J -8109914.59 -8109914.48 -8109914.37 0.1720 0.0687
 Venus -26914-01-29 11:02 J -8108887.19 -8108887.04 -8108886.89 0.1764 0.0934
 Mercury -26908-08-28 10:19 J -8106484.19 -8106484.07 -8106483.95 0.1715 0.0138
 Mercury -26907-07-10 17:45 J -8106167.88 -8106167.76 -8106167.63 0.1800 0.1079
 Mercury -26898-01-18 20:09 J -8103053.77 -8103053.66 -8103053.54 0.1710 0.0414
 Mercury -26898-11-30 16:19 J -8102737.98 -8102737.82 -8102737.65 0.1806 0.0058
 Mercury -26889-06-10 06:28 J -8099623.33 -8099623.23 -8099623.13 0.1705 0.0934
 Mercury -26888-04-21 14:09 J -8099308.04 -8099307.91 -8099307.78 0.1812 0.1079
 Mercury -26887-05-16 14:38 J -8098917.96 -8098917.89 -8098917.81 0.1725 0.1321
 Venus -26885-04-15 07:40 J -8098218.32 -8098218.18 -8098218.03 0.1740 0.0922
 Venus -26881-11-26 04:04 J -8096532.49 -8096532.33 -8096532.17 0.1778 0.0842
 Mercury -26880-10-31 16:47 J -8096192.86 -8096192.80 -8096192.74 0.1700 0.1446
 Mercury -26878-10-07 00:28 J -8095487.59 -8095487.48 -8095487.37 0.1720 0.0755
 Mercury -26868-02-26 10:19 J -8092057.19 -8092057.07 -8092056.95 0.1715 0.0202
 Mercury -26867-01-08 18:28 J -8091740.84 -8091740.73 -8091740.61 0.1799 0.1198
 Mercury -26859-07-19 20:23 J -8088626.77 -8088626.65 -8088626.54 0.1710 0.0348
 Mercury -26858-05-31 16:47 J -8088310.96 -8088310.80 -8088310.63 0.1806 0.0144
 Venus -26853-04-14 08:38 J -8086531.30 -8086531.14 -8086530.97 0.1750 0.0339
 Mercury -26850-12-10 06:28 J -8085196.33 -8085196.23 -8085196.13 0.1705 0.0871
 Mercury -26849-10-20 14:38 J -8084881.03 -8084880.89 -8084880.75 0.1812 0.0977
 Venus -26849-11-25 17:16 J -8084844.94 -8084844.78 -8084844.62 0.1767 0.0713
 Mercury -26848-11-14 14:38 J -8084490.95 -8084490.89 -8084490.82 0.1725 0.1393
 Mercury -26840-05-01 16:33 J -8081765.87 -8081765.81 -8081765.74 0.1700 0.1386
 Mercury -26838-04-07 00:28 J -8081060.59 -8081060.48 -8081060.38 0.1720 0.0822
 Mercury -26829-08-27 10:19 J -8077630.19 -8077630.07 -8077629.96 0.1715 0.0268
 Mercury -26828-07-09 19:11 J -8077313.80 -8077313.70 -8077313.59 0.1799 0.1310
 Venus -26821-04-13 10:19 J -8074844.13 -8074844.07 -8074844.01 0.1759 0.1638
 Mercury -26819-01-17 20:23 J -8074199.77 -8074199.65 -8074199.54 0.1710 0.0283
 Venus -26819-02-10 17:45 J -8074175.89 -8074175.76 -8074175.63 0.1737 0.1076
 Mercury -26819-11-29 17:31 J -8073883.93 -8073883.77 -8073883.61 0.1806 0.0246

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Venus | -26815-09-23 10:33 J | -8072490.20 | -8072490.06 | -8072489.92 | 0.1781 | 0.1066 |
| Earth | -26812-03-21 14:23 J | -8071579.94 | -8071579.90 | -8071579.85 | 0.1627 | 0.1574 |
| Mercury | -26810-06-10 06:28 J | -8070769.34 | -8070769.23 | -8070769.13 | 0.1705 | 0.0803 |
| Mercury | -26809-04-20 15:21 J | -8070454.00 | -8070453.86 | -8070453.71 | 0.1812 | 0.0855 |
| Mercury | -26808-05-15 14:52 J | -8070063.94 | -8070063.88 | -8070063.82 | 0.1725 | 0.1465 |
| Mercury | -26801-10-30 16:47 J | -8067338.88 | -8067338.80 | -8067338.73 | 0.1700 | 0.1317 |
| Mercury | -26799-10-06 00:28 J | -8066633.58 | -8066633.48 | -8066633.38 | 0.1720 | 0.0891 |
| Mercury | -26789-02-26 10:19 J | -8063203.19 | -8063203.07 | -8063202.96 | 0.1715 | 0.0334 |
| Mercury | -26788-01-07 19:40 J | -8062886.78 | -8062886.68 | -8062886.58 | 0.1800 | 0.1407 |
| Venus | -26787-02-09 17:59 J | -8062488.92 | -8062488.75 | -8062488.58 | 0.1746 | 0.0165 |
| Venus | -26783-09-22 23:45 J | -8060802.68 | -8060802.51 | -8060802.34 | 0.1771 | 0.0495 |
| Mercury | -26780-07-18 20:09 J | -8059772.78 | -8059772.66 | -8059772.54 | 0.1710 | 0.0216 |
| Mercury | -26779-05-30 18:28 J | -8059456.89 | -8059456.73 | -8059456.58 | 0.1806 | 0.0371 |
| Mercury | -26771-12-09 06:28 J | -8056342.34 | -8056342.23 | -8056342.13 | 0.1705 | 0.0737 |
| Mercury | -26770-10-20 16:04 J | -8056026.98 | -8056026.83 | -8056026.68 | 0.1812 | 0.0740 |
| Mercury | -26769-11-13 14:38 J | -8055636.94 | -8055636.89 | -8055636.83 | 0.1725 | 0.1529 |
| Mercury | -26761-04-30 16:47 J | -8052911.88 | -8052911.80 | -8052911.72 | 0.1700 | 0.1251 |
| Mercury | -26759-04-06 00:28 J | -8052206.58 | -8052206.48 | -8052206.38 | 0.1720 | 0.0961 |
| Venus | -26755-02-08 19:11 J | -8050801.79 | -8050801.70 | -8050801.61 | 0.1756 | 0.1449 |
| Venus | -26754-12-09 03:50 J | -8050133.46 | -8050133.34 | -8050133.22 | 0.1734 | 0.1226 |
| Mercury | -26750-08-27 10:19 J | -8048776.19 | -8048776.07 | -8048775.96 | 0.1715 | 0.0401 |
| Mercury | -26749-07-08 20:23 J | -8048459.73 | -8048459.65 | -8048459.57 | 0.1799 | 0.1520 |
| Venus | -26749-07-20 15:50 J | -8048447.96 | -8048447.84 | -8048447.72 | 0.1785 | 0.1314 |
| Mercury | -26740-01-16 20:09 J | -8045345.77 | -8045345.66 | -8045345.54 | 0.1710 | 0.0157 |
| Mercury | -26740-11-28 18:43 J | -8045029.87 | -8045029.72 | -8045029.56 | 0.1806 | 0.0468 |
| Moon | -26733-03-23 09:35 J | -8042723.29 | -8042723.10 | -8042722.91 | 0.1628 | 0.0249 |
| Earth | -26733-03-23 15:07 J | -8042723.05 | -8042722.87 | -8042722.68 | 0.1628 | 0.0348 * |
| Mercury | -26731-06-09 06:28 J | -8041915.34 | -8041915.23 | -8041915.12 | 0.1705 | 0.0672 |
| Mercury | -26730-04-20 16:47 J | -8041599.95 | -8041599.80 | -8041599.65 | 0.1812 | 0.0629 |
| Mercury | -26729-05-14 14:52 J | -8041209.92 | -8041209.88 | -8041209.84 | 0.1725 | 0.1602 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -26722-10-30 16:33 J | -8038484.89 | -8038484.81 | -8038484.72 | 0.1700 | 0.1192 |
| Venus | -26722-12-08 03:50 J | -8038446.51 | -8038446.34 | -8038446.17 | 0.1743 | 0.0021 |
| Mercury | -26721-09-09 14:09 J | -8038169.94 | -8038169.91 | -8038169.87 | 0.1818 | 0.1762 |
| Mercury | -26720-10-05 00:28 J | -8037779.58 | -8037779.48 | -8037779.39 | 0.1720 | 0.1024 |
| Venus | -26717-07-20 05:45 J | -8036760.44 | -8036760.26 | -8036760.09 | 0.1774 | 0.0268 |
| Mercury | -26712-03-22 03:07 J | -8035054.37 | -8035054.37 | -8035054.36 | 0.1696 | 0.1688 |
| Mercury | -26710-02-25 10:19 J | -8034349.19 | -8034349.07 | -8034348.96 | 0.1715 | 0.0468 |
| Earth | -26710-09-22 22:04 J | -8034139.78 | -8034139.58 | -8034139.38 | 0.1891 | 0.0316 |
| Moon | -26710-09-22 23:59 J | -8034139.68 | -8034139.50 | -8034139.31 | 0.1891 | 0.0448 * |
| Mercury | -26709-01-07 21:07 J | -8034032.68 | -8034032.62 | -8034032.56 | 0.1799 | 0.1635 |
| Mercury | -26701-07-17 20:23 J | -8030918.77 | -8030918.65 | -8030918.53 | 0.1710 | 0.0080 |
| Mercury | -26700-05-29 19:26 J | -8030602.84 | -8030602.69 | -8030602.53 | 0.1806 | 0.0586 |
| Mercury | -26692-12-08 06:28 J | -8027488.34 | -8027488.23 | -8027488.12 | 0.1705 | 0.0608 |
| Mercury | -26691-10-19 17:16 J | -8027172.93 | -8027172.78 | -8027172.62 | 0.1812 | 0.0517 |
| Mercury | -26690-11-13 14:52 J | -8026782.91 | -8026782.88 | -8026782.85 | 0.1725 | 0.1671 |
| Venus | -26690-12-07 05:16 J | -8026759.39 | -8026759.28 | -8026759.17 | 0.1753 | 0.1281 |
| Venus | -26688-10-05 14:23 J | -8026091.00 | -8026090.90 | -8026090.80 | 0.1731 | 0.1370 |
| Venus | -26683-05-17 21:35 J | -8024405.69 | -8024405.60 | -8024405.52 | 0.1789 | 0.1554 |
| Mercury | -26682-04-30 16:47 J | -8024057.89 | -8024057.80 | -8024057.72 | 0.1700 | 0.1123 |
| Mercury | -26681-03-10 14:38 J | -8023742.95 | -8023742.89 | -8023742.82 | 0.1818 | 0.1657 |
| Mercury | -26680-04-05 00:28 J | -8023352.57 | -8023352.48 | -8023352.39 | 0.1720 | 0.1095 |
| Mercury | -26673-09-20 03:07 J | -8020627.40 | -8020627.37 | -8020627.34 | 0.1695 | 0.1628 |
| Mercury | -26671-08-26 10:19 J | -8019922.18 | -8019922.07 | -8019921.96 | 0.1715 | 0.0537 |
| Mercury | -26670-07-08 21:35 J | -8019605.64 | -8019605.60 | -8019605.56 | 0.1800 | 0.1733 |
| Mercury | -26661-01-16 20:09 J | -8016491.78 | -8016491.66 | -8016491.54 | 0.1709 | 0.0033 |
| Mercury | -26661-11-27 20:09 J | -8016175.80 | -8016175.66 | -8016175.51 | 0.1806 | 0.0703 |
| Venus | -26656-10-04 13:55 J | -8014404.09 | -8014403.92 | -8014403.75 | 0.1740 | 0.0159 |
| Earth | -26654-03-26 16:33 J | -8013865.97 | -8013865.81 | -8013865.66 | 0.1628 | 0.0899 |
| Moon | -26654-03-26 17:02 J | -8013865.97 | -8013865.79 | -8013865.62 | 0.1628 | 0.0808 * |
| Mercury | -26652-06-08 06:28 J | -8013061.34 | -8013061.23 | -8013061.12 | 0.1705 | 0.0539 |

Mercury -26651-04-19 18:14 J -8012745.90 -8012745.74 -8012745.59 0.1812 0.0398

Venus -26651-05-17 12:14 J -8012718.17 -8012717.99 -8012717.81 0.1778 0.0054

Mercury -26643-10-29 16:33 J -8009630.90 -8009630.81 -8009630.71 0.1700 0.1059

Mercury -26642-09-09 15:21 J -8009315.94 -8009315.86 -8009315.77 0.1818 0.1538

Mercury -26641-10-04 00:28 J -8008925.56 -8008925.48 -8008925.39 0.1720 0.1167

Mercury -26633-03-21 03:07 J -8006200.41 -8006200.37 -8006200.33 0.1695 0.1561

Mercury -26631-02-24 10:19 J -8005495.18 -8005495.07 -8005494.96 0.1715 0.0604

Venus -26624-10-03 14:52 J -8002717.01 -8002716.88 -8002716.75 0.1750 0.1107

Mercury -26622-07-17 20:23 J -8002064.77 -8002064.65 -8002064.53 0.1710 0.0078

Venus -26622-08-03 00:28 J -8002048.56 -8002048.48 -8002048.40 0.1728 0.1514

Mercury -26621-05-28 20:38 J -8001748.78 -8001748.64 -8001748.49 0.1806 0.0803

Venus -26619-05-17 01:26 J -8001030.52 -8001030.44 -8001030.36 0.1767 0.1577

Mercury -26613-12-07 06:28 J -7998634.35 -7998634.23 -7998634.12 0.1705 0.0479

Mercury -26612-10-18 18:43 J -7998318.88 -7998318.72 -7998318.56 0.1812 0.0293

Mercury -26603-04-29 16:33 J -7995203.90 -7995203.81 -7995203.71 0.1700 0.0995

Mercury -26602-03-10 16:19 J -7994888.92 -7994888.82 -7994888.72 0.1818 0.1407

Mercury -26601-04-04 00:28 J -7994498.56 -7994498.48 -7994498.40 0.1719 0.1231

Mercury -26594-09-20 03:07 J -7991773.42 -7991773.37 -7991773.32 0.1695 0.1496

Mercury -26592-08-25 10:19 J -7991068.18 -7991068.07 -7991067.96 0.1715 0.0671

Venus -26590-08-01 23:45 J -7990361.68 -7990361.51 -7990361.34 0.1737 0.0315

Venus -26585-03-13 17:59 J -7988675.93 -7988675.75 -7988675.57 0.1781 0.0190

Mercury -26582-01-15 20:23 J -7987637.77 -7987637.65 -7987637.53 0.1710 0.0134

Mercury -26582-11-27 21:21 J -7987321.75 -7987321.61 -7987321.47 0.1806 0.0914

Mercury -26573-06-07 06:28 J -7984207.35 -7984207.23 -7984207.12 0.1705 0.0408

Mercury -26572-04-18 19:26 J -7983891.85 -7983891.69 -7983891.53 0.1812 0.0168

Mercury -26564-10-28 16:33 J -7980776.90 -7980776.81 -7980776.71 0.1700 0.0930

Mercury -26563-09-08 16:33 J -7980461.92 -7980461.81 -7980461.69 0.1818 0.1313

Mercury -26562-10-04 00:28 J -7980071.56 -7980071.48 -7980071.40 0.1720 0.1301

Venus -26558-08-01 00:43 J -7978674.61 -7978674.47 -7978674.33 0.1747 0.0941

Venus -26556-05-30 11:02 J -7978006.09 -7978006.04 -7978006.00 0.1725 0.1655

Mercury -26554-03-21 03:07 J -7977346.43 -7977346.37 -7977346.31 0.1695 0.1437

Venus -26553-03-13 08:09 J -7976988.27 -7976988.16 -7976988.05 0.1771 0.1369

Mercury -26552-02-23 10:19 J -7976641.18 -7976641.07 -7976640.96 0.1714 0.0738

Mercury -26543-07-16 20:09 J -7973210.77 -7973210.66 -7973210.54 0.1709 0.0196

Mercury -26542-05-28 22:19 J -7972894.70 -7972894.57 -7972894.44 0.1806 0.1038

Mercury -26534-12-07 06:28 J -7969780.35 -7969780.23 -7969780.12 0.1705 0.0341

Mercury -26533-10-17 19:55 J -7969464.83 -7969464.67 -7969464.50 0.1812 0.0075

Earth -26528-03-22 22:04 J -7967847.71 -7967847.58 -7967847.46 0.1627 0.1194

Moon -26528-03-23 03:21 J -7967847.46 -7967847.36 -7967847.25 0.1627 0.1313 *

Mercury -26524-04-28 16:33 J -7966349.91 -7966349.81 -7966349.70 0.1700 0.0864

Venus -26524-05-29 10:19 J -7966319.23 -7966319.07 -7966318.91 0.1734 0.0460

Mercury -26523-03-09 17:31 J -7966034.89 -7966034.77 -7966034.65 0.1818 0.1185

Mercury -26522-04-04 00:28 J -7965644.55 -7965644.48 -7965644.40 0.1720 0.1373

Venus -26519-01-08 23:59 J -7964633.68 -7964633.50 -7964633.33 0.1784 0.0422

Mercury -26515-09-19 03:07 J -7962919.44 -7962919.37 -7962919.31 0.1695 0.1370

Mercury -26513-08-24 10:19 J -7962214.17 -7962214.07 -7962213.96 0.1714 0.0808

Mercury -26503-01-14 20:23 J -7958783.77 -7958783.65 -7958783.54 0.1709 0.0262

Mercury -26503-11-26 22:33 J -7958467.68 -7958467.56 -7958467.44 0.1806 0.1132

Mercury -26494-06-07 06:28 J -7955353.35 -7955353.23 -7955353.12 0.1704 0.0281

Mercury -26493-04-17 20:38 J -7955037.80 -7955037.64 -7955037.48 0.1812 0.0060

Venus -26492-05-28 10:33 J -7954632.21 -7954632.06 -7954631.91 0.1743 0.0773

Venus -26487-01-08 13:40 J -7952946.06 -7952945.93 -7952945.79 0.1774 0.1140

Mercury -26485-10-27 16:33 J -7951922.91 -7951922.81 -7951922.70 0.1700 0.0801

Mercury -26484-09-07 18:14 J -7951607.87 -7951607.74 -7951607.61 0.1818 0.1066

Mercury -26483-10-03 00:28 J -7951217.54 -7951217.48 -7951217.42 0.1719 0.1435

Mercury -26475-03-20 03:07 J -7948492.44 -7948492.37 -7948492.30 0.1695 0.1303

Mercury -26473-02-23 10:19 J -7947787.17 -7947787.07 -7947786.97 0.1715 0.0875

Mercury -26464-07-15 20:23 J -7944356.77 -7944356.65 -7944356.54 0.1710 0.0329

Mercury -26463-05-27 23:16 J -7944040.64 -7944040.53 -7944040.41 0.1806 0.1249

Venus -26458-03-26 20:23 J -7942276.80 -7942276.65 -7942276.49 0.1731 0.0612

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -26455-12-06 06:28 J | -7940926.35 | -7940926.23 | -7940926.12 | 0.1705 | 0.0215 |
| Mercury | -26454-10-17 21:21 J | -7940610.77 | -7940610.61 | -7940610.45 | 0.1812 | 0.0169 |
| Venus | -26454-11-06 05:16 J | -7940591.45 | -7940591.28 | -7940591.11 | 0.1788 | 0.0661 |
| Moon | -26449-03-24 21:21 J | -7938990.79 | -7938990.61 | -7938990.44 | 0.1627 | 0.0140 |
| Earth | -26449-03-24 22:33 J | -7938990.74 | -7938990.56 | -7938990.37 | 0.1627 | 0.0044 * |
| Mercury | -26445-04-27 16:47 J | -7937495.91 | -7937495.80 | -7937495.70 | 0.1700 | 0.0733 |
| Mercury | -26444-03-08 18:43 J | -7937180.85 | -7937180.72 | -7937180.58 | 0.1818 | 0.0960 |
| Mercury | -26443-04-03 00:28 J | -7936790.53 | -7936790.48 | -7936790.42 | 0.1720 | 0.1509 |
| Mercury | -26436-09-18 02:52 J | -7934065.45 | -7934065.38 | -7934065.30 | 0.1695 | 0.1245 |
| Mercury | -26434-08-24 10:19 J | -7933360.17 | -7933360.07 | -7933359.97 | 0.1714 | 0.0944 |
| Venus | -26426-03-25 20:23 J | -7930589.80 | -7930589.65 | -7930589.49 | 0.1740 | 0.0611 |
| Earth | -26426-09-21 18:28 J | -7930409.87 | -7930409.73 | -7930409.58 | 0.1892 | 0.1308 |
| Moon | -26426-09-22 02:23 J | -7930409.57 | -7930409.40 | -7930409.22 | 0.1892 | 0.1158 |
| Mercury | -26424-01-13 20:09 J | -7929929.77 | -7929929.66 | -7929929.54 | 0.1709 | 0.0391 |
| Mercury | -26424-11-25 23:59 J | -7929613.60 | -7929613.50 | -7929613.39 | 0.1806 | 0.1365 |
| Venus | -26422-11-05 19:40 J | -7928903.83 | -7928903.68 | -7928903.52 | 0.1778 | 0.0916 |
| Mercury | -26415-06-06 06:28 J | -7926499.35 | -7926499.23 | -7926499.11 | 0.1705 | 0.0143 |
| Mercury | -26414-04-17 22:04 J | -7926183.74 | -7926183.58 | -7926183.42 | 0.1812 | 0.0285 |
| Mercury | -26406-10-27 16:33 J | -7923068.91 | -7923068.81 | -7923068.70 | 0.1700 | 0.0669 |
| Mercury | -26405-09-06 19:26 J | -7922753.83 | -7922753.69 | -7922753.54 | 0.1818 | 0.0842 |
| Mercury | -26404-10-02 00:43 J | -7922363.52 | -7922363.47 | -7922363.43 | 0.1720 | 0.1579 |
| Mercury | -26396-03-19 03:07 J | -7919638.46 | -7919638.37 | -7919638.29 | 0.1695 | 0.1177 |
| Mercury | -26394-02-22 10:19 J | -7918933.16 | -7918933.07 | -7918932.97 | 0.1714 | 0.1010 |
| Venus | -26392-01-21 06:43 J | -7918234.37 | -7918234.22 | -7918234.07 | 0.1728 | 0.0757 |
| Venus | -26388-09-02 11:16 J | -7916549.18 | -7916549.03 | -7916548.87 | 0.1792 | 0.0893 |
| Mercury | -26387-08-09 13:26 J | -7916207.95 | -7916207.94 | -7916207.92 | 0.1691 | 0.1674 |
| Mercury | -26385-07-14 20:23 J | -7915502.77 | -7915502.65 | -7915502.54 | 0.1709 | 0.0461 |
| Mercury | -26384-05-27 00:28 J | -7915186.57 | -7915186.48 | -7915186.39 | 0.1806 | 0.1463 |
| Mercury | -26376-12-05 06:28 J | -7912072.35 | -7912072.23 | -7912072.12 | 0.1704 | 0.0095 |
| Mercury | -26375-10-16 22:33 J | -7911756.72 | -7911756.56 | -7911756.40 | 0.1812 | 0.0394 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Moon | -26370-03-27 17:45 J | -7910133.89 | -7910133.76 | -7910133.63 | 0.1628 | 0.1113 |
| Earth | -26370-03-27 23:59 J | -7910133.61 | -7910133.50 | -7910133.38 | 0.1628 | 0.1278 |
| Mercury | -26366-04-27 16:33 J | -7908641.92 | -7908641.81 | -7908641.70 | 0.1700 | 0.0604 |
| Mercury | -26365-03-07 20:23 J | -7908326.80 | -7908326.65 | -7908326.50 | 0.1818 | 0.0714 |
| Mercury | -26364-04-02 00:28 J | -7907936.51 | -7907936.48 | -7907936.44 | 0.1719 | 0.1641 |
| Venus | -26360-01-20 06:14 J | -7906547.41 | -7906547.24 | -7906547.08 | 0.1737 | 0.0446 |
| Mercury | -26357-09-17 03:07 J | -7905211.46 | -7905211.37 | -7905211.29 | 0.1695 | 0.1112 |
| Venus | -26356-09-02 01:55 J | -7904861.59 | -7904861.42 | -7904861.26 | 0.1781 | 0.0691 |
| Mercury | -26355-08-23 10:19 J | -7904506.16 | -7904506.07 | -7904505.97 | 0.1715 | 0.1081 |
| Mercury | -26347-02-07 13:26 J | -7901780.97 | -7901780.94 | -7901780.91 | 0.1691 | 0.1610 |
| Mercury | -26345-01-13 20:23 J | -7901075.77 | -7901075.65 | -7901075.54 | 0.1709 | 0.0528 |
| Mercury | -26345-11-25 01:11 J | -7900759.53 | -7900759.45 | -7900759.38 | 0.1806 | 0.1577 |
| Mercury | -26336-06-05 06:28 J | -7897645.35 | -7897645.23 | -7897645.11 | 0.1704 | 0.0027 |
| Mercury | -26335-04-16 23:16 J | -7897329.68 | -7897329.53 | -7897329.37 | 0.1812 | 0.0510 |
| Venus | -26328-01-19 06:28 J | -7894860.27 | -7894860.23 | -7894860.19 | 0.1746 | 0.1685 |
| Mercury | -26327-10-26 16:33 J | -7894214.92 | -7894214.81 | -7894214.69 | 0.1700 | 0.0538 |
| Venus | -26327-11-18 17:16 J | -7894191.92 | -7894191.78 | -7894191.63 | 0.1725 | 0.0898 |
| Mercury | -26326-09-06 20:38 J | -7893899.79 | -7893899.64 | -7893899.48 | 0.1818 | 0.0620 |
| Mercury | -26325-10-01 00:43 J | -7893509.48 | -7893509.47 | -7893509.47 | 0.1719 | 0.1713 |
| Venus | -26322-06-30 16:04 J | -7892506.96 | -7892506.83 | -7892506.69 | 0.1795 | 0.1148 |
| Mercury | -26317-03-18 02:52 J | -7890784.47 | -7890784.38 | -7890784.29 | 0.1695 | 0.1051 |
| Mercury | -26316-01-26 17:59 J | -7890469.78 | -7890469.75 | -7890469.71 | 0.1824 | 0.1764 |
| Mercury | -26315-02-21 10:19 J | -7890079.15 | -7890079.07 | -7890078.98 | 0.1714 | 0.1147 |
| Mercury | -26308-08-08 13:26 J | -7887353.98 | -7887353.94 | -7887353.89 | 0.1691 | 0.1545 |
| Mercury | -26306-07-14 20:23 J | -7886648.77 | -7886648.65 | -7886648.54 | 0.1709 | 0.0594 |
| Mercury | -26305-05-26 01:55 J | -7886332.47 | -7886332.42 | -7886332.37 | 0.1806 | 0.1698 |
| Mercury | -26297-12-04 06:28 J | -7883218.35 | -7883218.23 | -7883218.11 | 0.1705 | 0.0064 |
| Mercury | -26296-10-15 23:45 J | -7882902.66 | -7882902.51 | -7882902.35 | 0.1812 | 0.0620 |
| Venus | -26295-11-17 16:33 J | -7882504.98 | -7882504.81 | -7882504.65 | 0.1734 | 0.0292 |
| Venus | -26290-06-30 07:11 J | -7880819.37 | -7880819.20 | -7880819.02 | 0.1785 | 0.0454 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -26287-04-26 16:33 J | -7879787.92 | -7879787.81 | -7879787.69 | 0.1700 | 0.0473 |
| Mercury | -26286-03-07 21:35 J | -7879472.76 | -7879472.60 | -7879472.44 | 0.1818 | 0.0491 |
| Mercury | -26278-09-17 02:52 J | -7876357.47 | -7876357.38 | -7876357.28 | 0.1695 | 0.0985 |
| Mercury | -26277-07-27 18:28 J | -7876042.79 | -7876042.73 | -7876042.66 | 0.1824 | 0.1660 |
| Mercury | -26276-08-22 10:33 J | -7875652.15 | -7875652.06 | -7875651.98 | 0.1714 | 0.1217 |
| Mercury | -26268-02-06 13:26 J | -7872926.99 | -7872926.94 | -7872926.89 | 0.1690 | 0.1483 |
| Mercury | -26266-01-12 20:23 J | -7872221.76 | -7872221.65 | -7872221.54 | 0.1709 | 0.0661 |
| Mercury | -26266-11-25 02:09 J | -7871905.42 | -7871905.41 | -7871905.39 | 0.1806 | 0.1789 |
| Venus | -26263-11-16 16:47 J | -7870817.88 | -7870817.80 | -7870817.72 | 0.1743 | 0.1527 |
| Venus | -26261-09-15 03:50 J | -7870149.47 | -7870149.34 | -7870149.21 | 0.1722 | 0.1037 |
| Mercury | -26257-06-04 06:28 J | -7868791.35 | -7868791.23 | -7868791.12 | 0.1704 | 0.0130 |
| Mercury | -26256-04-16 00:43 J | -7868475.62 | -7868475.47 | -7868475.33 | 0.1812 | 0.0735 |
| Venus | -26256-04-26 21:35 J | -7868464.71 | -7868464.60 | -7868464.49 | 0.1799 | 0.1394 |
| Mercury | -26248-10-25 16:33 J | -7865360.92 | -7865360.81 | -7865360.69 | 0.1700 | 0.0407 |
| Mercury | -26247-09-05 22:19 J | -7865045.73 | -7865045.57 | -7865045.41 | 0.1818 | 0.0374 |
| Earth | -26244-03-24 05:45 J | -7864115.42 | -7864115.26 | -7864115.10 | 0.1626 | 0.0810 |
| Moon | -26244-03-24 09:07 J | -7864115.28 | -7864115.12 | -7864114.96 | 0.1626 | 0.0952 * |
| Mercury | -26238-03-18 03:07 J | -7861930.47 | -7861930.37 | -7861930.28 | 0.1695 | 0.0918 |
| Mercury | -26237-01-26 19:26 J | -7861615.78 | -7861615.69 | -7861615.61 | 0.1824 | 0.1537 |
| Mercury | -26236-02-20 10:33 J | -7861225.14 | -7861225.06 | -7861224.99 | 0.1714 | 0.1284 |
| Mercury | -26229-08-07 13:26 J | -7858500.00 | -7858499.94 | -7858499.88 | 0.1691 | 0.1419 |
| Venus | -26229-09-14 02:38 J | -7858462.56 | -7858462.39 | -7858462.22 | 0.1731 | 0.0140 |
| Mercury | -26227-07-13 20:23 J | -7857794.76 | -7857794.65 | -7857794.54 | 0.1709 | 0.0729 |
| Venus | -26224-04-26 13:26 J | -7856777.12 | -7856776.94 | -7856776.76 | 0.1788 | 0.0225 |
| Mercury | -26218-12-04 06:28 J | -7854364.35 | -7854364.23 | -7854364.12 | 0.1704 | 0.0193 |
| Mercury | -26217-10-15 01:11 J | -7854048.59 | -7854048.45 | -7854048.31 | 0.1812 | 0.0841 |
| Mercury | -26208-04-25 16:33 J | -7850933.92 | -7850933.81 | -7850933.69 | 0.1700 | 0.0345 |
| Mercury | -26207-03-06 22:47 J | -7850618.71 | -7850618.55 | -7850618.39 | 0.1818 | 0.0269 |
| Mercury | -26199-09-16 02:52 J | -7847503.48 | -7847503.38 | -7847503.28 | 0.1695 | 0.0858 |
| Mercury | -26198-07-27 20:09 J | -7847188.76 | -7847188.66 | -7847188.56 | 0.1824 | 0.1416 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -26197-08-21 10:33 J | -7846798.14 | -7846798.06 | -7846797.99 | 0.1714 | 0.1351 |
| Venus | -26197-09-13 02:23 J | -7846775.50 | -7846775.40 | -7846775.29 | 0.1740 | 0.1359 |
| Venus | -26195-07-13 14:23 J | -7846107.03 | -7846106.90 | -7846106.78 | 0.1719 | 0.1174 |
| Venus | -26190-02-22 02:23 J | -7844422.47 | -7844422.40 | -7844422.33 | 0.1802 | 0.1650 |
| Mercury | -26189-02-06 13:26 J | -7844073.01 | -7844072.94 | -7844072.87 | 0.1691 | 0.1356 |
| Mercury | -26187-01-11 20:09 J | -7843367.76 | -7843367.66 | -7843367.55 | 0.1709 | 0.0794 |
| Mercury | -26178-06-04 06:28 J | -7839937.35 | -7839937.23 | -7839937.11 | 0.1705 | 0.0257 |
| Mercury | -26177-04-15 01:55 J | -7839621.56 | -7839621.42 | -7839621.29 | 0.1812 | 0.0958 |
| Mercury | -26169-10-24 16:33 J | -7836506.92 | -7836506.81 | -7836506.69 | 0.1700 | 0.0276 |
| Mercury | -26168-09-04 23:31 J | -7836191.68 | -7836191.52 | -7836191.36 | 0.1818 | 0.0152 |
| Earth | -26165-03-26 05:59 J | -7835258.43 | -7835258.25 | -7835258.07 | 0.1627 | 0.0409 |
| Moon | -26165-03-26 12:43 J | -7835258.14 | -7835257.97 | -7835257.80 | 0.1627 | 0.0609 * |
| Venus | -26163-07-12 12:43 J | -7834420.14 | -7834419.97 | -7834419.80 | 0.1728 | 0.0025 |
| Mercury | -26159-03-17 02:52 J | -7833076.48 | -7833076.38 | -7833076.27 | 0.1695 | 0.0791 |
| Mercury | -26158-01-25 20:38 J | -7832761.75 | -7832761.64 | -7832761.53 | 0.1824 | 0.1307 |
| Venus | -26158-02-21 18:28 J | -7832734.90 | -7832734.73 | -7832734.55 | 0.1791 | 0.0048 |
| Mercury | -26157-02-20 10:33 J | -7832371.13 | -7832371.06 | -7832371.00 | 0.1714 | 0.1418 |
| Mercury | -26150-08-07 13:26 J | -7829646.02 | -7829645.94 | -7829645.87 | 0.1690 | 0.1292 |
| Mercury | -26148-07-12 20:23 J | -7828940.75 | -7828940.65 | -7828940.55 | 0.1709 | 0.0863 |
| Mercury | -26139-12-03 06:28 J | -7825510.35 | -7825510.23 | -7825510.12 | 0.1704 | 0.0323 |
| Mercury | -26138-10-15 02:23 J | -7825194.53 | -7825194.40 | -7825194.27 | 0.1812 | 0.1067 |
| Venus | -26131-07-11 12:57 J | -7822733.08 | -7822732.96 | -7822732.84 | 0.1737 | 0.1203 |
| Mercury | -26129-04-24 16:33 J | -7822079.92 | -7822079.81 | -7822079.69 | 0.1700 | 0.0212 |
| Venus | -26129-05-10 00:57 J | -7822064.57 | -7822064.46 | -7822064.35 | 0.1716 | 0.1307 |
| Mercury | -26128-03-06 00:14 J | -7821764.65 | -7821764.49 | -7821764.32 | 0.1818 | 0.0061 |
| Venus | -26126-02-21 10:04 J | -7821047.16 | -7821047.08 | -7821047.00 | 0.1781 | 0.1563 |
| Mercury | -26120-09-15 02:52 J | -7818649.48 | -7818649.38 | -7818649.27 | 0.1695 | 0.0725 |
| Mercury | -26119-07-26 21:21 J | -7818334.74 | -7818334.61 | -7818334.49 | 0.1824 | 0.1192 |
| Mercury | -26118-08-21 10:33 J | -7817944.12 | -7817944.06 | -7817944.00 | 0.1714 | 0.1488 |
| Mercury | -26110-02-05 13:26 J | -7815219.02 | -7815218.94 | -7815218.86 | 0.1690 | 0.1229 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -26108-01-10 20:23 J | -7814513.75 | -7814513.65 | -7814513.55 | 0.1709 | 0.0930 |
| Mercury | -26099-06-03 06:28 J | -7811083.35 | -7811083.23 | -7811083.12 | 0.1704 | 0.0388 |
| Mercury | -26098-04-15 03:07 J | -7810767.49 | -7810767.37 | -7810767.25 | 0.1812 | 0.1178 |
| Venus | -26097-05-08 23:31 J | -7810377.69 | -7810377.52 | -7810377.35 | 0.1725 | 0.0148 |
| Venus | -26093-12-19 00:14 J | -7808692.67 | -7808692.49 | -7808692.32 | 0.1795 | 0.0259 |
| Mercury | -26090-10-24 16:33 J | -7807652.93 | -7807652.81 | -7807652.69 | 0.1700 | 0.0148 |
| Mercury | -26089-09-04 00:43 J | -7807337.63 | -7807337.47 | -7807337.31 | 0.1818 | 0.0072 |
| Mercury | -26080-03-16 02:52 J | -7804222.49 | -7804222.38 | -7804222.27 | 0.1695 | 0.0663 |
| Mercury | -26079-01-24 22:19 J | -7803907.70 | -7803907.57 | -7803907.44 | 0.1824 | 0.1059 |
| Mercury | -26078-02-19 10:33 J | -7803517.11 | -7803517.06 | -7803517.01 | 0.1714 | 0.1553 |
| Mercury | -26071-08-06 13:26 J | -7800792.03 | -7800791.94 | -7800791.86 | 0.1691 | 0.1164 |
| Mercury | -26069-07-11 20:23 J | -7800086.75 | -7800086.65 | -7800086.56 | 0.1709 | 0.0994 |
| Venus | -26065-05-07 22:47 J | -7798690.68 | -7798690.55 | -7798690.41 | 0.1734 | 0.1044 |
| Venus | -26063-03-07 11:45 J | -7798022.10 | -7798022.01 | -7798021.92 | 0.1713 | 0.1438 |
| Earth | -26063-09-24 06:57 J | -7797821.40 | -7797821.21 | -7797821.01 | 0.1892 | 0.0637 |
| Moon | -26063-09-24 07:55 J | -7797821.38 | -7797821.17 | -7797820.97 | 0.1892 | 0.0893 * |
| Mercury | -26062-12-27 23:59 J | -7797361.52 | -7797361.50 | -7797361.48 | 0.1686 | 0.1656 |
| Venus | -26061-12-18 15:21 J | -7797004.98 | -7797004.86 | -7797004.74 | 0.1784 | 0.1325 |
| Mercury | -26060-12-02 06:28 J | -7796656.35 | -7796656.23 | -7796656.12 | 0.1704 | 0.0454 |
| Mercury | -26059-10-14 03:35 J | -7796340.46 | -7796340.35 | -7796340.24 | 0.1812 | 0.1285 |
| Mercury | -26050-04-24 16:33 J | -7793225.93 | -7793225.81 | -7793225.69 | 0.1700 | 0.0086 |
| Mercury | -26049-03-05 01:40 J | -7792910.59 | -7792910.43 | -7792910.27 | 0.1818 | 0.0197 |
| Mercury | -26041-09-14 02:52 J | -7789795.49 | -7789795.38 | -7789795.27 | 0.1695 | 0.0596 |
| Mercury | -26040-07-25 22:33 J | -7789480.70 | -7789480.56 | -7789480.42 | 0.1824 | 0.0963 |
| Moon | -26039-03-23 08:52 J | -7789240.18 | -7789240.13 | -7789240.07 | 0.1626 | 0.1531 |
| Mercury | -26039-08-20 10:33 J | -7789090.10 | -7789090.06 | -7789090.03 | 0.1714 | 0.1622 |
| Mercury | -26031-02-04 13:26 J | -7786365.03 | -7786364.94 | -7786364.86 | 0.1690 | 0.1104 |
| Venus | -26031-03-06 09:50 J | -7786335.26 | -7786335.09 | -7786334.93 | 0.1722 | 0.0297 |
| Mercury | -26029-01-10 20:23 J | -7785659.74 | -7785659.65 | -7785659.56 | 0.1709 | 0.1062 |
| Venus | -26027-10-16 05:02 J | -7784650.46 | -7784650.29 | -7784650.12 | 0.1798 | 0.0507 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -26022-06-27 23:59 J | -7782934.54 | -7782934.50 | -7782934.47 | 0.1686 | 0.1596 |
| Mercury | -26020-06-02 06:28 J | -7782229.35 | -7782229.23 | -7782229.12 | 0.1704 | 0.0520 |
| Mercury | -26019-04-14 04:33 J | -7781913.41 | -7781913.31 | -7781913.21 | 0.1812 | 0.1404 |
| Mercury | -26011-10-23 16:33 J | -7778798.93 | -7778798.81 | -7778798.69 | 0.1700 | 0.0031 |
| Mercury | -26010-09-04 02:09 J | -7778483.57 | -7778483.41 | -7778483.25 | 0.1818 | 0.0308 |
| Mercury | -26001-03-15 02:52 J | -7775368.49 | -7775368.38 | -7775368.27 | 0.1695 | 0.0530 |

26TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 26th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|-------------|-------------|-------------|--------|--------|-------|---|
| Mercury | -26000-01-23 23:16 J | -7775053.67 | -7775053.53 | -7775053.38 | 0.1824 | 0.0841 | | |
| Mercury | -25999-02-18 10:33 J | -7774663.08 | -7774663.06 | -7774663.04 | 0.1714 | 0.1689 | | |
| Venus | -25999-03-05 08:52 J | -7774648.27 | -7774648.13 | -7774647.98 | 0.1731 | 0.0886 | | |
| Venus | -25997-01-02 22:04 J | -7773979.64 | -7773979.58 | -7773979.52 | 0.1710 | 0.1571 | | |
| Venus | -25995-10-15 20:52 J | -7772962.77 | -7772962.63 | -7772962.49 | 0.1788 | 0.1093 | | |
| Mercury | -25992-08-05 13:26 J | -7771938.04 | -7771937.94 | -7771937.85 | 0.1690 | 0.1039 | | |
| Mercury | -25990-07-11 20:23 J | -7771232.74 | -7771232.65 | -7771232.56 | 0.1709 | 0.1131 | | |
| Mercury | -25983-12-26 23:59 J | -7768507.55 | -7768507.50 | -7768507.46 | 0.1686 | 0.1531 | | |
| Mercury | -25981-12-01 06:28 J | -7767802.34 | -7767802.23 | -7767802.12 | 0.1704 | 0.0586 | | |
| Mercury | -25980-10-13 04:47 J | -7767486.38 | -7767486.30 | -7767486.21 | 0.1812 | 0.1507 | | |
| Mercury | -25971-04-23 16:33 J | -7764371.93 | -7764371.81 | -7764371.69 | 0.1699 | 0.0062 | | |
| Mercury | -25970-03-05 02:38 J | -7764056.54 | -7764056.39 | -7764056.23 | 0.1818 | 0.0414 | | |
| Venus | -25965-01-01 20:23 J | -7762292.82 | -7762292.65 | -7762292.49 | 0.1719 | 0.0434 | | |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -25962-09-14 02:52 J | -7760941.50 | -7760941.38 | -7760941.27 | 0.1695 | 0.0473 |
| Mercury | -25961-07-25 00:14 J | -7760626.64 | -7760626.49 | -7760626.34 | 0.1824 | 0.0718 |
| Venus | -25961-08-12 10:33 J | -7760608.22 | -7760608.06 | -7760607.89 | 0.1802 | 0.0745 |
| Moon | -25960-03-25 06:57 J | -7760383.39 | -7760383.21 | -7760383.04 | 0.1626 | 0.0644 |
| Earth | -25960-03-25 12:57 J | -7760383.14 | -7760382.96 | -7760382.78 | 0.1626 | 0.0440 * |
| Mercury | -25952-02-03 13:26 J | -7757511.04 | -7757510.94 | -7757510.85 | 0.1691 | 0.0974 |
| Mercury | -25950-01-09 20:23 J | -7756805.74 | -7756805.65 | -7756805.57 | 0.1709 | 0.1195 |
| Mercury | -25943-06-26 23:59 J | -7754080.56 | -7754080.50 | -7754080.45 | 0.1686 | 0.1466 |
| Mercury | -25941-06-01 06:28 J | -7753375.34 | -7753375.23 | -7753375.12 | 0.1704 | 0.0654 |
| Mercury | -25940-04-13 05:31 J | -7753059.33 | -7753059.27 | -7753059.20 | 0.1812 | 0.1621 |
| Venus | -25934-12-31 18:57 J | -7750605.86 | -7750605.71 | -7750605.56 | 0.1728 | 0.0731 |
| Mercury | -25932-10-22 16:33 J | -7749944.93 | -7749944.81 | -7749944.69 | 0.1699 | 0.0118 |
| Venus | -25932-10-30 09:21 J | -7749937.13 | -7749937.11 | -7749937.09 | 0.1707 | 0.1690 |
| Mercury | -25931-09-03 03:21 J | -7749629.51 | -7749629.36 | -7749629.20 | 0.1818 | 0.0529 |
| Venus | -25929-08-12 02:23 J | -7748920.56 | -7748920.40 | -7748920.24 | 0.1791 | 0.0859 |
| Mercury | -25922-03-15 02:52 J | -7746514.50 | -7746514.38 | -7746514.27 | 0.1695 | 0.0402 |
| Mercury | -25921-01-24 00:43 J | -7746199.63 | -7746199.47 | -7746199.32 | 0.1824 | 0.0615 |
| Mercury | -25913-08-04 13:11 J | -7743084.04 | -7743083.95 | -7743083.85 | 0.1690 | 0.0912 |
| Mercury | -25912-06-14 21:21 J | -7742769.64 | -7742769.61 | -7742769.59 | 0.1830 | 0.1801 |
| Mercury | -25911-07-10 20:23 J | -7742378.73 | -7742378.65 | -7742378.57 | 0.1709 | 0.1265 |
| Mercury | -25904-12-25 23:45 J | -7739653.57 | -7739653.51 | -7739653.44 | 0.1686 | 0.1408 |
| Mercury | -25902-12-01 06:14 J | -7738948.34 | -7738948.24 | -7738948.13 | 0.1704 | 0.0715 |
| Mercury | -25901-10-12 06:14 J | -7738632.28 | -7738632.24 | -7738632.19 | 0.1812 | 0.1729 |
| Venus | -25900-10-29 07:11 J | -7738250.36 | -7738250.20 | -7738250.04 | 0.1716 | 0.0572 |
| Venus | -25895-06-09 14:52 J | -7736566.02 | -7736565.88 | -7736565.73 | 0.1805 | 0.1010 |
| Mercury | -25892-04-22 16:33 J | -7735517.93 | -7735517.81 | -7735517.69 | 0.1700 | 0.0185 |
| Mercury | -25891-03-04 04:04 J | -7735202.48 | -7735202.33 | -7735202.17 | 0.1818 | 0.0650 |
| Mercury | -25883-09-13 02:52 J | -7732087.50 | -7732087.38 | -7732087.26 | 0.1695 | 0.0336 |
| Mercury | -25882-07-25 01:11 J | -7731772.60 | -7731772.45 | -7731772.29 | 0.1824 | 0.0499 |
| Moon | -25881-03-27 13:11 J | -7731526.11 | -7731525.95 | -7731525.78 | 0.1627 | 0.0895 |

Earth -25881-03-27 13:40 J -7731526.09 -7731525.93 -7731525.77 0.1627 0.0789 *
 Mercury -25873-02-03 13:11 J -7728657.05 -7728656.95 -7728656.85 0.1690 0.0848
 Mercury -25873-12-13 22:04 J -7728342.65 -7728342.58 -7728342.52 0.1830 0.1681
 Mercury -25871-01-08 20:23 J -7727951.72 -7727951.65 -7727951.58 0.1709 0.1330
 Venus -25868-10-28 05:16 J -7726563.43 -7726563.28 -7726563.12 0.1725 0.0583
 Mercury -25864-06-25 23:45 J -7725226.57 -7725226.51 -7725226.44 0.1686 0.1343
 Venus -25863-06-09 07:26 J -7724878.36 -7724878.19 -7724878.02 0.1795 0.0615
 Mercury -25862-06-01 06:28 J -7724521.34 -7724521.23 -7724521.13 0.1704 0.0784
 Mercury -25853-10-21 16:33 J -7721090.93 -7721090.81 -7721090.69 0.1699 0.0250
 Mercury -25852-09-02 04:33 J -7720775.46 -7720775.31 -7720775.16 0.1818 0.0746
 Mercury -25843-03-14 02:52 J -7717660.50 -7717660.38 -7717660.27 0.1695 0.0281
 Mercury -25842-01-23 02:09 J -7717345.57 -7717345.41 -7717345.25 0.1824 0.0369
 Mercury -25834-08-04 13:11 J -7714230.05 -7714229.95 -7714229.84 0.1690 0.0783
 Venus -25834-08-26 17:45 J -7714207.91 -7714207.76 -7714207.61 0.1713 0.0704
 Mercury -25833-06-13 22:33 J -7713915.64 -7713915.56 -7713915.47 0.1830 0.1564
 Mercury -25832-07-09 20:23 J -7713524.72 -7713524.65 -7713524.58 0.1709 0.1396
 Venus -25829-04-05 19:55 J -7712523.79 -7712523.67 -7712523.54 0.1809 0.1262
 Mercury -25825-12-24 23:45 J -7710799.58 -7710799.51 -7710799.43 0.1686 0.1279
 Mercury -25823-11-30 06:28 J -7710094.33 -7710094.23 -7710094.13 0.1704 0.0852
 Mercury -25813-04-21 16:33 J -7706663.93 -7706663.81 -7706663.69 0.1699 0.0316
 Mercury -25812-03-03 05:31 J -7706348.41 -7706348.27 -7706348.13 0.1818 0.0871
 Mercury -25804-09-12 02:52 J -7703233.50 -7703233.38 -7703233.27 0.1695 0.0211
 Mercury -25803-07-24 02:23 J -7702918.56 -7702918.40 -7702918.23 0.1824 0.0277
 Venus -25802-08-25 15:50 J -7702521.01 -7702520.84 -7702520.68 0.1722 0.0438
 Venus -25797-04-05 12:57 J -7700836.13 -7700835.96 -7700835.78 0.1798 0.0380
 Mercury -25794-02-02 13:11 J -7699803.06 -7699802.95 -7699802.84 0.1690 0.0721
 Mercury -25794-12-13 23:16 J -7699488.63 -7699488.53 -7699488.43 0.1830 0.1450
 Mercury -25792-01-07 20:23 J -7699097.71 -7699097.65 -7699097.59 0.1709 0.1464
 Mercury -25785-06-24 23:45 J -7696372.59 -7696372.51 -7696372.43 0.1686 0.1217
 Mercury -25783-05-31 06:28 J -7695667.33 -7695667.23 -7695667.13 0.1704 0.0916

Moon -25779-09-22 19:55 J -7694091.84 -7694091.67 -7694091.49 0.1892 0.0851
 Earth -25779-09-23 02:23 J -7694091.57 -7694091.40 -7694091.22 0.1892 0.1015 *
 Mercury -25774-10-21 16:33 J -7692236.93 -7692236.81 -7692236.70 0.1700 0.0380
 Mercury -25773-09-01 05:59 J -7691921.39 -7691921.25 -7691921.12 0.1818 0.0978
 Venus -25770-08-24 14:52 J -7690833.94 -7690833.88 -7690833.82 0.1731 0.1616
 Venus -25768-06-23 04:33 J -7690165.46 -7690165.31 -7690165.16 0.1710 0.0835
 Mercury -25764-03-13 02:52 J -7688806.50 -7688806.38 -7688806.26 0.1695 0.0144
 Mercury -25763-01-22 03:21 J -7688491.52 -7688491.36 -7688491.20 0.1824 0.0151
 Venus -25763-02-01 00:14 J -7688481.58 -7688481.49 -7688481.39 0.1812 0.1528
 Earth -25755-03-24 18:57 J -7685507.82 -7685507.71 -7685507.60 0.1627 0.1303
 Moon -25755-03-25 00:28 J -7685507.62 -7685507.48 -7685507.34 0.1627 0.1045 *
 Mercury -25755-08-03 13:11 J -7685376.06 -7685375.95 -7685375.84 0.1690 0.0654
 Mercury -25754-06-13 23:59 J -7685061.61 -7685061.50 -7685061.39 0.1830 0.1329
 Mercury -25753-07-08 20:23 J -7684670.70 -7684670.65 -7684670.60 0.1709 0.1534
 Mercury -25746-12-24 23:45 J -7681945.59 -7681945.51 -7681945.42 0.1686 0.1153
 Mercury -25744-11-29 06:28 J -7681240.33 -7681240.23 -7681240.14 0.1704 0.0983
 Mercury -25736-05-16 10:19 J -7678515.09 -7678515.07 -7678515.05 0.1682 0.1643
 Venus -25736-06-22 02:09 J -7678478.58 -7678478.41 -7678478.24 0.1719 0.0292
 Mercury -25734-04-21 16:33 J -7677809.92 -7677809.81 -7677809.70 0.1699 0.0446
 Mercury -25733-03-02 06:28 J -7677494.36 -7677494.23 -7677494.10 0.1818 0.1085
 Venus -25731-01-31 17:45 J -7676793.94 -7676793.76 -7676793.59 0.1802 0.0133
 Mercury -25725-09-11 02:38 J -7674379.50 -7674379.39 -7674379.27 0.1695 0.0097
 Mercury -25724-07-23 04:04 J -7674064.49 -7674064.33 -7674064.17 0.1824 0.0036
 Mercury -25715-02-01 13:11 J -7670949.06 -7670948.95 -7670948.84 0.1690 0.0590
 Mercury -25715-12-13 00:43 J -7670634.59 -7670634.47 -7670634.35 0.1830 0.1213
 Mercury -25713-01-07 20:23 J -7670243.69 -7670243.65 -7670243.61 0.1709 0.1596
 Mercury -25706-06-24 23:45 J -7667518.60 -7667518.51 -7667518.42 0.1686 0.1089
 Mercury -25704-05-30 06:28 J -7666813.32 -7666813.23 -7666813.14 0.1704 0.1051
 Venus -25704-06-21 01:26 J -7666791.53 -7666791.44 -7666791.36 0.1728 0.1466
 Venus -25702-04-20 15:21 J -7666123.00 -7666122.86 -7666122.72 0.1708 0.0963

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Venus | -25699-01-31 10:19 J | -7665106.11 | -7665106.07 | -7665106.02 | 0.1791 | 0.1731 |
| Venus | -25698-11-29 04:19 J | -7664439.34 | -7664439.32 | -7664439.30 | 0.1816 | 0.1805 |
| Mercury | -25697-11-14 10:19 J | -7664088.10 | -7664088.07 | -7664088.03 | 0.1682 | 0.1579 |
| Mercury | -25695-10-20 16:33 J | -7663382.93 | -7663382.81 | -7663382.70 | 0.1699 | 0.0511 |
| Mercury | -25694-09-01 07:11 J | -7663067.32 | -7663067.20 | -7663067.08 | 0.1818 | 0.1199 |
| Mercury | -25685-03-12 02:52 J | -7659952.50 | -7659952.38 | -7659952.26 | 0.1695 | 0.0042 |
| Mercury | -25684-01-21 04:33 J | -7659637.47 | -7659637.31 | -7659637.15 | 0.1824 | 0.0075 |
| Earth | -25676-03-26 19:40 J | -7656650.86 | -7656650.68 | -7656650.49 | 0.1627 | 0.0071 |
| Moon | -25676-03-26 19:40 J | -7656650.85 | -7656650.68 | -7656650.50 | 0.1627 | 0.0217 * |
| Mercury | -25676-08-02 13:11 J | -7656522.06 | -7656521.95 | -7656521.84 | 0.1690 | 0.0529 |
| Mercury | -25675-06-13 01:26 J | -7656207.57 | -7656207.44 | -7656207.31 | 0.1830 | 0.1097 |
| Mercury | -25674-07-08 20:23 J | -7655816.67 | -7655816.65 | -7655816.63 | 0.1709 | 0.1666 |
| Venus | -25670-04-19 13:11 J | -7654436.12 | -7654435.95 | -7654435.78 | 0.1716 | 0.0162 |
| Mercury | -25667-12-23 23:45 J | -7653091.60 | -7653091.51 | -7653091.42 | 0.1686 | 0.1030 |
| Venus | -25666-11-28 22:47 J | -7652751.73 | -7652751.55 | -7652751.37 | 0.1805 | 0.0122 |
| Mercury | -25665-11-28 06:14 J | -7652386.33 | -7652386.24 | -7652386.15 | 0.1704 | 0.1111 |
| Mercury | -25657-05-15 10:19 J | -7649661.11 | -7649661.07 | -7649661.02 | 0.1682 | 0.1514 |
| Mercury | -25655-04-20 16:33 J | -7648955.92 | -7648955.81 | -7648955.70 | 0.1699 | 0.0578 |
| Mercury | -25654-03-02 07:55 J | -7648640.28 | -7648640.17 | -7648640.06 | 0.1818 | 0.1318 |
| Mercury | -25646-09-11 02:52 J | -7645525.50 | -7645525.38 | -7645525.27 | 0.1695 | 0.0070 |
| Mercury | -25645-07-22 05:16 J | -7645210.44 | -7645210.28 | -7645210.12 | 0.1824 | 0.0191 |
| Venus | -25638-04-18 11:31 J | -7642749.12 | -7642749.02 | -7642748.91 | 0.1725 | 0.1314 |
| Mercury | -25636-01-31 13:11 J | -7642095.06 | -7642094.95 | -7642094.84 | 0.1690 | 0.0465 |
| Venus | -25636-02-15 02:09 J | -7642080.54 | -7642080.41 | -7642080.28 | 0.1705 | 0.1090 |
| Mercury | -25636-12-12 01:55 J | -7641780.55 | -7641780.42 | -7641780.28 | 0.1830 | 0.0983 |
| Venus | -25634-11-28 15:21 J | -7641063.96 | -7641063.86 | -7641063.76 | 0.1795 | 0.1485 |
| Mercury | -25627-06-23 23:45 J | -7638664.61 | -7638664.51 | -7638664.42 | 0.1686 | 0.0963 |
| Mercury | -25625-05-29 06:28 J | -7637959.32 | -7637959.23 | -7637959.15 | 0.1704 | 0.1182 |
| Mercury | -25618-11-14 10:19 J | -7635234.13 | -7635234.07 | -7635234.01 | 0.1681 | 0.1456 |
| Mercury | -25616-10-19 16:33 J | -7634528.92 | -7634528.81 | -7634528.70 | 0.1699 | 0.0642 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -25615-08-31 08:23 J | -7634213.25 | -7634213.15 | -7634213.05 | 0.1818 | 0.1415 |
| Mercury | -25606-03-12 02:38 J | -7631098.51 | -7631098.39 | -7631098.27 | 0.1695 | 0.0116 |
| Mercury | -25605-01-21 06:14 J | -7630783.40 | -7630783.24 | -7630783.08 | 0.1824 | 0.0321 |
| Venus | -25604-02-13 23:31 J | -7630393.69 | -7630393.52 | -7630393.35 | 0.1713 | 0.0035 |
| Venus | -25600-09-25 03:21 J | -7628709.54 | -7628709.36 | -7628709.18 | 0.1809 | 0.0379 |
| Moon | -25597-03-28 14:52 J | -7627794.00 | -7627793.88 | -7627793.75 | 0.1627 | 0.1169 |
| Earth | -25597-03-28 20:38 J | -7627793.77 | -7627793.64 | -7627793.51 | 0.1627 | 0.1157 * |
| Mercury | -25597-08-01 13:11 J | -7627668.06 | -7627667.95 | -7627667.84 | 0.1690 | 0.0397 |
| Mercury | -25596-06-12 02:38 J | -7627353.53 | -7627353.39 | -7627353.24 | 0.1830 | 0.0865 |
| Mercury | -25588-12-22 23:45 J | -7624237.61 | -7624237.51 | -7624237.41 | 0.1686 | 0.0901 |
| Mercury | -25586-11-28 06:28 J | -7623532.31 | -7623532.23 | -7623532.15 | 0.1704 | 0.1249 |
| Mercury | -25578-05-15 10:19 J | -7620807.13 | -7620807.07 | -7620807.01 | 0.1682 | 0.1390 |
| Mercury | -25576-04-19 16:33 J | -7620101.92 | -7620101.81 | -7620101.70 | 0.1699 | 0.0709 |
| Mercury | -25575-03-01 09:07 J | -7619786.20 | -7619786.12 | -7619786.03 | 0.1818 | 0.1536 |
| Venus | -25572-02-12 21:50 J | -7618706.71 | -7618706.59 | -7618706.46 | 0.1722 | 0.1163 |
| Venus | -25571-12-13 12:57 J | -7618038.08 | -7618037.96 | -7618037.84 | 0.1702 | 0.1216 |
| Venus | -25568-09-24 20:23 J | -7617021.78 | -7617021.65 | -7617021.52 | 0.1798 | 0.1245 |
| Mercury | -25567-09-10 02:52 J | -7616671.50 | -7616671.38 | -7616671.27 | 0.1695 | 0.0192 |
| Mercury | -25566-07-22 06:28 J | -7616356.39 | -7616356.23 | -7616356.08 | 0.1824 | 0.0413 |
| Mercury | -25557-01-31 13:11 J | -7613241.07 | -7613240.95 | -7613240.84 | 0.1690 | 0.0341 |
| Mercury | -25557-12-11 03:21 J | -7612926.51 | -7612926.36 | -7612926.21 | 0.1830 | 0.0747 |
| Mercury | -25548-06-22 23:45 J | -7609810.62 | -7609810.51 | -7609810.41 | 0.1686 | 0.0840 |
| Mercury | -25546-05-29 06:14 J | -7609105.31 | -7609105.24 | -7609105.16 | 0.1704 | 0.1312 |
| Mercury | -25539-11-13 10:19 J | -7606380.14 | -7606380.07 | -7606380.00 | 0.1682 | 0.1328 |
| Venus | -25539-12-12 10:33 J | -7606351.23 | -7606351.06 | -7606350.89 | 0.1710 | 0.0112 |
| Mercury | -25537-10-18 16:33 J | -7605674.92 | -7605674.81 | -7605674.71 | 0.1699 | 0.0774 |
| Mercury | -25536-08-30 09:35 J | -7605359.16 | -7605359.10 | -7605359.03 | 0.1818 | 0.1644 |
| Venus | -25534-07-23 08:23 J | -7604667.32 | -7604667.15 | -7604666.98 | 0.1812 | 0.0627 |
| Mercury | -25527-03-11 02:38 J | -7602244.50 | -7602244.39 | -7602244.27 | 0.1695 | 0.0256 |
| Mercury | -25526-01-20 07:11 J | -7601929.35 | -7601929.20 | -7601929.04 | 0.1824 | 0.0535 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -25518-08-01 13:11 J | -7598814.07 | -7598813.95 | -7598813.84 | 0.1690 | 0.0271 |
| Mercury | -25517-06-11 04:04 J | -7598499.48 | -7598499.33 | -7598499.18 | 0.1830 | 0.0631 |
| Mercury | -25509-12-21 23:31 J | -7595383.62 | -7595383.52 | -7595383.41 | 0.1686 | 0.0777 |
| Mercury | -25507-11-27 06:28 J | -7594678.30 | -7594678.23 | -7594678.17 | 0.1704 | 0.1380 |
| Venus | -25507-12-11 08:23 J | -7594664.29 | -7594664.15 | -7594664.02 | 0.1719 | 0.1018 |
| Venus | -25505-10-10 00:14 J | -7593995.59 | -7593995.49 | -7593995.38 | 0.1699 | 0.1331 |
| Venus | -25502-07-23 01:26 J | -7592979.59 | -7592979.44 | -7592979.29 | 0.1802 | 0.1001 |
| Mercury | -25499-05-14 10:19 J | -7591953.15 | -7591953.07 | -7591953.00 | 0.1681 | 0.1269 |
| Mercury | -25497-04-18 16:33 J | -7591247.92 | -7591247.81 | -7591247.71 | 0.1699 | 0.0840 |
| Mercury | -25496-02-28 10:19 J | -7590932.11 | -7590932.07 | -7590932.03 | 0.1818 | 0.1752 |
| Mercury | -25488-09-09 02:38 J | -7587817.50 | -7587817.39 | -7587817.27 | 0.1695 | 0.0310 |
| Mercury | -25487-07-21 07:55 J | -7587502.32 | -7587502.17 | -7587502.01 | 0.1824 | 0.0656 |
| Mercury | -25478-01-30 13:11 J | -7584387.07 | -7584386.95 | -7584386.84 | 0.1690 | 0.0210 |
| Mercury | -25478-12-11 04:47 J | -7584072.46 | -7584072.30 | -7584072.15 | 0.1830 | 0.0519 |
| Venus | -25473-10-08 21:21 J | -7582308.78 | -7582308.61 | -7582308.44 | 0.1708 | 0.0242 |
| Earth | -25471-03-26 01:55 J | -7581775.57 | -7581775.42 | -7581775.27 | 0.1627 | 0.0932 |
| Moon | -25471-03-26 02:52 J | -7581775.56 | -7581775.38 | -7581775.21 | 0.1627 | 0.0760 * |
| Mercury | -25469-06-21 23:31 J | -7580956.62 | -7580956.52 | -7580956.41 | 0.1686 | 0.0712 |
| Mercury | -25468-05-02 01:11 J | -7580642.51 | -7580642.45 | -7580642.40 | 0.1835 | 0.1720 |
| Venus | -25468-05-19 12:28 J | -7580625.13 | -7580624.98 | -7580624.82 | 0.1816 | 0.0896 |
| Mercury | -25467-05-28 06:28 J | -7580251.29 | -7580251.23 | -7580251.17 | 0.1704 | 0.1449 |
| Mercury | -25460-11-12 10:19 J | -7577526.15 | -7577526.07 | -7577525.99 | 0.1681 | 0.1204 |
| Mercury | -25458-10-18 16:33 J | -7576820.91 | -7576820.81 | -7576820.71 | 0.1699 | 0.0906 |
| Mercury | -25448-03-10 02:38 J | -7573390.50 | -7573390.39 | -7573390.27 | 0.1694 | 0.0380 |
| Mercury | -25447-01-19 08:23 J | -7573075.30 | -7573075.15 | -7573075.00 | 0.1824 | 0.0754 |
| Venus | -25441-10-07 18:57 J | -7570621.86 | -7570621.71 | -7570621.57 | 0.1716 | 0.0876 |
| Mercury | -25439-07-31 12:57 J | -7569960.07 | -7569959.96 | -7569959.84 | 0.1690 | 0.0157 |
| Venus | -25439-08-07 11:16 J | -7569953.12 | -7569953.03 | -7569952.95 | 0.1697 | 0.1451 |
| Mercury | -25438-06-11 05:31 J | -7569645.43 | -7569645.27 | -7569645.11 | 0.1830 | 0.0397 |
| Venus | -25436-05-19 06:14 J | -7568937.41 | -7568937.24 | -7568937.08 | 0.1805 | 0.0751 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -25430-12-21 23:31 J | -7566529.63 | -7566529.52 | -7566529.41 | 0.1686 | 0.0649 |
| Mercury | -25429-10-31 01:55 J | -7566215.50 | -7566215.42 | -7566215.35 | 0.1835 | 0.1600 |
| Mercury | -25428-11-26 06:14 J | -7565824.29 | -7565824.24 | -7565824.18 | 0.1704 | 0.1510 |
| Mercury | -25420-05-13 10:19 J | -7563099.16 | -7563099.07 | -7563098.99 | 0.1682 | 0.1138 |
| Mercury | -25418-04-18 16:33 J | -7562393.91 | -7562393.81 | -7562393.71 | 0.1699 | 0.0973 |
| Moon | -25416-09-25 14:09 J | -7561503.08 | -7561502.91 | -7561502.73 | 0.1893 | 0.0693 |
| Earth | -25416-09-25 14:38 J | -7561503.07 | -7561502.89 | -7561502.72 | 0.1893 | 0.0953 * |
| Mercury | -25411-10-03 20:52 J | -7559668.65 | -7559668.63 | -7559668.60 | 0.1677 | 0.1623 |
| Mercury | -25409-09-08 02:38 J | -7558963.50 | -7558963.39 | -7558963.27 | 0.1694 | 0.0444 |
| Mercury | -25408-07-20 09:07 J | -7558648.26 | -7558648.12 | -7558647.98 | 0.1824 | 0.0870 |
| Venus | -25407-08-06 08:09 J | -7558266.32 | -7558266.16 | -7558265.99 | 0.1705 | 0.0371 |
| Venus | -25402-03-16 17:02 J | -7556582.93 | -7556582.79 | -7556582.65 | 0.1819 | 0.1157 |
| Mercury | -25399-01-29 12:57 J | -7555533.07 | -7555532.96 | -7555532.84 | 0.1690 | 0.0102 |
| Mercury | -25399-12-10 05:59 J | -7555218.41 | -7555218.25 | -7555218.09 | 0.1830 | 0.0286 |
| Earth | -25392-03-28 02:38 J | -7552918.57 | -7552918.39 | -7552918.20 | 0.1627 | 0.0305 |
| Moon | -25392-03-28 09:07 J | -7552918.31 | -7552918.12 | -7552917.94 | 0.1627 | 0.0213 * |
| Mercury | -25390-06-21 23:31 J | -7552102.63 | -7552102.52 | -7552102.41 | 0.1686 | 0.0584 |
| Mercury | -25389-05-01 02:23 J | -7551788.50 | -7551788.40 | -7551788.31 | 0.1836 | 0.1491 |
| Mercury | -25388-05-27 06:28 J | -7551397.27 | -7551397.23 | -7551397.19 | 0.1704 | 0.1581 |
| Mercury | -25381-11-11 10:04 J | -7548672.17 | -7548672.08 | -7548671.99 | 0.1681 | 0.1081 |
| Mercury | -25379-10-17 16:33 J | -7547966.91 | -7547966.81 | -7547966.72 | 0.1699 | 0.1037 |
| Venus | -25375-08-05 05:31 J | -7546579.42 | -7546579.27 | -7546579.11 | 0.1713 | 0.0740 |
| Venus | -25373-06-03 22:47 J | -7545910.61 | -7545910.55 | -7545910.49 | 0.1694 | 0.1561 |
| Mercury | -25371-04-03 20:52 J | -7545241.67 | -7545241.63 | -7545241.59 | 0.1678 | 0.1560 |
| Venus | -25370-03-16 11:16 J | -7544895.20 | -7544895.03 | -7544894.86 | 0.1808 | 0.0507 |
| Mercury | -25369-03-09 02:38 J | -7544536.50 | -7544536.39 | -7544536.28 | 0.1694 | 0.0503 |
| Mercury | -25368-01-18 10:04 J | -7544221.22 | -7544221.08 | -7544220.95 | 0.1824 | 0.0996 |
| Mercury | -25360-07-30 13:11 J | -7541106.07 | -7541105.95 | -7541105.84 | 0.1690 | 0.0048 |
| Mercury | -25359-06-10 06:43 J | -7540791.38 | -7540791.22 | -7540791.06 | 0.1830 | 0.0168 |
| Mercury | -25351-12-20 23:31 J | -7537675.63 | -7537675.52 | -7537675.41 | 0.1686 | 0.0520 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -25350-10-31 03:07 J | -7537361.48 | -7537361.37 | -7537361.26 | 0.1836 | 0.1368 |
| Mercury | -25349-11-25 06:28 J | -7536970.26 | -7536970.23 | -7536970.20 | 0.1704 | 0.1647 |
| Mercury | -25341-05-12 10:04 J | -7534245.17 | -7534245.08 | -7534244.98 | 0.1681 | 0.1016 |
| Venus | -25341-06-02 19:11 J | -7534223.86 | -7534223.70 | -7534223.54 | 0.1702 | 0.0495 |
| Mercury | -25339-04-17 16:33 J | -7533539.90 | -7533539.81 | -7533539.72 | 0.1699 | 0.1103 |
| Venus | -25336-01-10 20:52 J | -7532540.74 | -7532540.63 | -7532540.52 | 0.1822 | 0.1432 |
| Mercury | -25332-10-02 20:52 J | -7530814.68 | -7530814.63 | -7530814.58 | 0.1677 | 0.1499 |
| Mercury | -25330-09-08 02:38 J | -7530109.50 | -7530109.39 | -7530109.28 | 0.1694 | 0.0573 |
| Mercury | -25329-07-19 10:19 J | -7529794.20 | -7529794.07 | -7529793.94 | 0.1824 | 0.1090 |
| Mercury | -25320-01-28 12:57 J | -7526679.08 | -7526678.96 | -7526678.84 | 0.1690 | 0.0058 |
| Mercury | -25320-12-09 07:26 J | -7526364.35 | -7526364.19 | -7526364.02 | 0.1830 | 0.0056 |
| Earth | -25313-03-30 03:21 J | -7524061.42 | -7524061.36 | -7524061.30 | 0.1627 | 0.1530 |
| Mercury | -25311-06-20 23:31 J | -7523248.63 | -7523248.52 | -7523248.41 | 0.1686 | 0.0456 |
| Mercury | -25310-05-01 03:50 J | -7522934.46 | -7522934.34 | -7522934.22 | 0.1835 | 0.1244 |
| Venus | -25309-06-01 16:04 J | -7522536.98 | -7522536.83 | -7522536.67 | 0.1710 | 0.0602 |
| Venus | -25307-04-01 10:04 J | -7521868.10 | -7521868.08 | -7521868.05 | 0.1692 | 0.1673 |
| Venus | -25304-01-10 15:21 J | -7520853.03 | -7520852.86 | -7520852.68 | 0.1812 | 0.0251 |
| Mercury | -25302-11-11 10:04 J | -7519818.17 | -7519818.08 | -7519817.98 | 0.1681 | 0.0952 |
| Mercury | -25300-10-16 16:33 J | -7519112.90 | -7519112.81 | -7519112.73 | 0.1699 | 0.1170 |
| Mercury | -25292-04-02 20:52 J | -7516387.69 | -7516387.63 | -7516387.57 | 0.1677 | 0.1435 |
| Mercury | -25290-03-09 02:38 J | -7515682.50 | -7515682.39 | -7515682.28 | 0.1694 | 0.0639 |
| Mercury | -25289-01-18 11:02 J | -7515367.16 | -7515367.04 | -7515366.92 | 0.1824 | 0.1214 |
| Mercury | -25281-07-29 12:57 J | -7512252.07 | -7512251.96 | -7512251.84 | 0.1690 | 0.0126 |
| Mercury | -25280-06-09 08:09 J | -7511937.33 | -7511937.16 | -7511937.00 | 0.1830 | 0.0075 |
| Venus | -25275-03-31 06:28 J | -7510181.39 | -7510181.23 | -7510181.07 | 0.1700 | 0.0618 |
| Mercury | -25272-12-19 23:31 J | -7508821.63 | -7508821.52 | -7508821.41 | 0.1685 | 0.0393 |
| Mercury | -25271-10-30 04:19 J | -7508507.45 | -7508507.32 | -7508507.19 | 0.1836 | 0.1142 |
| Venus | -25271-11-08 00:28 J | -7508498.54 | -7508498.48 | -7508498.42 | 0.1826 | 0.1712 |
| Mercury | -25262-05-12 10:04 J | -7505391.18 | -7505391.08 | -7505390.98 | 0.1681 | 0.0891 |
| Mercury | -25260-04-16 16:33 J | -7504685.89 | -7504685.81 | -7504685.73 | 0.1699 | 0.1235 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -25253-10-01 20:52 J | -7501960.70 | -7501960.63 | -7501960.57 | 0.1677 | 0.1373 |
| Mercury | -25251-09-07 02:38 J | -7501255.50 | -7501255.39 | -7501255.28 | 0.1694 | 0.0699 |
| Mercury | -25250-07-19 11:45 J | -7500940.11 | -7500940.01 | -7500939.90 | 0.1824 | 0.1331 |
| Venus | -25243-03-30 03:21 J | -7498494.52 | -7498494.36 | -7498494.19 | 0.1708 | 0.0474 |
| Mercury | -25241-01-28 12:57 J | -7497825.07 | -7497824.96 | -7497824.84 | 0.1690 | 0.0189 |
| Mercury | -25241-12-08 08:38 J | -7497510.30 | -7497510.14 | -7497509.97 | 0.1830 | 0.0181 |
| Venus | -25239-11-07 20:23 J | -7496810.83 | -7496810.65 | -7496810.47 | 0.1815 | 0.0019 |
| Mercury | -25232-06-19 23:31 J | -7494394.64 | -7494394.52 | -7494394.40 | 0.1686 | 0.0327 |
| Mercury | -25231-04-30 05:16 J | -7494080.42 | -7494080.28 | -7494080.14 | 0.1835 | 0.1009 |
| Mercury | -25223-11-10 10:04 J | -7490964.18 | -7490964.08 | -7490963.98 | 0.1681 | 0.0826 |
| Mercury | -25221-10-15 16:33 J | -7490258.89 | -7490258.81 | -7490258.74 | 0.1699 | 0.1301 |
| Mercury | -25213-04-01 20:52 J | -7487533.70 | -7487533.63 | -7487533.56 | 0.1677 | 0.1314 |
| Mercury | -25211-03-08 02:38 J | -7486828.49 | -7486828.39 | -7486828.28 | 0.1694 | 0.0767 |
| Venus | -25211-03-29 01:11 J | -7486807.51 | -7486807.45 | -7486807.39 | 0.1716 | 0.1591 |
| Mercury | -25210-01-17 12:14 J | -7486513.09 | -7486512.99 | -7486512.89 | 0.1824 | 0.1430 |
| Venus | -25209-01-26 17:16 J | -7486138.93 | -7486138.78 | -7486138.63 | 0.1697 | 0.0740 |
| Venus | -25207-11-07 14:09 J | -7485122.98 | -7485122.91 | -7485122.83 | 0.1805 | 0.1627 |
| Mercury | -25202-07-29 12:57 J | -7483398.08 | -7483397.96 | -7483397.84 | 0.1690 | 0.0242 |
| Mercury | -25201-06-08 09:35 J | -7483083.26 | -7483083.10 | -7483082.94 | 0.1830 | 0.0302 |
| Mercury | -25193-12-18 23:31 J | -7479967.64 | -7479967.52 | -7479967.40 | 0.1686 | 0.0264 |
| Mercury | -25192-10-29 05:59 J | -7479653.39 | -7479653.25 | -7479653.11 | 0.1835 | 0.0892 |
| Moon | -25187-03-27 02:38 J | -7478043.57 | -7478043.39 | -7478043.21 | 0.1628 | 0.0455 |
| Earth | -25187-03-27 09:07 J | -7478043.29 | -7478043.12 | -7478042.94 | 0.1628 | 0.0550 * |
| Mercury | -25183-05-11 10:04 J | -7476537.18 | -7476537.08 | -7476536.97 | 0.1681 | 0.0761 |
| Mercury | -25181-04-15 16:33 J | -7475831.88 | -7475831.81 | -7475831.74 | 0.1699 | 0.1368 |
| Venus | -25177-01-25 13:55 J | -7474452.09 | -7474451.92 | -7474451.75 | 0.1705 | 0.0339 |
| Mercury | -25174-10-01 20:52 J | -7473106.71 | -7473106.63 | -7473106.56 | 0.1677 | 0.1251 |
| Venus | -25173-09-04 00:28 J | -7472768.65 | -7472768.48 | -7472768.30 | 0.1819 | 0.0271 |
| Mercury | -25172-09-06 02:38 J | -7472401.49 | -7472401.39 | -7472401.28 | 0.1694 | 0.0834 |
| Mercury | -25171-07-18 12:57 J | -7472086.04 | -7472085.96 | -7472085.87 | 0.1824 | 0.1548 |

Mercury -25162-01-27 12:57 J -7468971.07 -7468970.96 -7468970.84 0.1690 0.0311
 Mercury -25162-12-08 10:04 J -7468656.24 -7468656.08 -7468655.92 0.1830 0.0408
 Mercury -25153-06-18 23:31 J -7465540.64 -7465540.52 -7465540.40 0.1685 0.0200
 Mercury -25152-04-29 06:28 J -7465226.38 -7465226.23 -7465226.08 0.1836 0.0781
 Venus -25145-01-24 11:31 J -7462765.10 -7462765.02 -7462764.93 0.1713 0.1451
 Mercury -25144-11-09 10:04 J -7462110.19 -7462110.08 -7462109.98 0.1681 0.0703
 Venus -25144-11-23 04:33 J -7462096.46 -7462096.31 -7462096.16 0.1694 0.0858
 Mercury -25142-10-15 16:33 J -7461404.88 -7461404.81 -7461404.75 0.1699 0.1431
 Venus -25141-09-03 18:57 J -7461080.82 -7461080.71 -7461080.60 0.1809 0.1382
 Mercury -25134-04-01 20:52 J -7458679.71 -7458679.63 -7458679.55 0.1677 0.1186
 Mercury -25132-03-07 02:38 J -7457974.49 -7457974.39 -7457974.29 0.1694 0.0896
 Earth -25132-09-24 11:02 J -7457773.24 -7457773.04 -7457772.85 0.1891 0.0646
 Moon -25132-09-24 20:09 J -7457772.87 -7457772.66 -7457772.46 0.1891 0.0580 *
 Mercury -25131-01-16 13:55 J -7457658.98 -7457658.92 -7457658.86 0.1824 0.1670
 Mercury -25125-08-22 07:40 J -7455249.19 -7455249.18 -7455249.18 0.1673 0.1663
 Mercury -25123-07-28 12:57 J -7454544.07 -7454543.96 -7454543.84 0.1690 0.0382
 Mercury -25122-06-08 10:47 J -7454229.21 -7454229.05 -7454228.89 0.1830 0.0527
 Mercury -25114-12-18 23:31 J -7451113.64 -7451113.52 -7451113.41 0.1685 0.0142
 Mercury -25113-10-28 07:11 J -7450799.35 -7450799.20 -7450799.04 0.1835 0.0662
 Venus -25112-11-22 01:26 J -7450409.61 -7450409.44 -7450409.27 0.1702 0.0218
 Moon -25108-03-29 06:57 J -7449186.40 -7449186.21 -7449186.03 0.1627 0.0558
 Earth -25108-03-29 09:50 J -7449186.26 -7449186.09 -7449185.92 0.1627 0.0679 *
 Venus -25107-07-02 05:16 J -7448726.45 -7448726.28 -7448726.11 0.1822 0.0521
 Mercury -25104-05-10 10:04 J -7447683.19 -7447683.08 -7447682.97 0.1681 0.0635
 Mercury -25102-04-15 16:33 J -7446977.87 -7446977.81 -7446977.76 0.1699 0.1500
 Mercury -25095-09-30 20:38 J -7444252.72 -7444252.64 -7444252.55 0.1677 0.1126
 Mercury -25093-09-05 02:38 J -7443547.48 -7443547.39 -7443547.29 0.1694 0.0966
 Mercury -25092-07-17 14:09 J -7443231.95 -7443231.91 -7443231.87 0.1824 0.1766
 Mercury -25085-02-21 07:26 J -7440822.22 -7440822.19 -7440822.16 0.1673 0.1604
 Mercury -25083-01-26 12:57 J -7440117.08 -7440116.96 -7440116.85 0.1690 0.0436

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -25083-12-07 11:31 J | -7439802.17 | -7439802.02 | -7439801.87 | 0.1830 | 0.0647 |
| Venus | -25080-11-20 22:33 J | -7438722.67 | -7438722.56 | -7438722.45 | 0.1711 | 0.1312 |
| Venus | -25078-09-20 16:04 J | -7438053.97 | -7438053.83 | -7438053.69 | 0.1692 | 0.0968 |
| Venus | -25075-07-01 23:31 J | -7437038.65 | -7437038.52 | -7437038.38 | 0.1812 | 0.1133 |
| Mercury | -25074-06-18 23:31 J | -7436686.64 | -7436686.52 | -7436686.40 | 0.1686 | 0.0074 |
| Mercury | -25073-04-28 08:09 J | -7436372.32 | -7436372.16 | -7436372.01 | 0.1835 | 0.0537 |
| Mercury | -25065-11-08 10:04 J | -7433256.19 | -7433256.08 | -7433255.97 | 0.1681 | 0.0571 |
| Mercury | -25064-09-18 04:04 J | -7432942.37 | -7432942.33 | -7432942.29 | 0.1841 | 0.1768 |
| Mercury | -25063-10-14 16:33 J | -7432550.85 | -7432550.81 | -7432550.77 | 0.1699 | 0.1567 |
| Mercury | -25055-03-31 20:38 J | -7429825.73 | -7429825.64 | -7429825.55 | 0.1677 | 0.1062 |
| Mercury | -25053-03-06 02:38 J | -7429120.48 | -7429120.39 | -7429120.29 | 0.1694 | 0.1030 |
| Mercury | -25046-08-22 07:26 J | -7426395.23 | -7426395.19 | -7426395.14 | 0.1673 | 0.1541 |
| Venus | -25046-09-19 12:14 J | -7426367.15 | -7426366.99 | -7426366.82 | 0.1700 | 0.0103 |
| Mercury | -25044-07-27 12:57 J | -7425690.07 | -7425689.96 | -7425689.85 | 0.1690 | 0.0505 |
| Mercury | -25043-06-07 11:59 J | -7425375.14 | -7425375.00 | -7425374.85 | 0.1830 | 0.0754 |
| Venus | -25041-04-28 09:07 J | -7424684.28 | -7424684.12 | -7424683.95 | 0.1825 | 0.0797 |
| Mercury | -25035-12-17 23:31 J | -7422259.64 | -7422259.52 | -7422259.41 | 0.1685 | 0.0047 |
| Mercury | -25034-10-28 08:38 J | -7421945.30 | -7421945.14 | -7421944.98 | 0.1836 | 0.0431 |
| Mercury | -25025-05-09 10:04 J | -7418829.19 | -7418829.08 | -7418828.97 | 0.1681 | 0.0511 |
| Mercury | -25024-03-19 05:02 J | -7418515.36 | -7418515.29 | -7418515.22 | 0.1841 | 0.1632 |
| Mercury | -25023-04-14 16:33 J | -7418123.84 | -7418123.81 | -7418123.78 | 0.1699 | 0.1630 |
| Mercury | -25016-09-29 20:38 J | -7415398.73 | -7415398.64 | -7415398.54 | 0.1677 | 0.0999 |
| Mercury | -25014-09-05 02:38 J | -7414693.48 | -7414693.39 | -7414693.30 | 0.1694 | 0.1093 |
| Venus | -25014-09-18 09:21 J | -7414680.24 | -7414680.11 | -7414679.99 | 0.1708 | 0.1177 |
| Venus | -25012-07-18 03:21 J | -7414011.49 | -7414011.36 | -7414011.23 | 0.1689 | 0.1081 |
| Venus | -25009-04-28 04:04 J | -7412996.49 | -7412996.33 | -7412996.17 | 0.1815 | 0.0875 |
| Mercury | -25006-02-20 07:26 J | -7411968.24 | -7411968.19 | -7411968.14 | 0.1673 | 0.1478 |
| Mercury | -25004-01-25 12:57 J | -7411263.07 | -7411262.96 | -7411262.85 | 0.1690 | 0.0571 |
| Mercury | -25004-12-06 12:43 J | -7410948.11 | -7410947.97 | -7410947.83 | 0.1830 | 0.0870 |

25TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 25th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|-------------|-------------|-------------|--------|--------|-------|---|
| Mercury | -24995-06-17 23:31 J | -7407832.64 | -7407832.52 | -7407832.40 | 0.1685 | 0.0065 | | |
| Mercury | -24994-04-28 09:35 J | -7407518.27 | -7407518.10 | -7407517.94 | 0.1835 | 0.0304 | | |
| Mercury | -24986-11-08 10:04 J | -7404402.20 | -7404402.08 | -7404401.97 | 0.1681 | 0.0447 | | |
| Mercury | -24985-09-17 05:16 J | -7404088.37 | -7404088.28 | -7404088.19 | 0.1841 | 0.1537 | | |
| Mercury | -24984-10-13 16:33 J | -7403696.81 | -7403696.81 | -7403696.81 | 0.1699 | 0.1697 | | |
| Earth | -24982-03-26 14:52 J | -7403167.97 | -7403167.88 | -7403167.79 | 0.1629 | 0.1418 | | |
| Moon | -24982-03-26 20:52 J | -7403167.69 | -7403167.63 | -7403167.57 | 0.1629 | 0.1537 | | |
| Venus | -24980-07-16 23:45 J | -7402324.68 | -7402324.51 | -7402324.34 | 0.1697 | 0.0033 | | |
| Mercury | -24976-03-30 20:38 J | -7400971.74 | -7400971.64 | -7400971.54 | 0.1677 | 0.0938 | | |
| Venus | -24975-02-23 13:11 J | -7400642.09 | -7400641.95 | -7400641.80 | 0.1829 | 0.1064 | | |
| Mercury | -24974-03-06 02:38 J | -7400266.47 | -7400266.39 | -7400266.30 | 0.1694 | 0.1160 | | |
| Mercury | -24967-08-21 07:26 J | -7397541.25 | -7397541.19 | -7397541.13 | 0.1673 | 0.1416 | | |
| Mercury | -24965-07-26 12:57 J | -7396836.07 | -7396835.96 | -7396835.85 | 0.1690 | 0.0632 | | |
| Mercury | -24964-06-06 13:40 J | -7396521.07 | -7396520.93 | -7396520.79 | 0.1830 | 0.0997 | | |
| Mercury | -24956-12-16 23:31 J | -7393405.64 | -7393405.52 | -7393405.41 | 0.1685 | 0.0128 | | |
| Mercury | -24955-10-27 10:04 J | -7393091.24 | -7393091.08 | -7393090.92 | 0.1835 | 0.0187 | | |
| Venus | -24948-07-15 20:23 J | -7390637.78 | -7390637.65 | -7390637.52 | 0.1705 | 0.1050 | | |
| Mercury | -24946-05-09 10:04 J | -7389975.20 | -7389975.08 | -7389974.97 | 0.1681 | 0.0381 | | |
| Venus | -24946-05-15 15:07 J | -7389968.99 | -7389968.87 | -7389968.75 | 0.1687 | 0.1186 | | |
| Mercury | -24945-03-18 06:14 J | -7389661.34 | -7389661.24 | -7389661.13 | 0.1841 | 0.1404 | | |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Venus | -24943-02-23 08:38 J | -7388954.31 | -7388954.14 | -7388953.97 | 0.1818 | 0.0624 |
| Mercury | -24937-09-28 20:38 J | -7386544.74 | -7386544.64 | -7386544.54 | 0.1677 | 0.0873 |
| Mercury | -24935-09-04 02:38 J | -7385839.47 | -7385839.39 | -7385839.31 | 0.1694 | 0.1228 |
| Mercury | -24927-02-19 07:26 J | -7383114.26 | -7383114.19 | -7383114.12 | 0.1673 | 0.1353 |
| Mercury | -24925-01-25 12:57 J | -7382409.07 | -7382408.96 | -7382408.85 | 0.1690 | 0.0700 |
| Mercury | -24925-12-05 14:09 J | -7382094.04 | -7382093.91 | -7382093.78 | 0.1830 | 0.1097 |
| Mercury | -24916-06-16 23:31 J | -7378978.64 | -7378978.52 | -7378978.41 | 0.1685 | 0.0193 |
| Mercury | -24915-04-27 10:47 J | -7378664.22 | -7378664.05 | -7378663.89 | 0.1836 | 0.0075 |
| Venus | -24914-05-14 11:02 J | -7378282.21 | -7378282.04 | -7378281.87 | 0.1694 | 0.0151 |
| Venus | -24910-12-21 16:47 J | -7376599.92 | -7376599.80 | -7376599.68 | 0.1832 | 0.1347 |
| Mercury | -24907-11-07 09:50 J | -7375548.20 | -7375548.09 | -7375547.97 | 0.1681 | 0.0326 |
| Mercury | -24906-09-17 06:57 J | -7375234.32 | -7375234.21 | -7375234.09 | 0.1841 | 0.1279 |
| Earth | -24903-03-28 16:33 J | -7374311.00 | -7374310.81 | -7374310.63 | 0.1628 | 0.0166 |
| Moon | -24903-03-28 17:16 J | -7374310.95 | -7374310.78 | -7374310.60 | 0.1628 | 0.0026 * |
| Mercury | -24897-03-29 20:38 J | -7372117.74 | -7372117.64 | -7372117.54 | 0.1677 | 0.0808 |
| Mercury | -24895-03-05 02:38 J | -7371412.46 | -7371412.39 | -7371412.31 | 0.1694 | 0.1292 |
| Mercury | -24888-08-20 07:26 J | -7368687.26 | -7368687.19 | -7368687.12 | 0.1673 | 0.1291 |
| Mercury | -24886-07-26 12:57 J | -7367982.06 | -7367981.96 | -7367981.85 | 0.1690 | 0.0767 |
| Mercury | -24885-06-05 14:52 J | -7367667.00 | -7367666.88 | -7367666.76 | 0.1830 | 0.1216 |
| Venus | -24882-05-13 07:11 J | -7366595.34 | -7366595.20 | -7366595.06 | 0.1702 | 0.0920 |
| Venus | -24880-03-12 02:38 J | -7365926.50 | -7365926.39 | -7365926.28 | 0.1684 | 0.1294 |
| Venus | -24878-12-21 12:43 J | -7364912.15 | -7364911.97 | -7364911.80 | 0.1822 | 0.0356 |
| Mercury | -24877-12-15 23:31 J | -7364551.64 | -7364551.52 | -7364551.41 | 0.1685 | 0.0256 |
| Mercury | -24876-10-26 11:31 J | -7364237.18 | -7364237.02 | -7364236.86 | 0.1835 | 0.0049 |
| Mercury | -24867-05-08 10:04 J | -7361121.20 | -7361121.08 | -7361120.97 | 0.1681 | 0.0255 |
| Mercury | -24866-03-18 07:40 J | -7360807.31 | -7360807.18 | -7360807.06 | 0.1841 | 0.1170 |
| Mercury | -24858-09-28 20:38 J | -7357690.75 | -7357690.64 | -7357690.54 | 0.1677 | 0.0750 |
| Mercury | -24856-09-03 02:38 J | -7356985.46 | -7356985.39 | -7356985.32 | 0.1694 | 0.1359 |
| Mercury | -24848-02-18 07:26 J | -7354260.27 | -7354260.19 | -7354260.11 | 0.1673 | 0.1230 |
| Venus | -24848-03-10 22:19 J | -7354239.74 | -7354239.57 | -7354239.40 | 0.1692 | 0.0266 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -24846-01-24 12:57 J | -7353555.06 | -7353554.96 | -7353554.86 | 0.1689 | 0.0826 |
| Mercury | -24846-12-05 15:35 J | -7353239.96 | -7353239.85 | -7353239.74 | 0.1830 | 0.1337 |
| Venus | -24844-10-17 20:09 J | -7352557.74 | -7352557.66 | -7352557.58 | 0.1835 | 0.1630 |
| Mercury | -24837-06-15 23:31 J | -7350124.64 | -7350124.52 | -7350124.41 | 0.1685 | 0.0319 |
| Mercury | -24836-04-26 12:14 J | -7349810.15 | -7349809.99 | -7349809.82 | 0.1835 | 0.0172 |
| Mercury | -24828-11-06 10:04 J | -7346694.20 | -7346694.08 | -7346693.97 | 0.1681 | 0.0195 |
| Mercury | -24827-09-16 08:23 J | -7346380.29 | -7346380.15 | -7346380.02 | 0.1841 | 0.1047 |
| Moon | -24824-03-30 11:45 J | -7345454.16 | -7345454.01 | -7345453.86 | 0.1628 | 0.0902 |
| Earth | -24824-03-30 17:16 J | -7345453.92 | -7345453.78 | -7345453.64 | 0.1628 | 0.1070 * |
| Mercury | -24818-03-29 20:38 J | -7343263.75 | -7343263.64 | -7343263.53 | 0.1677 | 0.0684 |
| Mercury | -24816-03-04 02:38 J | -7342558.45 | -7342558.39 | -7342558.32 | 0.1694 | 0.1424 |
| Venus | -24816-03-09 18:28 J | -7342552.88 | -7342552.73 | -7342552.58 | 0.1700 | 0.0797 |
| Venus | -24814-01-07 14:09 J | -7341884.01 | -7341883.91 | -7341883.82 | 0.1682 | 0.1402 |
| Venus | -24812-10-17 17:16 J | -7340869.96 | -7340869.78 | -7340869.60 | 0.1825 | 0.0101 |
| Mercury | -24809-08-19 07:26 J | -7339833.27 | -7339833.19 | -7339833.11 | 0.1673 | 0.1167 |
| Mercury | -24807-07-25 12:57 J | -7339128.06 | -7339127.96 | -7339127.86 | 0.1690 | 0.0897 |
| Mercury | -24806-06-05 16:04 J | -7338812.93 | -7338812.83 | -7338812.73 | 0.1830 | 0.1441 |
| Mercury | -24799-01-09 18:14 J | -7336402.76 | -7336402.74 | -7336402.72 | 0.1669 | 0.1642 |
| Mercury | -24798-12-15 23:31 J | -7335697.64 | -7335697.52 | -7335697.41 | 0.1685 | 0.0383 |
| Mercury | -24797-10-25 12:43 J | -7335383.13 | -7335382.97 | -7335382.80 | 0.1836 | 0.0281 |
| Mercury | -24788-05-07 09:50 J | -7332267.20 | -7332267.09 | -7332266.97 | 0.1681 | 0.0138 |
| Mercury | -24787-03-17 09:21 J | -7331953.25 | -7331953.11 | -7331952.97 | 0.1841 | 0.0913 |
| Venus | -24782-01-06 09:21 J | -7330197.27 | -7330197.11 | -7330196.94 | 0.1689 | 0.0382 |
| Venus | -24780-10-17 12:14 J | -7329182.03 | -7329181.99 | -7329181.94 | 0.1815 | 0.1756 |
| Mercury | -24779-09-27 20:38 J | -7328836.75 | -7328836.64 | -7328836.53 | 0.1677 | 0.0620 |
| Mercury | -24777-09-02 02:38 J | -7328131.44 | -7328131.39 | -7328131.33 | 0.1694 | 0.1490 |
| Mercury | -24769-02-18 07:26 J | -7325406.28 | -7325406.19 | -7325406.11 | 0.1673 | 0.1104 |
| Earth | -24769-09-26 23:31 J | -7325184.67 | -7325184.52 | -7325184.37 | 0.1891 | 0.1324 |
| Moon | -24769-09-27 02:23 J | -7325184.56 | -7325184.40 | -7325184.23 | 0.1891 | 0.1318 * |
| Mercury | -24767-01-23 12:57 J | -7324701.05 | -7324700.96 | -7324700.86 | 0.1690 | 0.0963 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -24767-12-04 16:47 J | -7324385.88 | -7324385.80 | -7324385.72 | 0.1830 | 0.1558 |
| Mercury | -24760-07-10 18:14 J | -7321975.77 | -7321975.74 | -7321975.70 | 0.1669 | 0.1577 |
| Mercury | -24758-06-15 23:31 J | -7321270.64 | -7321270.52 | -7321270.41 | 0.1685 | 0.0448 |
| Mercury | -24757-04-25 13:40 J | -7320956.09 | -7320955.93 | -7320955.77 | 0.1835 | 0.0403 |
| Venus | -24750-01-05 05:31 J | -7318510.43 | -7318510.27 | -7318510.12 | 0.1697 | 0.0671 |
| Venus | -24749-11-04 01:55 J | -7317841.49 | -7317841.42 | -7317841.35 | 0.1680 | 0.1504 |
| Mercury | -24749-11-05 09:50 J | -7317840.20 | -7317840.09 | -7317839.97 | 0.1681 | 0.0092 |
| Mercury | -24748-09-15 09:35 J | -7317526.25 | -7317526.10 | -7317525.95 | 0.1841 | 0.0818 |
| Venus | -24746-08-14 21:07 J | -7316827.80 | -7316827.62 | -7316827.44 | 0.1828 | 0.0171 |
| Mercury | -24739-03-28 20:38 J | -7314409.75 | -7314409.64 | -7314409.53 | 0.1677 | 0.0562 |
| Mercury | -24737-03-03 02:38 J | -7313704.43 | -7313704.39 | -7313704.34 | 0.1694 | 0.1557 |
| Mercury | -24730-08-19 07:26 J | -7310979.28 | -7310979.19 | -7310979.10 | 0.1673 | 0.1042 |
| Mercury | -24728-07-24 12:57 J | -7310274.05 | -7310273.96 | -7310273.87 | 0.1689 | 0.1024 |
| Mercury | -24727-06-04 17:45 J | -7309958.82 | -7309958.76 | -7309958.70 | 0.1830 | 0.1684 |
| Mercury | -24720-01-08 18:14 J | -7307548.79 | -7307548.74 | -7307548.69 | 0.1669 | 0.1516 |
| Mercury | -24719-12-14 23:31 J | -7306843.64 | -7306843.52 | -7306843.41 | 0.1685 | 0.0512 |
| Mercury | -24718-10-25 14:09 J | -7306529.06 | -7306528.91 | -7306528.75 | 0.1835 | 0.0518 |
| Venus | -24717-11-02 20:52 J | -7306154.79 | -7306154.63 | -7306154.46 | 0.1687 | 0.0495 |
| Venus | -24714-08-14 16:47 J | -7305139.90 | -7305139.80 | -7305139.71 | 0.1819 | 0.1505 |
| Mercury | -24709-05-06 10:04 J | -7303413.20 | -7303413.08 | -7303412.97 | 0.1681 | 0.0068 |
| Mercury | -24708-03-16 10:33 J | -7303099.21 | -7303099.06 | -7303098.90 | 0.1841 | 0.0684 |
| Mercury | -24700-09-26 20:38 J | -7299982.75 | -7299982.64 | -7299982.53 | 0.1677 | 0.0494 |
| Moon | -24698-03-27 21:50 J | -7299435.72 | -7299435.59 | -7299435.46 | 0.1630 | 0.1208 |
| Earth | -24698-03-27 22:19 J | -7299435.71 | -7299435.57 | -7299435.43 | 0.1630 | 0.1025 * |
| Mercury | -24698-09-02 02:38 J | -7299277.42 | -7299277.39 | -7299277.35 | 0.1694 | 0.1624 |
| Mercury | -24690-02-17 07:26 J | -7296552.29 | -7296552.19 | -7296552.10 | 0.1673 | 0.0981 |
| Mercury | -24688-01-22 12:57 J | -7295847.05 | -7295846.96 | -7295846.87 | 0.1689 | 0.1091 |
| Mercury | -24688-12-03 17:59 J | -7295531.78 | -7295531.75 | -7295531.71 | 0.1830 | 0.1779 |
| Venus | -24685-11-01 17:02 J | -7294467.95 | -7294467.79 | -7294467.63 | 0.1695 | 0.0556 |
| Venus | -24683-09-01 13:26 J | -7293798.98 | -7293798.94 | -7293798.89 | 0.1678 | 0.1607 |

Mercury -24681-07-09 18:14 J -7293121.80 -7293121.74 -7293121.69 0.1669 0.1458

Venus -24680-06-11 01:26 J -7292785.61 -7292785.44 -7292785.26 0.1832 0.0429

Mercury -24679-06-14 23:31 J -7292416.64 -7292416.52 -7292416.41 0.1685 0.0576

Mercury -24678-04-25 14:52 J -7292102.03 -7292101.88 -7292101.72 0.1836 0.0635

Mercury -24670-11-05 09:50 J -7288986.21 -7288986.09 -7288985.97 0.1681 0.0074

Mercury -24669-09-14 11:31 J -7288672.18 -7288672.02 -7288671.87 0.1841 0.0560

Mercury -24660-03-27 20:38 J -7285555.76 -7285555.64 -7285555.53 0.1677 0.0430

Mercury -24659-02-04 06:57 J -7285242.24 -7285242.21 -7285242.18 0.1846 0.1814

Mercury -24658-03-03 02:38 J -7284850.39 -7284850.39 -7284850.38 0.1694 0.1687

Venus -24653-10-31 13:40 J -7282780.98 -7282780.93 -7282780.88 0.1702 0.1617

Mercury -24651-08-18 07:26 J -7282125.29 -7282125.19 -7282125.10 0.1673 0.0919

Venus -24651-08-31 08:38 J -7282112.30 -7282112.14 -7282111.98 0.1685 0.0600

Mercury -24649-07-23 12:57 J -7281420.04 -7281419.96 -7281419.87 0.1690 0.1160

Venus -24648-06-10 21:07 J -7281097.75 -7281097.62 -7281097.49 0.1822 0.1249

Mercury -24641-01-08 18:14 J -7278694.80 -7278694.74 -7278694.68 0.1669 0.1393

Mercury -24640-12-13 23:31 J -7277989.63 -7277989.52 -7277989.42 0.1685 0.0642

Mercury -24639-10-24 15:35 J -7277674.99 -7277674.85 -7277674.70 0.1835 0.0752

Mercury -24630-05-06 10:04 J -7274559.20 -7274559.08 -7274558.97 0.1681 0.0147

Mercury -24629-03-15 11:59 J -7274245.16 -7274245.00 -7274244.85 0.1841 0.0456

Mercury -24621-09-25 20:23 J -7271128.76 -7271128.65 -7271128.53 0.1677 0.0374

Mercury -24620-08-05 07:40 J -7270815.24 -7270815.18 -7270815.11 0.1847 0.1692

Earth -24619-03-29 23:45 J -7270578.70 -7270578.51 -7270578.33 0.1629 0.0219

Moon -24619-03-30 05:16 J -7270578.46 -7270578.28 -7270578.09 0.1629 0.0423 *

Venus -24619-08-30 04:19 J -7270425.49 -7270425.32 -7270425.16 0.1692 0.0434

Venus -24614-04-08 05:02 J -7268743.45 -7268743.29 -7268743.12 0.1835 0.0707

Mercury -24611-02-16 07:11 J -7267698.30 -7267698.20 -7267698.09 0.1673 0.0857

Mercury -24609-01-22 12:57 J -7266993.04 -7266992.96 -7266992.88 0.1689 0.1219

Mercury -24602-07-09 18:14 J -7264267.81 -7264267.74 -7264267.67 0.1669 0.1329

Mercury -24600-06-13 23:31 J -7263562.63 -7263562.52 -7263562.42 0.1685 0.0707

Mercury -24599-04-24 16:33 J -7263247.96 -7263247.81 -7263247.67 0.1835 0.0872

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -24591-11-04 09:50 J | -7260132.20 | -7260132.09 | -7260131.97 | 0.1681 | 0.0197 |
| Mercury | -24590-09-14 12:43 J | -7259818.13 | -7259817.97 | -7259817.81 | 0.1841 | 0.0331 |
| Venus | -24587-08-29 00:28 J | -7258738.56 | -7258738.48 | -7258738.40 | 0.1700 | 0.1488 |
| Venus | -24585-06-27 20:09 J | -7258069.82 | -7258069.66 | -7258069.51 | 0.1682 | 0.0708 |
| Venus | -24582-04-08 01:11 J | -7257055.60 | -7257055.45 | -7257055.30 | 0.1825 | 0.0986 |
| Mercury | -24581-03-26 20:38 J | -7256701.76 | -7256701.64 | -7256701.53 | 0.1677 | 0.0307 |
| Mercury | -24580-02-03 08:23 J | -7256388.23 | -7256388.15 | -7256388.06 | 0.1846 | 0.1572 |
| Mercury | -24572-08-17 07:11 J | -7253271.30 | -7253271.20 | -7253271.09 | 0.1673 | 0.0793 |
| Mercury | -24570-07-23 12:57 J | -7252566.03 | -7252565.96 | -7252565.88 | 0.1689 | 0.1290 |
| Mercury | -24562-01-07 17:59 J | -7249840.82 | -7249840.75 | -7249840.67 | 0.1669 | 0.1273 |
| Mercury | -24561-12-12 23:16 J | -7249135.63 | -7249135.53 | -7249135.42 | 0.1685 | 0.0768 |
| Mercury | -24560-10-23 17:02 J | -7248820.93 | -7248820.79 | -7248820.65 | 0.1836 | 0.0980 |
| Venus | -24553-06-26 15:50 J | -7246383.00 | -7246382.84 | -7246382.67 | 0.1690 | 0.0322 |
| Mercury | -24551-05-05 09:50 J | -7245705.20 | -7245705.09 | -7245704.97 | 0.1681 | 0.0259 |
| Mercury | -24550-03-15 13:40 J | -7245391.09 | -7245390.93 | -7245390.77 | 0.1841 | 0.0199 |
| Venus | -24548-02-02 08:38 J | -7244701.29 | -7244701.14 | -7244700.98 | 0.1838 | 0.0983 |
| Mercury | -24542-09-25 20:38 J | -7242274.76 | -7242274.64 | -7242274.53 | 0.1677 | 0.0245 |
| Mercury | -24541-08-04 09:07 J | -7241961.22 | -7241961.12 | -7241961.02 | 0.1846 | 0.1454 |
| Earth | -24540-04-01 00:43 J | -7241721.54 | -7241721.47 | -7241721.39 | 0.1629 | 0.1465 |
| Moon | -24540-04-01 04:47 J | -7241721.38 | -7241721.30 | -7241721.22 | 0.1629 | 0.1423 |
| Mercury | -24532-02-15 07:11 J | -7238844.30 | -7238844.20 | -7238844.09 | 0.1673 | 0.0730 |
| Mercury | -24530-01-21 12:57 J | -7238139.03 | -7238138.96 | -7238138.89 | 0.1689 | 0.1355 |
| Mercury | -24523-07-08 17:59 J | -7235413.82 | -7235413.75 | -7235413.67 | 0.1669 | 0.1208 |
| Mercury | -24521-06-12 23:31 J | -7234708.63 | -7234708.52 | -7234708.42 | 0.1685 | 0.0835 |
| Venus | -24521-06-25 11:59 J | -7234696.10 | -7234696.00 | -7234695.90 | 0.1697 | 0.1366 |
| Mercury | -24520-04-23 17:45 J | -7234393.89 | -7234393.76 | -7234393.63 | 0.1835 | 0.1102 |
| Venus | -24519-04-25 08:09 J | -7234027.31 | -7234027.16 | -7234027.01 | 0.1680 | 0.0807 |
| Venus | -24516-02-02 05:16 J | -7233013.44 | -7233013.28 | -7233013.11 | 0.1828 | 0.0728 |
| Mercury | -24512-11-03 09:50 J | -7231278.20 | -7231278.09 | -7231277.97 | 0.1681 | 0.0324 |
| Mercury | -24511-09-13 13:55 J | -7230964.08 | -7230963.92 | -7230963.76 | 0.1841 | 0.0102 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -24502-03-26 20:23 J | -7227847.76 | -7227847.65 | -7227847.53 | 0.1677 | 0.0185 |
| Mercury | -24501-02-03 10:04 J | -7227534.19 | -7227534.08 | -7227533.96 | 0.1847 | 0.1318 |
| Mercury | -24493-08-16 07:11 J | -7224417.30 | -7224417.20 | -7224417.09 | 0.1673 | 0.0667 |
| Mercury | -24491-07-22 12:57 J | -7223712.02 | -7223711.96 | -7223711.90 | 0.1689 | 0.1416 |
| Venus | -24487-04-24 03:21 J | -7222340.53 | -7222340.36 | -7222340.19 | 0.1687 | 0.0209 |
| Moon | -24485-09-25 12:57 J | -7221455.14 | -7221454.96 | -7221454.77 | 0.1888 | 0.0725 |
| Earth | -24485-09-25 21:35 J | -7221454.80 | -7221454.60 | -7221454.39 | 0.1889 | 0.0196 * |
| Mercury | -24483-01-06 17:59 J | -7220986.83 | -7220986.75 | -7220986.66 | 0.1669 | 0.1146 |
| Venus | -24483-11-30 11:59 J | -7220659.13 | -7220659.00 | -7220658.87 | 0.1841 | 0.1273 |
| Mercury | -24482-12-12 23:31 J | -7220281.62 | -7220281.52 | -7220281.42 | 0.1685 | 0.0900 |
| Mercury | -24481-10-22 18:28 J | -7219966.85 | -7219966.73 | -7219966.61 | 0.1835 | 0.1213 |
| Mercury | -24474-05-30 05:02 J | -7217556.32 | -7217556.29 | -7217556.26 | 0.1666 | 0.1612 |
| Mercury | -24472-05-04 09:50 J | -7216851.20 | -7216851.09 | -7216850.97 | 0.1681 | 0.0391 |
| Mercury | -24471-03-14 14:52 J | -7216537.04 | -7216536.88 | -7216536.71 | 0.1841 | 0.0046 |
| Mercury | -24463-09-24 20:23 J | -7213420.76 | -7213420.65 | -7213420.53 | 0.1677 | 0.0129 |
| Mercury | -24462-08-04 10:33 J | -7213107.18 | -7213107.06 | -7213106.94 | 0.1846 | 0.1214 |
| Venus | -24455-04-22 23:02 J | -7210653.65 | -7210653.54 | -7210653.42 | 0.1695 | 0.1242 |
| Mercury | -24453-02-15 07:11 J | -7209990.31 | -7209990.20 | -7209990.09 | 0.1673 | 0.0605 |
| Venus | -24453-02-20 19:40 J | -7209984.82 | -7209984.68 | -7209984.54 | 0.1678 | 0.0914 |
| Mercury | -24451-01-20 12:57 J | -7209285.01 | -7209284.96 | -7209284.90 | 0.1689 | 0.1484 |
| Venus | -24451-11-30 08:52 J | -7208971.30 | -7208971.13 | -7208970.95 | 0.1831 | 0.0451 |
| Mercury | -24444-07-07 17:59 J | -7206559.84 | -7206559.75 | -7206559.66 | 0.1669 | 0.1085 |
| Mercury | -24442-06-12 23:16 J | -7205854.62 | -7205854.53 | -7205854.43 | 0.1685 | 0.0964 |
| Mercury | -24441-04-22 19:11 J | -7205539.81 | -7205539.70 | -7205539.59 | 0.1836 | 0.1334 |
| Mercury | -24435-11-28 05:02 J | -7203129.33 | -7203129.29 | -7203129.25 | 0.1666 | 0.1551 |
| Mercury | -24433-11-02 09:50 J | -7202424.20 | -7202424.09 | -7202423.98 | 0.1681 | 0.0450 |
| Mercury | -24432-09-12 15:35 J | -7202110.01 | -7202109.85 | -7202109.68 | 0.1841 | 0.0154 |
| Mercury | -24423-03-25 20:23 J | -7198993.76 | -7198993.65 | -7198993.53 | 0.1677 | 0.0081 |
| Mercury | -24422-02-02 11:16 J | -7198680.16 | -7198680.03 | -7198679.89 | 0.1846 | 0.1088 |
| Venus | -24421-02-19 14:38 J | -7198298.06 | -7198297.89 | -7198297.72 | 0.1685 | 0.0096 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Venus | -24417-09-26 14:52 J | -7196616.97 | -7196616.88 | -7196616.78 | 0.1844 | 0.1565 |
| Moon | -24414-03-28 23:16 J | -7195703.68 | -7195703.53 | -7195703.37 | 0.1632 | 0.0892 |
| Earth | -24414-03-29 05:31 J | -7195703.44 | -7195703.27 | -7195703.10 | 0.1632 | 0.0641 * |
| Mercury | -24414-08-16 07:11 J | -7195563.31 | -7195563.20 | -7195563.09 | 0.1673 | 0.0540 |
| Mercury | -24412-07-21 12:57 J | -7194858.00 | -7194857.96 | -7194857.91 | 0.1689 | 0.1553 |
| Mercury | -24404-01-05 17:59 J | -7192132.84 | -7192132.75 | -7192132.66 | 0.1669 | 0.1021 |
| Mercury | -24403-12-11 23:31 J | -7191427.62 | -7191427.52 | -7191427.43 | 0.1685 | 0.1029 |
| Mercury | -24402-10-22 19:40 J | -7191112.77 | -7191112.68 | -7191112.58 | 0.1835 | 0.1446 |
| Mercury | -24395-05-29 05:02 J | -7188702.34 | -7188702.29 | -7188702.24 | 0.1665 | 0.1493 |
| Mercury | -24393-05-03 09:50 J | -7187997.20 | -7187997.09 | -7187996.98 | 0.1681 | 0.0516 |
| Mercury | -24392-03-13 16:04 J | -7187682.99 | -7187682.83 | -7187682.67 | 0.1841 | 0.0259 |
| Venus | -24389-02-18 10:19 J | -7186611.19 | -7186611.07 | -7186610.94 | 0.1692 | 0.1123 |
| Venus | -24388-12-18 07:26 J | -7185942.32 | -7185942.19 | -7185942.06 | 0.1676 | 0.1015 |
| Venus | -24385-09-26 13:11 J | -7184929.13 | -7184928.95 | -7184928.77 | 0.1834 | 0.0189 |
| Mercury | -24384-09-23 20:23 J | -7184566.77 | -7184566.65 | -7184566.53 | 0.1677 | 0.0016 |
| Mercury | -24383-08-03 12:14 J | -7184253.13 | -7184252.99 | -7184252.85 | 0.1846 | 0.0961 |
| Mercury | -24374-02-14 07:11 J | -7181136.31 | -7181136.20 | -7181136.09 | 0.1673 | 0.0477 |
| Mercury | -24372-01-19 12:57 J | -7180430.99 | -7180430.96 | -7180430.93 | 0.1689 | 0.1612 |
| Mercury | -24365-07-06 17:59 J | -7177705.84 | -7177705.75 | -7177705.65 | 0.1669 | 0.0958 |
| Mercury | -24363-06-11 23:31 J | -7177000.61 | -7177000.52 | -7177000.43 | 0.1685 | 0.1095 |
| Mercury | -24362-04-22 20:23 J | -7176685.73 | -7176685.65 | -7176685.56 | 0.1835 | 0.1564 |
| Mercury | -24356-11-27 05:02 J | -7174275.35 | -7174275.29 | -7174275.24 | 0.1666 | 0.1431 |
| Venus | -24356-12-17 02:23 J | -7174255.57 | -7174255.40 | -7174255.23 | 0.1682 | 0.0033 |
| Mercury | -24354-11-02 09:50 J | -7173570.20 | -7173570.09 | -7173569.98 | 0.1681 | 0.0579 |
| Mercury | -24353-09-11 16:47 J | -7173255.95 | -7173255.80 | -7173255.63 | 0.1841 | 0.0384 |
| Venus | -24351-07-24 18:28 J | -7172574.73 | -7172574.73 | -7172574.72 | 0.1847 | 0.1844 |
| Mercury | -24344-03-24 20:23 J | -7170139.76 | -7170139.65 | -7170139.53 | 0.1677 | 0.0090 |
| Mercury | -24343-02-01 12:43 J | -7169826.11 | -7169825.97 | -7169825.82 | 0.1846 | 0.0848 |
| Moon | -24335-03-31 03:21 J | -7166846.54 | -7166846.36 | -7166846.19 | 0.1631 | 0.0702 |
| Earth | -24335-03-31 06:57 J | -7166846.38 | -7166846.21 | -7166846.04 | 0.1631 | 0.0609 * |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -24335-08-15 07:11 J | -7166709.31 | -7166709.20 | -7166709.09 | 0.1673 | 0.0415 |
| Mercury | -24333-07-20 12:57 J | -7166003.96 | -7166003.96 | -7166003.95 | 0.1689 | 0.1682 |
| Mercury | -24325-01-05 17:59 J | -7163278.85 | -7163278.75 | -7163278.65 | 0.1669 | 0.0901 |
| Mercury | -24324-12-10 23:16 J | -7162573.61 | -7162573.53 | -7162573.44 | 0.1685 | 0.1154 |
| Venus | -24324-12-15 21:35 J | -7162568.73 | -7162568.60 | -7162568.46 | 0.1689 | 0.1005 |
| Mercury | -24323-10-21 21:07 J | -7162258.68 | -7162258.62 | -7162258.55 | 0.1836 | 0.1674 |
| Venus | -24322-10-15 19:11 J | -7161899.82 | -7161899.70 | -7161899.57 | 0.1673 | 0.1117 |
| Venus | -24319-07-24 16:33 J | -7160886.99 | -7160886.81 | -7160886.63 | 0.1838 | 0.0089 |
| Mercury | -24316-05-28 05:02 J | -7159848.36 | -7159848.29 | -7159848.23 | 0.1666 | 0.1367 |
| Mercury | -24314-05-03 09:50 J | -7159143.20 | -7159143.09 | -7159142.98 | 0.1681 | 0.0643 |
| Mercury | -24313-03-12 17:45 J | -7158828.91 | -7158828.76 | -7158828.60 | 0.1841 | 0.0512 |
| Mercury | -24305-09-22 20:23 J | -7155712.76 | -7155712.65 | -7155712.53 | 0.1677 | 0.0151 |
| Mercury | -24304-08-02 13:26 J | -7155399.09 | -7155398.94 | -7155398.79 | 0.1846 | 0.0730 |
| Mercury | -24295-02-13 07:11 J | -7152282.32 | -7152282.20 | -7152282.09 | 0.1673 | 0.0354 |
| Venus | -24290-10-14 13:55 J | -7150213.09 | -7150212.92 | -7150212.75 | 0.1680 | 0.0132 |
| Venus | -24287-07-24 13:26 J | -7149199.02 | -7149198.94 | -7149198.86 | 0.1828 | 0.1608 |
| Mercury | -24286-07-06 17:59 J | -7148851.85 | -7148851.75 | -7148851.65 | 0.1669 | 0.0834 |
| Mercury | -24284-06-10 23:16 J | -7148146.61 | -7148146.53 | -7148146.44 | 0.1685 | 0.1224 |
| Mercury | -24283-04-21 21:50 J | -7147831.62 | -7147831.59 | -7147831.56 | 0.1835 | 0.1792 |
| Mercury | -24277-11-26 04:47 J | -7145421.37 | -7145421.30 | -7145421.23 | 0.1665 | 0.1309 |
| Mercury | -24275-11-01 09:50 J | -7144716.20 | -7144716.09 | -7144715.98 | 0.1681 | 0.0708 |
| Mercury | -24274-09-11 18:14 J | -7144401.90 | -7144401.74 | -7144401.59 | 0.1841 | 0.0608 |
| Mercury | -24265-03-23 20:23 J | -7141285.77 | -7141285.65 | -7141285.53 | 0.1677 | 0.0201 |
| Mercury | -24264-01-31 14:23 J | -7140972.05 | -7140971.90 | -7140971.74 | 0.1846 | 0.0597 |
| Venus | -24258-10-13 09:21 J | -7138526.25 | -7138526.11 | -7138525.97 | 0.1687 | 0.0892 |
| Venus | -24256-08-12 06:57 J | -7137857.32 | -7137857.21 | -7137857.09 | 0.1671 | 0.1217 |
| Mercury | -24256-08-14 07:11 J | -7137855.32 | -7137855.20 | -7137855.09 | 0.1673 | 0.0290 |
| Venus | -24253-05-20 20:52 J | -7136844.81 | -7136844.63 | -7136844.46 | 0.1841 | 0.0357 |
| Mercury | -24246-01-04 17:59 J | -7134424.86 | -7134424.75 | -7134424.65 | 0.1669 | 0.0772 |
| Mercury | -24245-12-09 23:31 J | -7133719.60 | -7133719.52 | -7133719.45 | 0.1685 | 0.1289 |

Mercury -24237-05-27 04:47 J -7130994.37 -7130994.30 -7130994.22 0.1665 0.1246

Mercury -24235-05-02 09:50 J -7130289.19 -7130289.09 -7130288.98 0.1681 0.0773

Mercury -24234-03-12 19:11 J -7129974.85 -7129974.70 -7129974.55 0.1841 0.0739

Mercury -24226-09-22 20:23 J -7126858.77 -7126858.65 -7126858.53 0.1677 0.0267

Mercury -24225-08-01 14:52 J -7126545.04 -7126544.88 -7126544.72 0.1846 0.0494

Venus -24224-08-11 01:40 J -7126170.60 -7126170.43 -7126170.26 0.1678 0.0233

Venus -24221-05-20 17:31 J -7125156.89 -7125156.77 -7125156.65 0.1831 0.1345

Mercury -24216-02-12 07:11 J -7123428.32 -7123428.20 -7123428.09 0.1673 0.0234

Mercury -24216-12-22 10:19 J -7123115.12 -7123115.07 -7123115.03 0.1852 0.1763

Earth -24209-03-27 10:47 J -7120828.11 -7120828.05 -7120827.99 0.1634 0.1531

Moon -24209-03-27 17:16 J -7120827.89 -7120827.78 -7120827.66 0.1634 0.1243

Mercury -24207-07-05 17:59 J -7119997.86 -7119997.75 -7119997.65 0.1669 0.0713

Mercury -24205-06-09 23:16 J -7119292.60 -7119292.53 -7119292.46 0.1685 0.1350

Earth -24201-09-24 19:40 J -7117724.77 -7117724.68 -7117724.59 0.1886 0.1679

Moon -24201-09-25 03:50 J -7117724.39 -7117724.34 -7117724.29 0.1886 0.1813

Mercury -24198-11-26 04:47 J -7116567.38 -7116567.30 -7116567.22 0.1666 0.1184

Mercury -24196-10-31 09:50 J -7115862.19 -7115862.09 -7115861.99 0.1681 0.0835

Mercury -24195-09-10 19:40 J -7115547.82 -7115547.68 -7115547.53 0.1841 0.0855

Venus -24192-08-09 20:38 J -7114483.79 -7114483.64 -7114483.49 0.1685 0.0778

Venus -24190-06-09 18:57 J -7113814.81 -7113814.71 -7113814.60 0.1669 0.1312

Mercury -24188-04-17 15:50 J -7113136.85 -7113136.84 -7113136.83 0.1662 0.1648

Venus -24187-03-17 23:45 J -7112802.68 -7112802.51 -7112802.34 0.1844 0.0642

Mercury -24186-03-23 20:23 J -7112431.76 -7112431.65 -7112431.53 0.1677 0.0333

Mercury -24185-01-31 15:50 J -7112118.01 -7112117.84 -7112117.68 0.1846 0.0370

Mercury -24177-08-13 07:11 J -7109001.32 -7109001.20 -7109001.09 0.1673 0.0169

Mercury -24176-06-22 11:02 J -7108688.11 -7108688.04 -7108687.96 0.1851 0.1634

Mercury -24167-01-03 17:59 J -7105570.86 -7105570.75 -7105570.65 0.1669 0.0651

Mercury -24166-12-09 23:16 J -7104865.59 -7104865.53 -7104865.46 0.1685 0.1415

Mercury -24158-05-27 04:47 J -7102140.39 -7102140.30 -7102140.22 0.1665 0.1125

Venus -24158-06-08 13:11 J -7102128.11 -7102127.95 -7102127.78 0.1675 0.0338

| | | | | | | |
|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -24156-05-01 09:50 J | -7101435.19 | -7101435.09 | -7101434.99 | 0.1681 | 0.0900 |
| Mercury | -24155-03-11 20:23 J | -7101120.79 | -7101120.65 | -7101120.52 | 0.1841 | 0.0963 |
| Venus | -24155-03-17 20:52 J | -7101114.77 | -7101114.63 | -7101114.48 | 0.1835 | 0.1072 |
| Mercury | -24149-10-16 15:50 J | -7098709.87 | -7098709.84 | -7098709.81 | 0.1662 | 0.1588 |
| Mercury | -24147-09-21 20:23 J | -7098004.77 | -7098004.65 | -7098004.54 | 0.1677 | 0.0392 |
| Mercury | -24146-08-01 16:33 J | -7097690.97 | -7097690.81 | -7097690.64 | 0.1846 | 0.0240 |
| Mercury | -24137-02-12 07:11 J | -7094574.32 | -7094574.20 | -7094574.09 | 0.1673 | 0.0115 |
| Mercury | -24137-12-21 11:45 J | -7094261.10 | -7094261.01 | -7094260.91 | 0.1851 | 0.1512 |
| Earth | -24130-03-30 11:59 J | -7091971.18 | -7091971.00 | -7091970.82 | 0.1633 | 0.0263 |
| Moon | -24130-03-30 15:07 J | -7091971.04 | -7091970.87 | -7091970.70 | 0.1633 | 0.0378 * |
| Mercury | -24128-07-04 17:45 J | -7091143.86 | -7091143.76 | -7091143.65 | 0.1669 | 0.0590 |
| Venus | -24126-06-07 08:23 J | -7090441.30 | -7090441.15 | -7090440.99 | 0.1683 | 0.0667 |
| Mercury | -24126-06-09 23:31 J | -7090438.58 | -7090438.52 | -7090438.47 | 0.1685 | 0.1483 |
| Venus | -24124-04-06 06:57 J | -7089772.29 | -7089772.21 | -7089772.12 | 0.1667 | 0.1408 |
| Earth | -24122-09-29 10:04 J | -7088866.14 | -7088866.08 | -7088866.01 | 0.1888 | 0.1769 |
| Venus | -24121-01-13 03:07 J | -7088760.53 | -7088760.37 | -7088760.22 | 0.1847 | 0.0926 |
| Mercury | -24119-11-25 04:47 J | -7087713.39 | -7087713.30 | -7087713.21 | 0.1665 | 0.1061 |
| Mercury | -24117-10-30 09:50 J | -7087008.19 | -7087008.09 | -7087008.00 | 0.1681 | 0.0964 |
| Mercury | -24116-09-09 21:07 J | -7086693.75 | -7086693.62 | -7086693.49 | 0.1841 | 0.1083 |
| Mercury | -24109-04-16 15:50 J | -7084282.88 | -7084282.84 | -7084282.80 | 0.1662 | 0.1526 |
| Mercury | -24107-03-22 20:23 J | -7083577.76 | -7083577.65 | -7083577.54 | 0.1677 | 0.0458 |
| Mercury | -24106-01-30 17:02 J | -7083263.95 | -7083263.79 | -7083263.62 | 0.1846 | 0.0134 |
| Mercury | -24098-08-13 06:57 J | -7080147.32 | -7080147.21 | -7080147.09 | 0.1673 | 0.0059 |
| Mercury | -24097-06-21 12:28 J | -7079834.09 | -7079833.98 | -7079833.87 | 0.1852 | 0.1398 |
| Venus | -24094-06-06 03:50 J | -7078754.35 | -7078754.34 | -7078754.33 | 0.1690 | 0.1683 |
| Venus | -24092-04-05 01:26 J | -7078085.60 | -7078085.44 | -7078085.28 | 0.1673 | 0.0435 |
| Venus | -24089-01-13 00:43 J | -7077072.63 | -7077072.47 | -7077072.31 | 0.1838 | 0.0803 |
| Mercury | -24088-01-02 17:45 J | -7076716.87 | -7076716.76 | -7076716.65 | 0.1669 | 0.0528 |
| Mercury | -24087-12-08 23:16 J | -7076011.57 | -7076011.53 | -7076011.48 | 0.1685 | 0.1541 |
| Mercury | -24079-05-26 04:47 J | -7073286.39 | -7073286.30 | -7073286.21 | 0.1666 | 0.0998 |

Mercury -24077-04-30 09:50 J -7072581.18 -7072581.09 -7072581.00 0.1681 0.1029

Mercury -24076-03-10 21:50 J -7072266.71 -7072266.59 -7072266.46 0.1841 0.1210

Mercury -24070-10-16 15:50 J -7069855.90 -7069855.84 -7069855.79 0.1662 0.1467

Mercury -24068-09-20 20:23 J -7069150.76 -7069150.65 -7069150.54 0.1677 0.0522

Mercury -24067-07-31 17:45 J -7068836.92 -7068836.76 -7068836.60 0.1846 0.0015

Venus -24060-04-03 20:09 J -7066398.82 -7066398.66 -7066398.50 0.1680 0.0555

Venus -24058-02-01 18:57 J -7065729.78 -7065729.71 -7065729.64 0.1665 0.1501

Mercury -24058-02-11 06:57 J -7065720.32 -7065720.21 -7065720.09 0.1673 0.0047

Mercury -24058-12-21 13:11 J -7065407.07 -7065406.95 -7065406.83 0.1851 0.1272

Venus -24056-11-09 05:45 J -7064718.39 -7064718.26 -7064718.13 0.1850 0.1222

Moon -24051-04-01 09:07 J -7063114.25 -7063114.12 -7063113.98 0.1632 0.1065

Earth -24051-04-01 13:26 J -7063114.08 -7063113.94 -7063113.79 0.1632 0.0987 *

Mercury -24049-07-03 17:45 J -7062289.87 -7062289.76 -7062289.64 0.1669 0.0464

Mercury -24047-06-08 23:16 J -7061584.56 -7061584.53 -7061584.49 0.1685 0.1611

Mercury -24040-11-24 04:47 J -7058859.40 -7058859.30 -7058859.21 0.1665 0.0943

Mercury -24038-10-30 09:50 J -7058154.18 -7058154.09 -7058154.00 0.1681 0.1092

Mercury -24037-09-08 22:19 J -7057839.69 -7057839.57 -7057839.46 0.1841 0.1305

Mercury -24030-04-16 15:35 J -7055428.91 -7055428.85 -7055428.79 0.1662 0.1407

Mercury -24028-03-21 20:23 J -7054723.76 -7054723.65 -7054723.54 0.1677 0.0583

Venus -24028-04-02 15:07 J -7054711.93 -7054711.87 -7054711.81 0.1687 0.1561

Mercury -24027-01-29 18:43 J -7054409.88 -7054409.72 -7054409.55 0.1846 0.0125

Venus -24026-01-31 12:57 J -7054043.12 -7054042.96 -7054042.80 0.1671 0.0540

Venus -24024-11-09 03:50 J -7053030.52 -7053030.34 -7053030.17 0.1841 0.0522

Mercury -24019-08-12 06:57 J -7051293.32 -7051293.21 -7051293.09 0.1673 0.0098

Mercury -24018-06-21 13:55 J -7050980.05 -7050979.92 -7050979.79 0.1851 0.1150

Mercury -24009-01-02 17:45 J -7047862.87 -7047862.76 -7047862.64 0.1669 0.0401

Mercury -24008-12-07 23:16 J -7047157.53 -7047157.53 -7047157.52 0.1685 0.1676

24TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 24th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|-------------|-------------|-------------|--------|--------|-------|---|
| Mercury | -24000-05-25 04:47 J | -7044432.40 | -7044432.30 | -7044432.20 | 0.1665 | 0.0878 | | |
| Mercury | -23998-04-30 09:50 J | -7043727.18 | -7043727.09 | -7043727.01 | 0.1681 | 0.1157 | | |
| Mercury | -23997-03-09 23:16 J | -7043412.63 | -7043412.53 | -7043412.43 | 0.1841 | 0.1434 | | |
| Venus | -23994-01-30 07:26 J | -7042356.35 | -7042356.19 | -7042356.02 | 0.1678 | 0.0443 | | |
| Venus | -23993-11-29 06:43 J | -7041687.26 | -7041687.22 | -7041687.17 | 0.1663 | 0.1596 | | |
| Mercury | -23991-10-15 15:35 J | -7041001.91 | -7041001.85 | -7041001.78 | 0.1662 | 0.1346 | | |
| Venus | -23990-09-06 08:38 J | -7040676.25 | -7040676.14 | -7040676.04 | 0.1853 | 0.1519 | | |
| Mercury | -23989-09-19 20:23 J | -7040296.76 | -7040296.65 | -7040296.54 | 0.1677 | 0.0648 | | |
| Mercury | -23988-07-30 19:11 J | -7039982.87 | -7039982.70 | -7039982.54 | 0.1846 | 0.0224 | | |
| Mercury | -23979-02-10 06:57 J | -7036866.33 | -7036866.21 | -7036866.09 | 0.1672 | 0.0148 | | |
| Mercury | -23979-12-20 14:38 J | -7036553.03 | -7036552.89 | -7036552.75 | 0.1852 | 0.1032 | | |
| Mercury | -23970-07-03 17:45 J | -7033435.87 | -7033435.76 | -7033435.64 | 0.1669 | 0.0339 | | |
| Venus | -23962-01-29 02:38 J | -7030669.48 | -7030669.39 | -7030669.31 | 0.1685 | 0.1447 | | |
| Mercury | -23961-11-23 04:47 J | -7030005.41 | -7030005.30 | -7030005.20 | 0.1665 | 0.0817 | | |
| Venus | -23961-11-28 00:57 J | -7030000.61 | -7030000.46 | -7030000.30 | 0.1669 | 0.0637 | | |
| Mercury | -23959-10-29 09:50 J | -7029300.17 | -7029300.09 | -7029300.01 | 0.1681 | 0.1220 | | |
| Venus | -23958-09-06 07:40 J | -7028988.36 | -7028988.18 | -7028988.00 | 0.1844 | 0.0252 | | |
| Mercury | -23958-09-08 23:45 J | -7028985.59 | -7028985.51 | -7028985.42 | 0.1841 | 0.1547 | | |
| Mercury | -23951-04-15 15:35 J | -7026574.92 | -7026574.85 | -7026574.78 | 0.1662 | 0.1283 | | |
| Mercury | -23949-03-20 20:23 J | -7025869.76 | -7025869.65 | -7025869.55 | 0.1677 | 0.0713 | | |
| Mercury | -23948-01-28 19:55 J | -7025555.83 | -7025555.67 | -7025555.51 | 0.1846 | 0.0349 | | |
| Mercury | -23940-08-11 06:57 J | -7022439.33 | -7022439.21 | -7022439.09 | 0.1673 | 0.0214 | | |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -23939-06-20 15:21 J | -7022126.00 | -7022125.86 | -7022125.71 | 0.1851 | 0.0910 |
| Mercury | -23930-01-01 17:45 J | -7019008.88 | -7019008.76 | -7019008.64 | 0.1669 | 0.0277 |
| Venus | -23929-11-26 19:26 J | -7018313.86 | -7018313.69 | -7018313.53 | 0.1676 | 0.0339 |
| Moon | -23925-03-28 15:07 J | -7017096.02 | -7017095.87 | -7017095.71 | 0.1636 | 0.1001 |
| Earth | -23925-03-28 16:47 J | -7017095.92 | -7017095.80 | -7017095.67 | 0.1636 | 0.1166 * |
| Venus | -23924-07-03 11:31 J | -7016634.06 | -7016634.02 | -7016633.98 | 0.1856 | 0.1809 |
| Mercury | -23921-05-24 04:33 J | -7015578.41 | -7015578.31 | -7015578.20 | 0.1665 | 0.0757 |
| Mercury | -23919-04-29 09:50 J | -7014873.17 | -7014873.09 | -7014873.02 | 0.1680 | 0.1285 |
| Mercury | -23918-03-10 00:28 J | -7014558.55 | -7014558.48 | -7014558.41 | 0.1841 | 0.1658 |
| Mercury | -23912-10-14 15:35 J | -7012147.93 | -7012147.85 | -7012147.77 | 0.1662 | 0.1223 |
| Mercury | -23910-09-19 20:09 J | -7011442.76 | -7011442.66 | -7011442.55 | 0.1676 | 0.0775 |
| Mercury | -23909-07-29 20:52 J | -7011128.79 | -7011128.63 | -7011128.47 | 0.1846 | 0.0472 |
| Mercury | -23900-02-09 06:57 J | -7008012.33 | -7008012.21 | -7008012.09 | 0.1673 | 0.0275 |
| Mercury | -23900-12-19 16:04 J | -7007698.98 | -7007698.83 | -7007698.68 | 0.1851 | 0.0791 |
| Venus | -23897-11-25 14:09 J | -7006627.01 | -7006626.91 | -7006626.81 | 0.1682 | 0.1332 |
| Venus | -23895-09-25 12:57 J | -7005958.12 | -7005957.96 | -7005957.81 | 0.1667 | 0.0735 |
| Venus | -23892-07-03 10:33 J | -7004946.24 | -7004946.06 | -7004945.88 | 0.1847 | 0.0035 |
| Mercury | -23891-07-02 17:45 J | -7004581.88 | -7004581.76 | -7004581.64 | 0.1669 | 0.0213 |
| Mercury | -23882-11-23 04:33 J | -7001151.41 | -7001151.31 | -7001151.20 | 0.1665 | 0.0693 |
| Mercury | -23880-10-28 09:50 J | -7000446.16 | -7000446.09 | -7000446.02 | 0.1680 | 0.1349 |
| Mercury | -23879-09-08 01:11 J | -7000131.49 | -7000131.45 | -7000131.41 | 0.1841 | 0.1775 |
| Mercury | -23872-04-14 15:35 J | -6997720.93 | -6997720.85 | -6997720.77 | 0.1662 | 0.1163 |
| Mercury | -23870-03-20 20:23 J | -6997015.76 | -6997015.65 | -6997015.55 | 0.1676 | 0.0840 |
| Mercury | -23869-01-28 21:21 J | -6996701.77 | -6996701.61 | -6996701.46 | 0.1846 | 0.0578 |
| Mercury | -23863-09-05 02:38 J | -6994290.41 | -6994290.39 | -6994290.37 | 0.1659 | 0.1626 |
| Venus | -23863-09-24 06:57 J | -6994271.38 | -6994271.21 | -6994271.04 | 0.1673 | 0.0231 |
| Mercury | -23861-08-10 06:57 J | -6993585.33 | -6993585.21 | -6993585.10 | 0.1672 | 0.0337 |
| Mercury | -23860-06-19 16:47 J | -6993271.95 | -6993271.80 | -6993271.65 | 0.1852 | 0.0671 |
| Venus | -23860-07-03 08:38 J | -6993258.21 | -6993258.14 | -6993258.07 | 0.1838 | 0.1685 |
| Mercury | -23852-12-31 17:45 J | -6990154.88 | -6990154.76 | -6990154.65 | 0.1669 | 0.0157 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Earth | -23846-03-31 18:28 J | -6988238.91 | -6988238.73 | -6988238.54 | 0.1635 | 0.0119 |
| Moon | -23846-04-01 00:14 J | -6988238.69 | -6988238.49 | -6988238.30 | 0.1635 | 0.0019 * |
| Mercury | -23842-05-24 04:33 J | -6986724.41 | -6986724.31 | -6986724.20 | 0.1665 | 0.0631 |
| Mercury | -23840-04-28 09:50 J | -6986019.16 | -6986019.09 | -6986019.03 | 0.1681 | 0.1413 |
| Earth | -23838-09-28 08:23 J | -6985136.35 | -6985136.15 | -6985135.95 | 0.1885 | 0.0288 |
| Moon | -23838-09-28 17:31 J | -6985135.96 | -6985135.77 | -6985135.58 | 0.1885 | 0.0799 * |
| Mercury | -23833-10-13 15:35 J | -6983293.94 | -6983293.85 | -6983293.77 | 0.1662 | 0.1103 |
| Mercury | -23831-09-18 20:23 J | -6982588.75 | -6982588.65 | -6982588.56 | 0.1676 | 0.0904 |
| Venus | -23831-09-23 01:55 J | -6982584.54 | -6982584.42 | -6982584.31 | 0.1680 | 0.1224 |
| Mercury | -23830-07-29 21:50 J | -6982274.74 | -6982274.59 | -6982274.43 | 0.1846 | 0.0697 |
| Venus | -23829-07-23 00:57 J | -6981915.61 | -6981915.46 | -6981915.32 | 0.1665 | 0.0831 |
| Venus | -23826-04-30 14:23 J | -6980904.07 | -6980903.90 | -6980903.72 | 0.1850 | 0.0310 |
| Mercury | -23823-03-06 02:38 J | -6979863.43 | -6979863.39 | -6979863.35 | 0.1659 | 0.1563 |
| Mercury | -23821-02-09 06:57 J | -6979158.33 | -6979158.21 | -6979158.10 | 0.1672 | 0.0402 |
| Mercury | -23821-12-18 17:31 J | -6978844.93 | -6978844.77 | -6978844.61 | 0.1851 | 0.0551 |
| Mercury | -23812-07-01 17:45 J | -6975727.88 | -6975727.76 | -6975727.64 | 0.1669 | 0.0091 |
| Mercury | -23811-05-10 12:28 J | -6975414.99 | -6975414.98 | -6975414.97 | 0.1857 | 0.1846 |
| Mercury | -23803-11-22 04:33 J | -6972297.42 | -6972297.31 | -6972297.20 | 0.1665 | 0.0574 |
| Mercury | -23801-10-27 09:50 J | -6971592.15 | -6971592.09 | -6971592.04 | 0.1680 | 0.1476 |
| Venus | -23797-07-21 18:57 J | -6970228.88 | -6970228.71 | -6970228.54 | 0.1671 | 0.0133 |
| Venus | -23794-04-30 12:14 J | -6969216.10 | -6969215.99 | -6969215.87 | 0.1841 | 0.1414 |
| Mercury | -23793-04-13 15:35 J | -6968866.94 | -6968866.85 | -6968866.76 | 0.1662 | 0.1041 |
| Mercury | -23791-03-19 20:09 J | -6968161.75 | -6968161.66 | -6968161.56 | 0.1676 | 0.0962 |
| Mercury | -23790-01-27 23:02 J | -6967847.69 | -6967847.54 | -6967847.40 | 0.1846 | 0.0828 |
| Mercury | -23784-09-04 02:38 J | -6965436.44 | -6965436.39 | -6965436.35 | 0.1659 | 0.1503 |
| Mercury | -23782-08-10 06:57 J | -6964731.32 | -6964731.21 | -6964731.10 | 0.1673 | 0.0466 |
| Mercury | -23781-06-18 18:14 J | -6964417.90 | -6964417.74 | -6964417.58 | 0.1851 | 0.0429 |
| Mercury | -23773-12-30 17:45 J | -6961300.88 | -6961300.76 | -6961300.65 | 0.1669 | 0.0062 |
| Mercury | -23772-11-08 13:11 J | -6960988.01 | -6960987.95 | -6960987.89 | 0.1857 | 0.1721 |
| Earth | -23767-04-02 19:26 J | -6959381.79 | -6959381.69 | -6959381.58 | 0.1634 | 0.1359 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Moon | -23767-04-03 01:11 J | -6959381.51 | -6959381.45 | -6959381.39 | 0.1633 | 0.1517 |
| Venus | -23765-07-20 13:26 J | -6958542.06 | -6958541.94 | -6958541.81 | 0.1678 | 0.1115 |
| Venus | -23763-05-20 12:57 J | -6957873.10 | -6957872.96 | -6957872.82 | 0.1663 | 0.0923 |
| Mercury | -23763-05-23 04:33 J | -6957870.42 | -6957870.31 | -6957870.20 | 0.1665 | 0.0507 |
| Mercury | -23761-04-27 09:50 J | -6957165.14 | -6957165.09 | -6957165.05 | 0.1680 | 0.1541 |
| Venus | -23760-02-24 17:02 J | -6956861.96 | -6956861.79 | -6956861.62 | 0.1852 | 0.0605 |
| Mercury | -23754-10-13 15:21 J | -6954439.95 | -6954439.86 | -6954439.76 | 0.1662 | 0.0982 |
| Mercury | -23752-09-17 20:09 J | -6953734.75 | -6953734.66 | -6953734.56 | 0.1676 | 0.1030 |
| Mercury | -23751-07-28 23:16 J | -6953420.67 | -6953420.53 | -6953420.39 | 0.1846 | 0.0924 |
| Mercury | -23744-03-05 02:23 J | -6951009.45 | -6951009.40 | -6951009.34 | 0.1659 | 0.1446 |
| Mercury | -23742-02-08 06:43 J | -6950304.33 | -6950304.22 | -6950304.10 | 0.1672 | 0.0528 |
| Mercury | -23742-12-18 18:57 J | -6949990.87 | -6949990.71 | -6949990.55 | 0.1852 | 0.0311 |
| Mercury | -23733-06-30 17:31 J | -6946873.88 | -6946873.77 | -6946873.65 | 0.1669 | 0.0074 |
| Mercury | -23732-05-09 14:09 J | -6946560.99 | -6946560.91 | -6946560.82 | 0.1856 | 0.1587 |
| Venus | -23731-05-19 06:43 J | -6946186.39 | -6946186.22 | -6946186.05 | 0.1669 | 0.0047 |
| Venus | -23728-02-24 15:07 J | -6945174.01 | -6945173.87 | -6945173.73 | 0.1844 | 0.1130 |
| Mercury | -23724-11-21 04:33 J | -6943443.42 | -6943443.31 | -6943443.20 | 0.1665 | 0.0446 |
| Mercury | -23722-10-27 09:35 J | -6942738.13 | -6942738.10 | -6942738.06 | 0.1681 | 0.1605 |
| Mercury | -23714-04-13 15:21 J | -6940012.95 | -6940012.86 | -6940012.76 | 0.1662 | 0.0920 |
| Mercury | -23712-03-18 20:09 J | -6939307.74 | -6939307.66 | -6939307.57 | 0.1676 | 0.1095 |
| Mercury | -23711-01-27 00:14 J | -6938993.63 | -6938993.49 | -6938993.36 | 0.1846 | 0.1052 |
| Mercury | -23705-09-03 02:23 J | -6936582.46 | -6936582.40 | -6936582.33 | 0.1658 | 0.1384 |
| Mercury | -23703-08-09 06:57 J | -6935877.32 | -6935877.21 | -6935877.10 | 0.1672 | 0.0593 |
| Mercury | -23702-06-18 19:40 J | -6935563.84 | -6935563.68 | -6935563.52 | 0.1851 | 0.0192 |
| Venus | -23699-05-18 01:26 J | -6934499.58 | -6934499.44 | -6934499.31 | 0.1676 | 0.1009 |
| Venus | -23697-03-17 00:57 J | -6933830.59 | -6933830.46 | -6933830.33 | 0.1661 | 0.1020 |
| Venus | -23695-12-22 19:55 J | -6932819.83 | -6932819.67 | -6932819.51 | 0.1856 | 0.0895 |
| Mercury | -23694-12-30 17:31 J | -6932446.88 | -6932446.77 | -6932446.65 | 0.1669 | 0.0115 |
| Mercury | -23693-11-07 14:38 J | -6932133.99 | -6932133.89 | -6932133.80 | 0.1857 | 0.1486 |
| Mercury | -23684-05-22 04:33 J | -6929016.43 | -6929016.31 | -6929016.20 | 0.1665 | 0.0392 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -23682-04-27 09:50 J | -6928311.10 | -6928311.09 | -6928311.08 | 0.1680 | 0.1669 |
| Mercury | -23675-10-12 15:21 J | -6925585.96 | -6925585.86 | -6925585.76 | 0.1662 | 0.0859 |
| Mercury | -23673-09-16 20:09 J | -6924880.74 | -6924880.66 | -6924880.58 | 0.1676 | 0.1152 |
| Mercury | -23672-07-28 00:57 J | -6924566.59 | -6924566.46 | -6924566.34 | 0.1846 | 0.1173 |
| Mercury | -23665-03-04 02:23 J | -6922155.47 | -6922155.40 | -6922155.33 | 0.1659 | 0.1323 |
| Venus | -23665-03-15 18:43 J | -6922143.89 | -6922143.72 | -6922143.55 | 0.1667 | 0.0080 |
| Mercury | -23663-02-07 06:57 J | -6921450.32 | -6921450.21 | -6921450.11 | 0.1672 | 0.0656 |
| Mercury | -23663-12-17 20:23 J | -6921136.82 | -6921136.65 | -6921136.49 | 0.1852 | 0.0075 |
| Venus | -23663-12-22 18:43 J | -6921131.88 | -6921131.72 | -6921131.57 | 0.1847 | 0.0854 |
| Mercury | -23654-06-30 17:31 J | -6918019.88 | -6918019.77 | -6918019.65 | 0.1669 | 0.0171 |
| Mercury | -23653-05-08 15:35 J | -6917706.96 | -6917706.85 | -6917706.74 | 0.1856 | 0.1348 |
| Mercury | -23645-11-20 04:33 J | -6914589.43 | -6914589.31 | -6914589.20 | 0.1665 | 0.0327 |
| Moon | -23641-03-29 17:31 J | -6913363.93 | -6913363.77 | -6913363.61 | 0.1638 | 0.0693 |
| Earth | -23641-03-29 22:33 J | -6913363.72 | -6913363.56 | -6913363.40 | 0.1638 | 0.0805 * |
| Mercury | -23635-04-12 15:21 J | -6911158.96 | -6911158.86 | -6911158.76 | 0.1662 | 0.0797 |
| Venus | -23633-03-14 12:57 J | -6910457.10 | -6910456.96 | -6910456.81 | 0.1673 | 0.0901 |
| Mercury | -23633-03-17 20:09 J | -6910453.74 | -6910453.66 | -6910453.58 | 0.1676 | 0.1218 |
| Mercury | -23632-01-26 01:26 J | -6910139.56 | -6910139.44 | -6910139.33 | 0.1846 | 0.1276 |
| Venus | -23631-01-12 12:57 J | -6909788.09 | -6909787.96 | -6909787.84 | 0.1659 | 0.1110 |
| Venus | -23629-10-18 22:19 J | -6908777.71 | -6908777.57 | -6908777.43 | 0.1858 | 0.1197 |
| Mercury | -23626-09-03 02:23 J | -6907728.47 | -6907728.40 | -6907728.33 | 0.1659 | 0.1264 |
| Mercury | -23624-08-08 06:43 J | -6907023.32 | -6907023.22 | -6907023.11 | 0.1672 | 0.0715 |
| Mercury | -23623-06-17 21:07 J | -6906709.78 | -6906709.62 | -6906709.45 | 0.1852 | 0.0059 |
| Mercury | -23615-12-29 17:31 J | -6903592.88 | -6903592.77 | -6903592.65 | 0.1669 | 0.0225 |
| Mercury | -23614-11-07 16:19 J | -6903279.94 | -6903279.82 | -6903279.70 | 0.1856 | 0.1226 |
| Mercury | -23605-05-21 04:19 J | -6900162.43 | -6900162.32 | -6900162.20 | 0.1665 | 0.0268 |
| Venus | -23599-01-11 06:28 J | -6898101.40 | -6898101.23 | -6898101.06 | 0.1665 | 0.0168 |
| Venus | -23597-10-18 21:21 J | -6897089.78 | -6897089.61 | -6897089.44 | 0.1850 | 0.0565 |
| Mercury | -23596-10-11 15:21 J | -6896731.96 | -6896731.86 | -6896731.76 | 0.1662 | 0.0736 |
| Mercury | -23594-09-16 20:09 J | -6896026.73 | -6896026.66 | -6896026.58 | 0.1676 | 0.1283 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -23593-07-27 02:09 J | -6895712.52 | -6895712.41 | -6895712.31 | 0.1846 | 0.1396 |
| Mercury | -23586-03-04 02:23 J | -6893301.48 | -6893301.40 | -6893301.32 | 0.1658 | 0.1200 |
| Mercury | -23584-02-06 06:43 J | -6892596.32 | -6892596.22 | -6892596.11 | 0.1672 | 0.0780 |
| Mercury | -23584-12-16 21:50 J | -6892282.76 | -6892282.59 | -6892282.43 | 0.1851 | 0.0167 |
| Mercury | -23575-06-29 17:31 J | -6889165.88 | -6889165.77 | -6889165.65 | 0.1669 | 0.0286 |
| Mercury | -23574-05-08 16:47 J | -6888852.93 | -6888852.80 | -6888852.67 | 0.1857 | 0.1116 |
| Venus | -23567-01-10 00:43 J | -6886414.62 | -6886414.47 | -6886414.32 | 0.1671 | 0.0793 |
| Venus | -23566-11-10 00:57 J | -6885745.57 | -6885745.46 | -6885745.34 | 0.1658 | 0.1203 |
| Mercury | -23566-11-20 04:19 J | -6885735.44 | -6885735.32 | -6885735.20 | 0.1665 | 0.0203 |
| Venus | -23563-08-16 00:43 J | -6884735.57 | -6884735.47 | -6884735.36 | 0.1861 | 0.1498 |
| Moon | -23562-04-01 19:55 J | -6884506.86 | -6884506.67 | -6884506.48 | 0.1637 | 0.0312 |
| Earth | -23562-04-02 00:43 J | -6884506.65 | -6884506.47 | -6884506.29 | 0.1636 | 0.0487 * |
| Mercury | -23556-04-11 15:21 J | -6882304.97 | -6882304.86 | -6882304.75 | 0.1662 | 0.0673 |
| Mercury | -23554-03-17 20:09 J | -6881599.73 | -6881599.66 | -6881599.59 | 0.1676 | 0.1344 |
| Moon | -23554-09-26 23:45 J | -6881406.67 | -6881406.51 | -6881406.35 | 0.1881 | 0.1232 |
| Earth | -23554-09-27 08:52 J | -6881406.30 | -6881406.13 | -6881405.97 | 0.1881 | 0.1093 |
| Mercury | -23553-01-26 03:07 J | -6881285.46 | -6881285.37 | -6881285.28 | 0.1846 | 0.1527 |
| Mercury | -23547-09-02 02:23 J | -6878874.48 | -6878874.40 | -6878874.32 | 0.1658 | 0.1140 |
| Mercury | -23545-08-07 06:43 J | -6878169.32 | -6878169.22 | -6878169.11 | 0.1672 | 0.0845 |
| Mercury | -23544-06-16 22:33 J | -6877855.72 | -6877855.56 | -6877855.40 | 0.1852 | 0.0287 |
| Mercury | -23537-01-23 13:26 J | -6875443.97 | -6875443.94 | -6875443.91 | 0.1655 | 0.1599 |
| Mercury | -23536-12-28 17:31 J | -6874738.88 | -6874738.77 | -6874738.65 | 0.1669 | 0.0347 |
| Mercury | -23535-11-06 17:45 J | -6874425.90 | -6874425.76 | -6874425.62 | 0.1856 | 0.0990 |
| Venus | -23534-11-08 18:43 J | -6874058.88 | -6874058.72 | -6874058.55 | 0.1663 | 0.0266 |
| Venus | -23531-08-16 00:57 J | -6873047.64 | -6873047.46 | -6873047.29 | 0.1852 | 0.0291 |
| Mercury | -23526-05-21 04:19 J | -6871308.43 | -6871308.32 | -6871308.20 | 0.1665 | 0.0142 |
| Mercury | -23517-10-10 15:21 J | -6867877.97 | -6867877.86 | -6867877.75 | 0.1662 | 0.0616 |
| Mercury | -23515-09-15 20:09 J | -6867172.72 | -6867172.66 | -6867172.60 | 0.1676 | 0.1409 |
| Mercury | -23514-07-27 03:21 J | -6866858.44 | -6866858.36 | -6866858.28 | 0.1846 | 0.1621 |
| Mercury | -23507-03-03 02:23 J | -6864447.49 | -6864447.40 | -6864447.32 | 0.1658 | 0.1083 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -23505-02-06 06:43 J | -6863742.32 | -6863742.22 | -6863742.12 | 0.1672 | 0.0901 |
| Mercury | -23505-12-15 23:16 J | -6863428.69 | -6863428.53 | -6863428.37 | 0.1852 | 0.0408 |
| Venus | -23502-11-07 12:43 J | -6862372.13 | -6862371.97 | -6862371.82 | 0.1669 | 0.0692 |
| Venus | -23500-09-06 13:26 J | -6861703.05 | -6861702.94 | -6861702.84 | 0.1656 | 0.1288 |
| Mercury | -23498-07-24 13:26 J | -6861016.98 | -6861016.94 | -6861016.90 | 0.1655 | 0.1538 |
| Venus | -23497-06-12 03:35 J | -6860693.40 | -6860693.35 | -6860693.31 | 0.1863 | 0.1792 |
| Mercury | -23496-06-28 17:31 J | -6860311.88 | -6860311.77 | -6860311.66 | 0.1669 | 0.0410 |
| Mercury | -23495-05-07 18:28 J | -6859998.87 | -6859998.73 | -6859998.58 | 0.1856 | 0.0859 |
| Mercury | -23487-11-19 04:19 J | -6856881.44 | -6856881.32 | -6856881.20 | 0.1665 | 0.0077 |
| Mercury | -23477-04-10 15:21 J | -6853450.97 | -6853450.86 | -6853450.75 | 0.1662 | 0.0553 |
| Mercury | -23475-03-16 20:09 J | -6852745.71 | -6852745.66 | -6852745.61 | 0.1676 | 0.1473 |
| Mercury | -23474-01-25 04:19 J | -6852431.37 | -6852431.32 | -6852431.27 | 0.1846 | 0.1748 |
| Venus | -23470-11-06 06:57 J | -6850685.23 | -6850685.21 | -6850685.19 | 0.1676 | 0.1660 |
| Mercury | -23468-09-01 02:23 J | -6850020.49 | -6850020.40 | -6850020.31 | 0.1658 | 0.1021 |
| Venus | -23468-09-05 06:43 J | -6850016.39 | -6850016.22 | -6850016.05 | 0.1661 | 0.0357 |
| Mercury | -23466-08-07 06:43 J | -6849315.31 | -6849315.22 | -6849315.12 | 0.1672 | 0.0969 |
| Venus | -23465-06-12 03:35 J | -6849005.53 | -6849005.35 | -6849005.17 | 0.1855 | 0.0013 |
| Mercury | -23465-06-15 23:59 J | -6849001.66 | -6849001.50 | -6849001.35 | 0.1851 | 0.0524 |
| Mercury | -23458-01-22 13:26 J | -6846589.99 | -6846589.94 | -6846589.90 | 0.1655 | 0.1482 |
| Mercury | -23457-12-27 17:31 J | -6845884.88 | -6845884.77 | -6845884.66 | 0.1668 | 0.0472 |
| Mercury | -23456-11-05 18:57 J | -6845571.86 | -6845571.71 | -6845571.56 | 0.1857 | 0.0754 |
| Mercury | -23447-05-20 04:19 J | -6842454.44 | -6842454.32 | -6842454.20 | 0.1665 | 0.0025 |
| Mercury | -23438-10-10 15:21 J | -6839023.98 | -6839023.86 | -6839023.75 | 0.1662 | 0.0494 |
| Venus | -23436-09-04 00:14 J | -6838329.64 | -6838329.49 | -6838329.33 | 0.1667 | 0.0590 |
| Mercury | -23436-09-14 20:09 J | -6838318.71 | -6838318.66 | -6838318.62 | 0.1676 | 0.1534 |
| Venus | -23434-07-05 01:40 J | -6837660.53 | -6837660.43 | -6837660.34 | 0.1654 | 0.1375 |
| Venus | -23433-06-12 02:38 J | -6837317.44 | -6837317.39 | -6837317.33 | 0.1847 | 0.1741 |
| Mercury | -23428-03-02 02:09 J | -6835593.50 | -6835593.41 | -6835593.31 | 0.1658 | 0.0961 |
| Mercury | -23426-02-05 06:43 J | -6834888.31 | -6834888.22 | -6834888.13 | 0.1672 | 0.1032 |
| Mercury | -23426-12-16 00:43 J | -6834574.63 | -6834574.47 | -6834574.32 | 0.1852 | 0.0644 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -23419-07-23 13:26 J | -6832163.00 | -6832162.94 | -6832162.88 | 0.1655 | 0.1417 |
| Mercury | -23417-06-27 17:31 J | -6831457.88 | -6831457.77 | -6831457.66 | 0.1669 | 0.0536 |
| Mercury | -23416-05-06 19:55 J | -6831144.82 | -6831144.67 | -6831144.51 | 0.1856 | 0.0620 |
| Mercury | -23408-11-18 04:19 J | -6828027.44 | -6828027.32 | -6828027.20 | 0.1665 | 0.0052 |
| Venus | -23404-09-02 18:43 J | -6826642.78 | -6826642.72 | -6826642.66 | 0.1674 | 0.1557 |
| Venus | -23402-07-03 18:57 J | -6825973.87 | -6825973.71 | -6825973.54 | 0.1660 | 0.0450 |
| Venus | -23399-04-09 07:11 J | -6824963.38 | -6824963.20 | -6824963.02 | 0.1858 | 0.0277 |
| Mercury | -23398-04-10 15:07 J | -6824596.98 | -6824596.87 | -6824596.75 | 0.1661 | 0.0433 |
| Mercury | -23396-03-15 20:09 J | -6823891.69 | -6823891.66 | -6823891.63 | 0.1676 | 0.1600 |
| Mercury | -23389-08-31 02:09 J | -6821166.50 | -6821166.41 | -6821166.31 | 0.1658 | 0.0900 |
| Mercury | -23387-08-06 06:43 J | -6820461.31 | -6820461.22 | -6820461.13 | 0.1672 | 0.1092 |
| Mercury | -23386-06-16 01:26 J | -6820147.59 | -6820147.44 | -6820147.29 | 0.1852 | 0.0771 |
| Mercury | -23379-01-21 13:26 J | -6817736.01 | -6817735.94 | -6817735.88 | 0.1655 | 0.1359 |
| Mercury | -23378-12-27 17:31 J | -6817030.88 | -6817030.77 | -6817030.66 | 0.1669 | 0.0598 |
| Mercury | -23377-11-04 20:38 J | -6816717.80 | -6816717.64 | -6816717.48 | 0.1856 | 0.0500 |
| Venus | -23370-07-02 12:43 J | -6814287.14 | -6814286.97 | -6814286.81 | 0.1665 | 0.0495 |
| Venus | -23368-05-01 14:09 J | -6813617.99 | -6813617.91 | -6813617.83 | 0.1653 | 0.1456 |
| Mercury | -23368-05-19 04:19 J | -6813600.44 | -6813600.32 | -6813600.20 | 0.1665 | 0.0113 |
| Mercury | -23367-03-27 15:21 J | -6813287.89 | -6813287.86 | -6813287.82 | 0.1861 | 0.1807 |
| Venus | -23367-04-09 05:59 J | -6813275.35 | -6813275.25 | -6813275.14 | 0.1849 | 0.1464 |
| Mercury | -23359-10-09 15:07 J | -6810169.98 | -6810169.87 | -6810169.75 | 0.1662 | 0.0370 |
| Earth | -23357-03-31 04:19 J | -6809631.50 | -6809631.32 | -6809631.14 | 0.1640 | 0.0440 |
| Moon | -23357-03-31 08:09 J | -6809631.33 | -6809631.16 | -6809630.98 | 0.1640 | 0.0211 * |
| Mercury | -23357-09-13 20:09 J | -6809464.67 | -6809464.66 | -6809464.65 | 0.1676 | 0.1665 |
| Mercury | -23349-03-01 02:09 J | -6806739.51 | -6806739.41 | -6806739.31 | 0.1658 | 0.0838 |
| Mercury | -23347-02-04 06:43 J | -6806034.30 | -6806034.22 | -6806034.14 | 0.1672 | 0.1157 |
| Mercury | -23347-12-15 01:55 J | -6805720.56 | -6805720.42 | -6805720.27 | 0.1851 | 0.0879 |
| Mercury | -23340-07-22 13:11 J | -6803309.02 | -6803308.95 | -6803308.88 | 0.1655 | 0.1301 |
| Mercury | -23338-06-27 17:31 J | -6802603.88 | -6802603.77 | -6802603.66 | 0.1668 | 0.0661 |
| Venus | -23338-07-01 06:43 J | -6802600.30 | -6802600.22 | -6802600.14 | 0.1671 | 0.1451 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -23337-05-05 21:21 J | -6802290.77 | -6802290.61 | -6802290.45 | 0.1857 | 0.0386 |
| Venus | -23336-04-30 07:11 J | -6801931.36 | -6801931.20 | -6801931.03 | 0.1658 | 0.0538 |
| Venus | -23333-02-04 09:21 J | -6800921.28 | -6800921.11 | -6800920.94 | 0.1861 | 0.0580 |
| Mercury | -23329-11-17 04:04 J | -6799173.44 | -6799173.33 | -6799173.21 | 0.1665 | 0.0182 |
| Mercury | -23328-09-25 16:19 J | -6798860.89 | -6798860.82 | -6798860.75 | 0.1861 | 0.1676 |
| Mercury | -23319-04-09 15:07 J | -6795742.98 | -6795742.87 | -6795742.75 | 0.1662 | 0.0309 |
| Mercury | -23310-08-31 02:09 J | -6792312.51 | -6792312.41 | -6792312.31 | 0.1658 | 0.0776 |
| Mercury | -23308-08-05 06:43 J | -6791607.30 | -6791607.22 | -6791607.14 | 0.1672 | 0.1222 |
| Mercury | -23307-06-15 02:52 J | -6791293.52 | -6791293.38 | -6791293.25 | 0.1852 | 0.1001 |
| Venus | -23304-04-29 00:28 J | -6790244.64 | -6790244.48 | -6790244.31 | 0.1663 | 0.0399 |
| Venus | -23302-02-27 02:23 J | -6789575.46 | -6789575.40 | -6789575.34 | 0.1651 | 0.1541 |
| Venus | -23301-02-04 08:38 J | -6789233.28 | -6789233.14 | -6789233.00 | 0.1852 | 0.1174 |
| Mercury | -23300-01-20 13:11 J | -6788882.02 | -6788881.95 | -6788881.87 | 0.1655 | 0.1238 |
| Mercury | -23299-12-26 17:31 J | -6788176.88 | -6788176.77 | -6788176.67 | 0.1668 | 0.0725 |
| Mercury | -23298-11-04 22:04 J | -6787863.74 | -6787863.58 | -6787863.41 | 0.1856 | 0.0260 |
| Mercury | -23289-05-18 04:19 J | -6784746.44 | -6784746.32 | -6784746.21 | 0.1665 | 0.0239 |
| Mercury | -23288-03-26 16:47 J | -6784433.88 | -6784433.80 | -6784433.71 | 0.1861 | 0.1565 |
| Mercury | -23280-10-08 15:07 J | -6781315.99 | -6781315.87 | -6781315.75 | 0.1661 | 0.0247 |
| Moon | -23278-04-03 04:04 J | -6780774.49 | -6780774.33 | -6780774.17 | 0.1638 | 0.0718 |
| Earth | -23278-04-03 06:28 J | -6780774.38 | -6780774.23 | -6780774.07 | 0.1638 | 0.0859 * |
| Venus | -23272-04-27 18:43 J | -6778557.81 | -6778557.72 | -6778557.62 | 0.1669 | 0.1353 |
| Venus | -23270-02-25 19:11 J | -6777888.85 | -6777888.70 | -6777888.54 | 0.1656 | 0.0633 |
| Mercury | -23270-03-01 02:09 J | -6777885.52 | -6777885.41 | -6777885.31 | 0.1658 | 0.0716 |
| Mercury | -23268-02-03 06:43 J | -6777180.30 | -6777180.22 | -6777180.15 | 0.1672 | 0.1280 |
| Venus | -23268-12-01 11:59 J | -6776879.15 | -6776879.00 | -6776878.84 | 0.1863 | 0.0877 |
| Mercury | -23268-12-14 03:35 J | -6776866.48 | -6776866.35 | -6776866.22 | 0.1852 | 0.1125 |
| Mercury | -23261-07-21 13:11 J | -6774455.03 | -6774454.95 | -6774454.87 | 0.1655 | 0.1176 |
| Mercury | -23259-06-26 17:31 J | -6773749.88 | -6773749.77 | -6773749.67 | 0.1669 | 0.0789 |
| Mercury | -23258-05-05 23:02 J | -6773436.71 | -6773436.54 | -6773436.38 | 0.1856 | 0.0130 |
| Mercury | -23252-12-12 00:28 J | -6771024.50 | -6771024.48 | -6771024.47 | 0.1652 | 0.1630 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -23250-11-17 04:19 J | -6770319.44 | -6770319.32 | -6770319.21 | 0.1665 | 0.0303 |
| Mercury | -23249-09-24 17:31 J | -6770006.87 | -6770006.77 | -6770006.66 | 0.1861 | 0.1442 |
| Mercury | -23240-04-08 15:07 J | -6766888.99 | -6766888.87 | -6766888.75 | 0.1661 | 0.0182 |
| Venus | -23238-02-24 12:43 J | -6766202.14 | -6766201.97 | -6766201.80 | 0.1661 | 0.0303 |
| Venus | -23237-12-24 14:38 J | -6765532.91 | -6765532.89 | -6765532.86 | 0.1649 | 0.1627 |
| Venus | -23236-12-01 11:45 J | -6765191.17 | -6765191.01 | -6765190.85 | 0.1855 | 0.0890 |
| Mercury | -23231-08-30 02:09 J | -6763458.52 | -6763458.41 | -6763458.30 | 0.1658 | 0.0653 |
| Mercury | -23229-08-04 06:43 J | -6762753.29 | -6762753.22 | -6762753.15 | 0.1672 | 0.1349 |
| Mercury | -23228-06-14 04:19 J | -6762439.44 | -6762439.32 | -6762439.20 | 0.1851 | 0.1237 |
| Mercury | -23221-01-20 13:11 J | -6760028.04 | -6760027.95 | -6760027.87 | 0.1655 | 0.1120 |
| Mercury | -23220-12-25 17:31 J | -6759322.88 | -6759322.77 | -6759322.67 | 0.1668 | 0.0851 |
| Mercury | -23219-11-03 23:31 J | -6759009.69 | -6759009.52 | -6759009.36 | 0.1857 | 0.0041 |
| Mercury | -23212-06-12 00:28 J | -6756597.52 | -6756597.48 | -6756597.45 | 0.1652 | 0.1571 |
| Mercury | -23210-05-18 04:04 J | -6755892.44 | -6755892.33 | -6755892.21 | 0.1665 | 0.0360 |
| Mercury | -23209-03-25 18:43 J | -6755579.84 | -6755579.72 | -6755579.60 | 0.1861 | 0.1301 |
| Venus | -23206-02-23 06:28 J | -6754515.34 | -6754515.23 | -6754515.12 | 0.1667 | 0.1247 |
| Venus | -23205-12-23 07:40 J | -6753846.34 | -6753846.18 | -6753846.03 | 0.1654 | 0.0718 |
| Venus | -23202-09-28 14:23 J | -6752837.04 | -6752836.90 | -6752836.76 | 0.1866 | 0.1181 |
| Mercury | -23201-10-07 15:07 J | -6752461.99 | -6752461.87 | -6752461.75 | 0.1662 | 0.0120 |
| Mercury | -23191-02-28 02:09 J | -6749031.52 | -6749031.41 | -6749031.30 | 0.1658 | 0.0592 |
| Moon | -23191-09-29 11:45 J | -6748818.19 | -6748818.01 | -6748817.82 | 0.1879 | 0.0732 |
| Earth | -23191-09-29 21:50 J | -6748817.77 | -6748817.59 | -6748817.41 | 0.1879 | 0.0876 |
| Mercury | -23189-02-03 06:43 J | -6748326.28 | -6748326.22 | -6748326.16 | 0.1672 | 0.1412 |
| Mercury | -23189-12-13 04:47 J | -6748012.40 | -6748012.30 | -6748012.18 | 0.1852 | 0.1356 |
| Mercury | -23182-07-21 13:11 J | -6745601.04 | -6745600.95 | -6745600.86 | 0.1655 | 0.1055 |
| Mercury | -23180-06-25 17:16 J | -6744895.87 | -6744895.78 | -6744895.68 | 0.1668 | 0.0915 |
| Mercury | -23179-05-05 00:28 J | -6744582.65 | -6744582.48 | -6744582.32 | 0.1856 | 0.0111 |
| Mercury | -23173-12-11 00:14 J | -6742170.53 | -6742170.49 | -6742170.44 | 0.1652 | 0.1513 |
| Venus | -23173-12-22 00:43 J | -6742159.64 | -6742159.47 | -6742159.30 | 0.1659 | 0.0211 |
| Mercury | -23171-11-16 04:04 J | -6741465.44 | -6741465.33 | -6741465.21 | 0.1665 | 0.0427 |

Mercury -23170-09-24 18:57 J -6741152.83 -6741152.71 -6741152.58 0.1861 0.1202

Venus -23170-09-28 14:23 J -6741149.07 -6741148.90 -6741148.73 0.1858 0.0597

Mercury -23161-04-07 15:07 J -6738034.99 -6738034.87 -6738034.75 0.1661 0.0066

Moon -23152-03-30 03:07 J -6734756.42 -6734756.37 -6734756.33 0.1644 0.1590

Earth -23152-03-30 07:26 J -6734756.29 -6734756.19 -6734756.08 0.1644 0.1368

Mercury -23152-08-29 02:09 J -6734604.52 -6734604.41 -6734604.30 0.1658 0.0534

Mercury -23150-08-04 06:43 J -6733899.28 -6733899.22 -6733899.17 0.1672 0.1472

Mercury -23149-06-13 05:45 J -6733585.35 -6733585.26 -6733585.16 0.1852 0.1484

Mercury -23142-01-19 13:11 J -6731174.04 -6731173.95 -6731173.86 0.1655 0.0996

Venus -23141-12-20 18:28 J -6730472.85 -6730472.73 -6730472.60 0.1665 0.1148

Mercury -23141-12-24 17:16 J -6730468.87 -6730468.78 -6730468.68 0.1668 0.0977

Mercury -23140-11-03 01:11 J -6730155.62 -6730155.45 -6730155.29 0.1856 0.0232

Venus -23139-10-20 19:55 J -6729803.82 -6729803.67 -6729803.53 0.1653 0.0809

Venus -23136-07-25 16:33 J -6728794.92 -6728794.81 -6728794.70 0.1868 0.1486

Mercury -23133-06-11 00:14 J -6727743.54 -6727743.49 -6727743.43 0.1652 0.1451

Mercury -23131-05-17 04:04 J -6727038.44 -6727038.33 -6727038.21 0.1665 0.0490

Mercury -23130-03-25 20:09 J -6726725.80 -6726725.66 -6726725.53 0.1861 0.1065

Mercury -23122-10-07 15:07 J -6723607.99 -6723607.87 -6723607.75 0.1661 0.0020

Mercury -23112-02-27 02:09 J -6720177.53 -6720177.41 -6720177.30 0.1658 0.0475

Mercury -23110-02-02 06:43 J -6719472.26 -6719472.22 -6719472.18 0.1672 0.1537

Mercury -23110-12-13 06:14 J -6719158.32 -6719158.24 -6719158.16 0.1851 0.1587

Venus -23107-10-19 13:11 J -6718117.12 -6718116.95 -6718116.78 0.1658 0.0117

Venus -23104-07-25 17:31 J -6717106.94 -6717106.77 -6717106.59 0.1860 0.0318

Mercury -23103-07-20 13:11 J -6716747.05 -6716746.95 -6716746.86 0.1655 0.0939

Mercury -23101-06-24 17:16 J -6716041.87 -6716041.78 -6716041.69 0.1668 0.1039

Mercury -23100-05-04 01:40 J -6715728.59 -6715728.43 -6715728.26 0.1857 0.0347

Mercury -23094-12-11 00:14 J -6713316.55 -6713316.49 -6713316.43 0.1652 0.1390

Mercury -23092-11-15 04:04 J -6712611.44 -6712611.33 -6712611.22 0.1665 0.0546

Mercury -23091-09-23 20:52 J -6712298.77 -6712298.63 -6712298.49 0.1861 0.0934

Mercury -23082-04-07 15:07 J -6709180.99 -6709180.87 -6709180.75 0.1662 0.0070

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Venus | -23075-10-18 06:43 J | -6706430.35 | -6706430.22 | -6706430.09 | 0.1663 | 0.1050 |
| Earth | -23073-04-01 09:50 J | -6705899.27 | -6705899.09 | -6705898.90 | 0.1642 | 0.0074 |
| Moon | -23073-04-01 13:40 J | -6705899.13 | -6705898.93 | -6705898.73 | 0.1642 | 0.0133 * |
| Venus | -23073-08-17 08:09 J | -6705761.30 | -6705761.16 | -6705761.01 | 0.1651 | 0.0891 |
| Mercury | -23073-08-28 01:55 J | -6705750.53 | -6705750.42 | -6705750.30 | 0.1658 | 0.0413 |
| Mercury | -23071-08-03 06:43 J | -6705045.25 | -6705045.22 | -6705045.19 | 0.1672 | 0.1603 |
| Venus | -23070-05-22 19:11 J | -6704752.75 | -6704752.70 | -6704752.65 | 0.1870 | 0.1781 |
| Mercury | -23070-06-13 07:11 J | -6704731.26 | -6704731.20 | -6704731.14 | 0.1852 | 0.1711 |
| Mercury | -23063-01-18 13:11 J | -6702320.05 | -6702319.95 | -6702319.86 | 0.1655 | 0.0875 |
| Mercury | -23062-12-24 17:16 J | -6701614.86 | -6701614.78 | -6701614.69 | 0.1668 | 0.1103 |
| Mercury | -23061-11-02 02:38 J | -6701301.55 | -6701301.39 | -6701301.23 | 0.1856 | 0.0469 |
| Mercury | -23054-06-11 00:14 J | -6698889.56 | -6698889.49 | -6698889.42 | 0.1652 | 0.1330 |
| Mercury | -23052-05-16 04:04 J | -6698184.44 | -6698184.33 | -6698184.22 | 0.1665 | 0.0613 |
| Mercury | -23051-03-24 21:21 J | -6697871.76 | -6697871.61 | -6697871.46 | 0.1861 | 0.0826 |
| Mercury | -23043-10-06 14:52 J | -6694753.99 | -6694753.88 | -6694753.76 | 0.1661 | 0.0138 |
| Venus | -23041-08-16 01:11 J | -6694074.62 | -6694074.45 | -6694074.28 | 0.1656 | 0.0047 |
| Venus | -23038-05-22 20:09 J | -6693064.84 | -6693064.66 | -6693064.48 | 0.1863 | 0.0023 |
| Mercury | -23033-02-27 01:55 J | -6691323.53 | -6691323.42 | -6691323.30 | 0.1658 | 0.0350 |
| Mercury | -23031-02-01 06:43 J | -6690618.23 | -6690618.22 | -6690618.22 | 0.1672 | 0.1662 |
| Mercury | -23031-12-12 07:55 J | -6690304.18 | -6690304.17 | -6690304.15 | 0.1852 | 0.1838 |
| Mercury | -23024-07-19 13:11 J | -6687893.06 | -6687892.95 | -6687892.85 | 0.1655 | 0.0813 |
| Mercury | -23022-06-24 17:16 J | -6687187.86 | -6687187.78 | -6687187.69 | 0.1668 | 0.1168 |
| Mercury | -23021-05-03 03:21 J | -6686874.51 | -6686874.36 | -6686874.20 | 0.1856 | 0.0594 |
| Mercury | -23015-12-10 00:14 J | -6684462.56 | -6684462.49 | -6684462.42 | 0.1652 | 0.1270 |
| Mercury | -23013-11-14 04:04 J | -6683757.44 | -6683757.33 | -6683757.22 | 0.1665 | 0.0673 |
| Mercury | -23012-09-22 22:04 J | -6683444.73 | -6683444.58 | -6683444.42 | 0.1861 | 0.0703 |
| Venus | -23009-08-14 18:28 J | -6682387.87 | -6682387.73 | -6682387.59 | 0.1662 | 0.0950 |
| Venus | -23007-06-14 20:38 J | -6681718.78 | -6681718.64 | -6681718.50 | 0.1649 | 0.0975 |
| Venus | -23006-05-22 20:23 J | -6681376.70 | -6681376.65 | -6681376.60 | 0.1855 | 0.1785 |
| Mercury | -23003-04-06 15:07 J | -6680326.99 | -6680326.87 | -6680326.76 | 0.1661 | 0.0195 |

23RD MILLENNIUM BCE

This is a list of transits visible from Mars in the 23rd millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|---|-------------|-------------|-------------|--------|--------|---|
| Earth | -22994-04-04 12:43 J | | -6677042.09 | -6677041.97 | -6677041.85 | 0.1641 | 0.1238 | |
| Moon | -22994-04-04 18:43 J | | -6677041.85 | -6677041.72 | -6677041.60 | 0.1640 | 0.1166 | * |
| Mercury | -22994-08-28 01:55 J | | -6676896.53 | -6676896.42 | -6676896.30 | 0.1658 | 0.0288 | |
| Mercury | -22984-01-17 12:57 J | | -6673466.06 | -6673465.96 | -6673465.86 | 0.1655 | 0.0755 | |
| Mercury | -22983-12-23 17:16 J | | -6672760.86 | -6672760.78 | -6672760.70 | 0.1668 | 0.1226 | |
| Mercury | -22982-11-02 03:50 J | | -6672447.49 | -6672447.34 | -6672447.19 | 0.1857 | 0.0702 | |
| Mercury | -22975-06-10 00:14 J | | -6670035.57 | -6670035.49 | -6670035.41 | 0.1652 | 0.1209 | |
| Venus | -22975-06-13 13:40 J | | -6670032.10 | -6670031.93 | -6670031.76 | 0.1654 | 0.0067 | |
| Mercury | -22973-05-15 04:04 J | | -6669330.43 | -6669330.33 | -6669330.22 | 0.1665 | 0.0734 | |
| Venus | -22972-03-18 23:16 J | | -6669022.70 | -6669022.53 | -6669022.35 | 0.1865 | 0.0263 | |
| Mercury | -22972-03-23 23:16 J | | -6669017.69 | -6669017.53 | -6669017.37 | 0.1861 | 0.0560 | |
| Mercury | -22964-10-05 15:07 J | | -6665899.99 | -6665899.87 | -6665899.76 | 0.1661 | 0.0258 | |
| Mercury | -22954-02-26 01:55 J | | -6662469.53 | -6662469.42 | -6662469.30 | 0.1658 | 0.0225 | |
| Mercury | -22945-07-18 12:57 J | | -6659039.06 | -6659038.96 | -6659038.85 | 0.1655 | 0.0692 | |
| Venus | -22943-06-12 06:57 J | | -6658345.35 | -6658345.21 | -6658345.06 | 0.1660 | 0.0859 | |
| Mercury | -22943-06-23 17:16 J | | -6658333.85 | -6658333.78 | -6658333.70 | 0.1668 | 0.1292 | |
| Mercury | -22942-05-03 04:48 J | | -6658020.44 | -6658020.30 | -6658020.15 | 0.1856 | 0.0834 | |
| Venus | -22941-04-11 09:21 J | | -6657676.24 | -6657676.11 | -6657675.98 | 0.1648 | 0.1054 | |
| Venus | -22940-03-18 23:16 J | | -6657334.63 | -6657334.53 | -6657334.43 | 0.1858 | 0.1500 | |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -22936-12-09 00:14 J | -6655608.57 | -6655608.49 | -6655608.41 | 0.1652 | 0.1151 |
| Mercury | -22934-11-14 04:04 J | -6654903.43 | -6654903.33 | -6654903.23 | 0.1665 | 0.0799 |
| Mercury | -22933-09-21 23:31 J | -6654590.68 | -6654590.52 | -6654590.36 | 0.1861 | 0.0462 |
| Mercury | -22926-05-01 11:16 J | -6652178.05 | -6652178.03 | -6652178.00 | 0.1649 | 0.1602 |
| Mercury | -22924-04-05 14:52 J | -6651472.99 | -6651472.88 | -6651472.76 | 0.1661 | 0.0315 |
| Mercury | -22923-02-11 18:28 J | -6651160.78 | -6651160.73 | -6651160.68 | 0.1866 | 0.1769 |
| Mercury | -22915-08-27 01:55 J | -6648042.54 | -6648042.42 | -6648042.30 | 0.1658 | 0.0163 |
| Venus | -22909-04-10 02:09 J | -6645989.58 | -6645989.41 | -6645989.24 | 0.1653 | 0.0155 |
| Earth | -22907-09-29 00:00 J | -6645087.70 | -6645087.50 | -6645087.30 | 0.1874 | 0.0418 |
| Moon | -22907-09-29 06:28 J | -6645087.42 | -6645087.23 | -6645087.04 | 0.1875 | 0.0043 * |
| Venus | -22906-01-14 01:26 J | -6644980.61 | -6644980.44 | -6644980.27 | 0.1868 | 0.0564 |
| Mercury | -22905-01-17 12:57 J | -6644612.07 | -6644611.96 | -6644611.85 | 0.1655 | 0.0630 |
| Mercury | -22904-12-22 17:16 J | -6643906.84 | -6643906.78 | -6643906.71 | 0.1668 | 0.1355 |
| Mercury | -22903-11-01 05:31 J | -6643593.41 | -6643593.27 | -6643593.13 | 0.1856 | 0.0950 |
| Mercury | -22896-06-09 00:14 J | -6641181.58 | -6641181.49 | -6641181.41 | 0.1652 | 0.1088 |
| Mercury | -22894-05-15 04:04 J | -6640476.43 | -6640476.33 | -6640476.23 | 0.1665 | 0.0863 |
| Mercury | -22893-03-23 00:43 J | -6640163.64 | -6640163.47 | -6640163.31 | 0.1861 | 0.0326 |
| Mercury | -22887-10-30 11:16 J | -6637751.06 | -6637751.03 | -6637750.99 | 0.1649 | 0.1541 |
| Mercury | -22885-10-04 14:52 J | -6637045.99 | -6637045.88 | -6637045.76 | 0.1661 | 0.0378 |
| Mercury | -22884-08-12 18:57 J | -6636733.78 | -6636733.71 | -6636733.64 | 0.1866 | 0.1656 |
| Venus | -22877-04-08 19:11 J | -6634302.85 | -6634302.70 | -6634302.55 | 0.1658 | 0.0765 |
| Venus | -22875-02-06 21:36 J | -6633633.72 | -6633633.60 | -6633633.47 | 0.1647 | 0.1139 |
| Mercury | -22875-02-25 01:55 J | -6633615.54 | -6633615.42 | -6633615.30 | 0.1658 | 0.0101 |
| Venus | -22874-01-14 01:40 J | -6633292.57 | -6633292.43 | -6633292.30 | 0.1860 | 0.1206 |
| Moon | -22868-03-31 08:23 J | -6631024.26 | -6631024.15 | -6631024.03 | 0.1647 | 0.1260 |
| Earth | -22868-03-31 13:11 J | -6631024.10 | -6631023.95 | -6631023.81 | 0.1646 | 0.1004 * |
| Mercury | -22866-07-18 12:57 J | -6630185.07 | -6630184.96 | -6630184.85 | 0.1655 | 0.0571 |
| Mercury | -22864-06-22 17:16 J | -6629479.84 | -6629479.78 | -6629479.72 | 0.1668 | 0.1417 |
| Mercury | -22863-05-02 06:14 J | -6629166.37 | -6629166.24 | -6629166.11 | 0.1857 | 0.1071 |
| Mercury | -22857-12-08 00:14 J | -6626754.58 | -6626754.49 | -6626754.40 | 0.1652 | 0.1029 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -22855-11-13 04:04 J | -6626049.43 | -6626049.33 | -6626049.23 | 0.1665 | 0.0921 |
| Mercury | -22854-09-22 01:26 J | -6625736.61 | -6625736.44 | -6625736.28 | 0.1861 | 0.0198 |
| Mercury | -22847-04-30 11:16 J | -6623324.08 | -6623324.03 | -6623323.98 | 0.1649 | 0.1480 |
| Mercury | -22845-04-04 14:52 J | -6622618.99 | -6622618.88 | -6622618.76 | 0.1661 | 0.0443 |
| Mercury | -22844-02-10 19:55 J | -6622306.77 | -6622306.67 | -6622306.58 | 0.1866 | 0.1524 |
| Venus | -22843-02-05 14:09 J | -6621947.08 | -6621946.91 | -6621946.74 | 0.1651 | 0.0245 |
| Venus | -22841-11-10 03:50 J | -6620938.50 | -6620938.34 | -6620938.18 | 0.1870 | 0.0862 |
| Mercury | -22836-08-26 01:55 J | -6619188.54 | -6619188.42 | -6619188.30 | 0.1658 | 0.0042 |
| Mercury | -22826-01-16 12:57 J | -6615758.07 | -6615757.96 | -6615757.85 | 0.1655 | 0.0507 |
| Mercury | -22825-12-21 17:16 J | -6615052.83 | -6615052.78 | -6615052.73 | 0.1668 | 0.1480 |
| Mercury | -22824-10-31 06:57 J | -6614739.33 | -6614739.21 | -6614739.08 | 0.1856 | 0.1189 |
| Mercury | -22817-06-08 00:00 J | -6612327.59 | -6612327.50 | -6612327.40 | 0.1652 | 0.0970 |
| Mercury | -22815-05-14 04:04 J | -6611622.42 | -6611622.33 | -6611622.24 | 0.1665 | 0.0987 |
| Mercury | -22814-03-23 01:55 J | -6611309.58 | -6611309.42 | -6611309.25 | 0.1861 | 0.0090 |
| Venus | -22811-02-04 07:11 J | -6610260.35 | -6610260.20 | -6610260.04 | 0.1656 | 0.0674 |
| Venus | -22810-12-05 10:19 J | -6609591.19 | -6609591.07 | -6609590.96 | 0.1645 | 0.1220 |
| Venus | -22809-11-10 04:19 J | -6609250.47 | -6609250.32 | -6609250.16 | 0.1863 | 0.0919 |
| Mercury | -22808-10-29 11:16 J | -6608897.09 | -6608897.03 | -6608896.97 | 0.1649 | 0.1422 |
| Mercury | -22806-10-04 14:52 J | -6608191.99 | -6608191.88 | -6608191.77 | 0.1661 | 0.0497 |
| Mercury | -22805-08-11 20:38 J | -6607879.75 | -6607879.64 | -6607879.53 | 0.1866 | 0.1398 |
| Mercury | -22796-02-24 01:55 J | -6604761.54 | -6604761.42 | -6604761.30 | 0.1658 | 0.0032 |
| Moon | -22789-04-02 09:07 J | -6602167.30 | -6602167.12 | -6602166.93 | 0.1645 | 0.0365 |
| Earth | -22789-04-02 15:36 J | -6602167.03 | -6602166.85 | -6602166.66 | 0.1645 | 0.0307 * |
| Mercury | -22787-07-17 12:57 J | -6601331.07 | -6601330.96 | -6601330.85 | 0.1655 | 0.0446 |
| Mercury | -22785-06-21 17:16 J | -6600625.82 | -6600625.78 | -6600625.74 | 0.1668 | 0.1545 |
| Mercury | -22784-05-01 07:40 J | -6600312.29 | -6600312.18 | -6600312.06 | 0.1856 | 0.1314 |
| Venus | -22779-02-03 00:43 J | -6598573.51 | -6598573.47 | -6598573.43 | 0.1661 | 0.1596 |
| Venus | -22778-12-04 02:52 J | -6597904.55 | -6597904.38 | -6597904.21 | 0.1649 | 0.0324 |
| Mercury | -22778-12-08 00:00 J | -6597900.59 | -6597900.50 | -6597900.40 | 0.1652 | 0.0909 |
| Mercury | -22776-11-12 04:04 J | -6597195.42 | -6597195.33 | -6597195.24 | 0.1665 | 0.1049 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Venus | -22775-09-07 06:00 J | -6596896.39 | -6596896.25 | -6596896.11 | 0.1872 | 0.1170 |
| Mercury | -22775-09-21 02:52 J | -6596882.55 | -6596882.38 | -6596882.22 | 0.1861 | 0.0059 |
| Mercury | -22768-04-29 11:16 J | -6594470.09 | -6594470.03 | -6594469.97 | 0.1649 | 0.1359 |
| Mercury | -22766-04-04 14:52 J | -6593764.99 | -6593764.88 | -6593764.77 | 0.1661 | 0.0565 |
| Mercury | -22765-02-10 21:21 J | -6593452.73 | -6593452.61 | -6593452.49 | 0.1866 | 0.1274 |
| Mercury | -22757-08-25 01:55 J | -6590334.54 | -6590334.42 | -6590334.31 | 0.1658 | 0.0091 |
| Mercury | -22747-01-15 12:57 J | -6586904.08 | -6586903.96 | -6586903.85 | 0.1655 | 0.0393 |
| Venus | -22746-12-02 19:40 J | -6586217.84 | -6586217.68 | -6586217.52 | 0.1654 | 0.0583 |
| Mercury | -22746-12-21 17:16 J | -6586198.81 | -6586198.78 | -6586198.75 | 0.1668 | 0.1604 |
| Mercury | -22745-10-30 08:23 J | -6585885.26 | -6585885.15 | -6585885.05 | 0.1857 | 0.1425 |
| Venus | -22744-10-01 22:48 J | -6585548.65 | -6585548.55 | -6585548.45 | 0.1644 | 0.1299 |
| Venus | -22743-09-07 06:43 J | -6585208.39 | -6585208.22 | -6585208.05 | 0.1865 | 0.0623 |
| Mercury | -22738-06-08 00:00 J | -6583473.60 | -6583473.50 | -6583473.40 | 0.1652 | 0.0846 |
| Mercury | -22736-05-13 04:04 J | -6582768.42 | -6582768.33 | -6582768.24 | 0.1665 | 0.1112 |
| Mercury | -22735-03-22 03:50 J | -6582455.50 | -6582455.34 | -6582455.17 | 0.1861 | 0.0177 |
| Mercury | -22729-10-28 11:16 J | -6580043.10 | -6580043.03 | -6580042.96 | 0.1649 | 0.1300 |
| Mercury | -22727-10-03 14:52 J | -6579337.99 | -6579337.88 | -6579337.77 | 0.1661 | 0.0627 |
| Mercury | -22726-08-11 22:04 J | -6579025.71 | -6579025.58 | -6579025.45 | 0.1866 | 0.1155 |
| Mercury | -22717-02-24 01:55 J | -6575907.54 | -6575907.42 | -6575907.31 | 0.1658 | 0.0157 |
| Venus | -22714-12-01 13:11 J | -6574531.02 | -6574530.95 | -6574530.88 | 0.1660 | 0.1502 |
| Venus | -22712-09-30 15:07 J | -6573862.04 | -6573861.87 | -6573861.71 | 0.1648 | 0.0413 |
| Moon | -22710-04-05 18:28 J | -6573309.80 | -6573309.73 | -6573309.66 | 0.1643 | 0.1526 |
| Earth | -22710-04-05 18:14 J | -6573309.77 | -6573309.74 | -6573309.70 | 0.1643 | 0.1612 * |
| Venus | -22709-07-04 07:55 J | -6572854.28 | -6572854.17 | -6572854.06 | 0.1875 | 0.1479 |
| Mercury | -22708-07-16 12:57 J | -6572477.08 | -6572476.96 | -6572476.85 | 0.1655 | 0.0324 |
| Mercury | -22705-04-30 09:21 J | -6571458.20 | -6571458.11 | -6571458.03 | 0.1856 | 0.1554 |
| Mercury | -22699-12-07 00:00 J | -6569046.60 | -6569046.50 | -6569046.40 | 0.1652 | 0.0787 |
| Mercury | -22697-11-11 04:04 J | -6568341.41 | -6568341.33 | -6568341.25 | 0.1665 | 0.1175 |
| Mercury | -22696-09-20 04:04 J | -6568028.49 | -6568028.33 | -6568028.16 | 0.1861 | 0.0276 |
| Mercury | -22689-04-28 11:16 J | -6565616.11 | -6565616.03 | -6565615.96 | 0.1649 | 0.1242 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -22687-04-03 14:52 J | -6564910.99 | -6564910.88 | -6564910.78 | 0.1661 | 0.0684 |
| Mercury | -22686-02-09 23:02 J | -6564598.67 | -6564598.54 | -6564598.40 | 0.1866 | 0.1018 |
| Venus | -22680-09-29 08:09 J | -6562175.32 | -6562175.16 | -6562175.00 | 0.1653 | 0.0495 |
| Venus | -22678-07-30 11:16 J | -6561506.12 | -6561506.03 | -6561505.94 | 0.1643 | 0.1380 |
| Mercury | -22678-08-25 01:55 J | -6561480.54 | -6561480.42 | -6561480.31 | 0.1658 | 0.0214 |
| Venus | -22677-07-04 09:50 J | -6561166.27 | -6561166.09 | -6561165.92 | 0.1867 | 0.0337 |
| Mercury | -22668-01-14 12:57 J | -6558050.08 | -6558049.96 | -6558049.85 | 0.1655 | 0.0266 |
| Mercury | -22666-10-30 09:50 J | -6557031.16 | -6557031.09 | -6557031.02 | 0.1856 | 0.1668 |
| Mercury | -22659-06-07 00:00 J | -6554619.60 | -6554619.50 | -6554619.40 | 0.1652 | 0.0725 |
| Mercury | -22657-05-12 04:04 J | -6553914.41 | -6553914.33 | -6553914.25 | 0.1665 | 0.1238 |
| Mercury | -22656-03-21 05:16 J | -6553601.45 | -6553601.28 | -6553601.12 | 0.1861 | 0.0414 |
| Mercury | -22650-10-28 11:02 J | -6551189.11 | -6551189.04 | -6551188.96 | 0.1649 | 0.1183 |
| Venus | -22648-09-28 01:11 J | -6550488.54 | -6550488.45 | -6550488.36 | 0.1658 | 0.1407 |
| Mercury | -22648-10-02 14:52 J | -6550483.98 | -6550483.88 | -6550483.78 | 0.1661 | 0.0749 |
| Mercury | -22647-08-10 23:31 J | -6550171.66 | -6550171.52 | -6550171.37 | 0.1866 | 0.0909 |
| Venus | -22646-07-29 03:36 J | -6549819.51 | -6549819.35 | -6549819.18 | 0.1647 | 0.0494 |
| Venus | -22643-05-01 10:33 J | -6548812.11 | -6548812.06 | -6548812.00 | 0.1876 | 0.1776 |
| Mercury | -22640-03-19 22:33 J | -6547758.58 | -6547758.56 | -6547758.55 | 0.1646 | 0.1631 |
| Mercury | -22638-02-23 01:40 J | -6547053.54 | -6547053.43 | -6547053.31 | 0.1658 | 0.0277 |
| Mercury | -22629-07-15 12:43 J | -6543623.08 | -6543622.97 | -6543622.85 | 0.1655 | 0.0212 |
| Mercury | -22626-04-30 10:48 J | -6542604.09 | -6542604.05 | -6542604.01 | 0.1857 | 0.1790 |
| Moon | -22623-09-28 04:48 J | -6541357.46 | -6541357.30 | -6541357.13 | 0.1869 | 0.1250 |
| Earth | -22623-09-28 03:50 J | -6541357.44 | -6541357.34 | -6541357.24 | 0.1869 | 0.1614 * |
| Mercury | -22620-12-06 00:00 J | -6540192.61 | -6540192.50 | -6540192.40 | 0.1652 | 0.0665 |
| Mercury | -22618-11-11 04:04 J | -6539487.41 | -6539487.33 | -6539487.26 | 0.1665 | 0.1299 |
| Mercury | -22617-09-19 06:00 J | -6539174.41 | -6539174.25 | -6539174.09 | 0.1861 | 0.0535 |
| Venus | -22614-07-27 20:23 J | -6538132.81 | -6538132.65 | -6538132.48 | 0.1651 | 0.0407 |
| Venus | -22612-05-27 00:00 J | -6537463.58 | -6537463.50 | -6537463.43 | 0.1641 | 0.1456 |
| Venus | -22611-05-01 12:14 J | -6537124.17 | -6537123.99 | -6537123.81 | 0.1870 | 0.0038 |
| Mercury | -22610-04-28 11:16 J | -6536762.12 | -6536762.03 | -6536761.95 | 0.1649 | 0.1121 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -22608-04-02 14:52 J | -6536056.98 | -6536056.88 | -6536056.78 | 0.1661 | 0.0813 |
| Mercury | -22607-02-09 00:28 J | -6535744.63 | -6535744.48 | -6535744.33 | 0.1866 | 0.0776 |
| Mercury | -22601-09-17 22:19 J | -6533331.60 | -6533331.57 | -6533331.53 | 0.1646 | 0.1570 |
| Mercury | -22599-08-24 01:40 J | -6532626.54 | -6532626.43 | -6532626.31 | 0.1658 | 0.0338 |
| Mercury | -22589-01-14 12:43 J | -6529196.08 | -6529195.97 | -6529195.85 | 0.1655 | 0.0152 |
| Earth | -22584-04-01 18:00 J | -6527291.92 | -6527291.75 | -6527291.58 | 0.1649 | 0.0650 |
| Moon | -22584-04-01 23:16 J | -6527291.69 | -6527291.53 | -6527291.37 | 0.1649 | 0.0756 * |
| Venus | -22582-07-26 13:26 J | -6526446.05 | -6526445.94 | -6526445.84 | 0.1656 | 0.1313 |
| Venus | -22580-05-25 16:04 J | -6525776.99 | -6525776.83 | -6525776.67 | 0.1645 | 0.0575 |
| Mercury | -22580-06-06 00:00 J | -6525765.61 | -6525765.50 | -6525765.40 | 0.1652 | 0.0608 |
| Venus | -22579-05-01 13:11 J | -6525435.98 | -6525435.95 | -6525435.91 | 0.1863 | 0.1817 |
| Mercury | -22578-05-12 04:04 J | -6525060.40 | -6525060.33 | -6525060.27 | 0.1665 | 0.1363 |
| Mercury | -22577-03-20 06:28 J | -6524747.38 | -6524747.23 | -6524747.07 | 0.1861 | 0.0646 |
| Mercury | -22571-10-27 11:02 J | -6522335.13 | -6522335.04 | -6522334.95 | 0.1649 | 0.1062 |
| Mercury | -22569-10-01 14:52 J | -6521629.98 | -6521629.88 | -6521629.78 | 0.1661 | 0.0872 |
| Mercury | -22568-08-10 01:26 J | -6521317.60 | -6521317.44 | -6521317.29 | 0.1866 | 0.0647 |
| Mercury | -22561-03-18 22:19 J | -6518904.61 | -6518904.57 | -6518904.52 | 0.1647 | 0.1509 |
| Mercury | -22559-02-22 01:40 J | -6518199.54 | -6518199.43 | -6518199.31 | 0.1658 | 0.0395 |
| Mercury | -22550-07-15 12:43 J | -6514769.08 | -6514768.97 | -6514768.85 | 0.1655 | 0.0095 |
| Venus | -22548-05-24 08:52 J | -6514090.30 | -6514090.13 | -6514089.96 | 0.1650 | 0.0320 |
| Venus | -22546-03-24 12:28 J | -6513421.04 | -6513420.98 | -6513420.92 | 0.1640 | 0.1536 |
| Venus | -22545-02-26 15:07 J | -6513082.05 | -6513081.87 | -6513081.69 | 0.1872 | 0.0251 |
| Earth | -22544-10-01 14:38 J | -6512499.00 | -6512498.89 | -6512498.79 | 0.1873 | 0.1594 |
| Moon | -22544-10-02 00:00 J | -6512498.62 | -6512498.50 | -6512498.38 | 0.1873 | 0.1492 |
| Mercury | -22541-12-05 00:00 J | -6511338.61 | -6511338.50 | -6511338.39 | 0.1652 | 0.0546 |
| Mercury | -22539-11-10 04:04 J | -6510633.39 | -6510633.33 | -6510633.27 | 0.1664 | 0.1426 |
| Mercury | -22538-09-19 07:26 J | -6510320.34 | -6510320.19 | -6510320.04 | 0.1861 | 0.0773 |
| Mercury | -22531-04-27 11:02 J | -6507908.13 | -6507908.04 | -6507907.95 | 0.1649 | 0.1000 |
| Mercury | -22529-04-01 14:52 J | -6507202.98 | -6507202.88 | -6507202.79 | 0.1661 | 0.0937 |
| Mercury | -22528-02-08 01:55 J | -6506890.57 | -6506890.42 | -6506890.26 | 0.1866 | 0.0533 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -22522-09-17 22:19 J | -6504477.62 | -6504477.57 | -6504477.52 | 0.1646 | 0.1453 |
| Mercury | -22520-08-23 01:40 J | -6503772.54 | -6503772.43 | -6503772.32 | 0.1658 | 0.0455 |
| Venus | -22516-05-23 01:40 J | -6502403.54 | -6502403.43 | -6502403.31 | 0.1654 | 0.1226 |
| Venus | -22514-03-23 04:48 J | -6501734.45 | -6501734.30 | -6501734.14 | 0.1644 | 0.0656 |
| Venus | -22513-02-26 15:36 J | -6501393.95 | -6501393.85 | -6501393.74 | 0.1865 | 0.1525 |
| Mercury | -22510-01-13 12:43 J | -6500342.09 | -6500341.97 | -6500341.85 | 0.1655 | 0.0024 |
| Moon | -22505-04-03 19:26 J | -6498434.84 | -6498434.69 | -6498434.54 | 0.1648 | 0.0807 |
| Earth | -22505-04-03 21:07 J | -6498434.79 | -6498434.62 | -6498434.45 | 0.1648 | 0.0680 * |
| Mercury | -22501-06-05 00:00 J | -6496911.62 | -6496911.50 | -6496911.39 | 0.1652 | 0.0484 |
| Mercury | -22499-05-11 04:04 J | -6496206.38 | -6496206.33 | -6496206.28 | 0.1665 | 0.1489 |
| Mercury | -22498-03-20 08:23 J | -6495893.30 | -6495893.15 | -6495893.01 | 0.1861 | 0.0906 |
| Mercury | -22492-10-26 11:02 J | -6493481.13 | -6493481.04 | -6493480.94 | 0.1649 | 0.0941 |
| Mercury | -22490-10-01 14:52 J | -6492775.98 | -6492775.88 | -6492775.79 | 0.1661 | 0.0999 |
| Mercury | -22489-08-09 02:38 J | -6492463.55 | -6492463.39 | -6492463.22 | 0.1866 | 0.0412 |
| Mercury | -22482-03-18 22:19 J | -6490050.63 | -6490050.57 | -6490050.51 | 0.1646 | 0.1390 |
| Venus | -22482-03-21 21:21 J | -6490047.78 | -6490047.61 | -6490047.44 | 0.1648 | 0.0236 |
| Venus | -22480-01-19 00:57 J | -6489378.48 | -6489378.46 | -6489378.43 | 0.1639 | 0.1612 |
| Mercury | -22480-02-21 01:40 J | -6489345.54 | -6489345.43 | -6489345.32 | 0.1658 | 0.0517 |
| Venus | -22480-12-23 16:48 J | -6489039.97 | -6489039.80 | -6489039.63 | 0.1874 | 0.0563 |
| Mercury | -22480-12-29 20:52 J | -6489033.68 | -6489033.63 | -6489033.57 | 0.1870 | 0.1751 |
| Mercury | -22471-07-14 12:43 J | -6485915.08 | -6485914.97 | -6485914.85 | 0.1655 | 0.0056 |
| Mercury | -22462-12-04 23:45 J | -6482484.62 | -6482484.51 | -6482484.40 | 0.1652 | 0.0426 |
| Mercury | -22460-11-09 04:04 J | -6481779.37 | -6481779.33 | -6481779.29 | 0.1664 | 0.1551 |
| Mercury | -22459-09-18 08:38 J | -6481466.28 | -6481466.14 | -6481466.00 | 0.1861 | 0.1003 |
| Mercury | -22452-04-26 11:02 J | -6479054.14 | -6479054.04 | -6479053.94 | 0.1649 | 0.0881 |
| Venus | -22450-03-20 13:55 J | -6478361.04 | -6478360.92 | -6478360.79 | 0.1653 | 0.1131 |
| Mercury | -22450-04-01 14:38 J | -6478348.98 | -6478348.89 | -6478348.80 | 0.1661 | 0.1059 |
| Mercury | -22449-02-08 03:50 J | -6478036.51 | -6478036.34 | -6478036.18 | 0.1866 | 0.0271 |
| Venus | -22448-01-17 17:16 J | -6477691.94 | -6477691.78 | -6477691.63 | 0.1642 | 0.0739 |
| Venus | -22448-12-23 17:45 J | -6477351.89 | -6477351.76 | -6477351.63 | 0.1868 | 0.1220 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -22443-09-16 22:19 J | -6475623.64 | -6475623.57 | -6475623.50 | 0.1646 | 0.1330 |
| Mercury | -22441-08-22 01:40 J | -6474918.54 | -6474918.43 | -6474918.32 | 0.1658 | 0.0580 |
| Mercury | -22440-06-29 21:50 J | -6474606.67 | -6474606.59 | -6474606.51 | 0.1870 | 0.1623 |
| Mercury | -22431-01-12 12:43 J | -6471488.09 | -6471487.97 | -6471487.85 | 0.1655 | 0.0106 |
| Mercury | -22422-06-04 23:45 J | -6468057.62 | -6468057.51 | -6468057.39 | 0.1652 | 0.0363 |
| Mercury | -22420-05-10 04:04 J | -6467352.36 | -6467352.33 | -6467352.31 | 0.1664 | 0.1614 |
| Mercury | -22419-03-19 09:36 J | -6467039.23 | -6467039.10 | -6467038.97 | 0.1861 | 0.1140 |
| Venus | -22416-01-16 09:36 J | -6466005.27 | -6466005.10 | -6466004.93 | 0.1647 | 0.0146 |
| Venus | -22414-10-20 19:11 J | -6464997.86 | -6464997.70 | -6464997.54 | 0.1877 | 0.0862 |
| Mercury | -22413-10-25 11:02 J | -6464627.14 | -6464627.04 | -6464626.94 | 0.1649 | 0.0820 |
| Mercury | -22411-09-30 14:52 J | -6463921.97 | -6463921.88 | -6463921.80 | 0.1661 | 0.1124 |
| Mercury | -22410-08-09 04:19 J | -6463609.49 | -6463609.32 | -6463609.16 | 0.1866 | 0.0172 |
| Mercury | -22403-03-17 22:19 J | -6461196.65 | -6461196.57 | -6461196.50 | 0.1646 | 0.1274 |
| Mercury | -22401-02-21 01:40 J | -6460491.54 | -6460491.43 | -6460491.32 | 0.1658 | 0.0639 |
| Mercury | -22401-12-28 22:19 J | -6460179.66 | -6460179.57 | -6460179.47 | 0.1870 | 0.1507 |
| Mercury | -22392-07-13 12:43 J | -6457061.09 | -6457060.97 | -6457060.86 | 0.1655 | 0.0166 |
| Venus | -22384-01-15 02:23 J | -6454318.54 | -6454318.40 | -6454318.27 | 0.1651 | 0.1044 |
| Venus | -22383-11-15 06:00 J | -6453649.40 | -6453649.25 | -6453649.10 | 0.1641 | 0.0817 |
| Mercury | -22383-12-03 23:45 J | -6453630.62 | -6453630.51 | -6453630.39 | 0.1652 | 0.0302 |
| Venus | -22382-10-20 20:23 J | -6453309.81 | -6453309.65 | -6453309.50 | 0.1870 | 0.0930 |
| Mercury | -22380-09-17 10:19 J | -6452612.19 | -6452612.07 | -6452611.95 | 0.1861 | 0.1260 |
| Moon | -22379-03-31 14:09 J | -6452416.99 | -6452416.91 | -6452416.83 | 0.1654 | 0.1497 |
| Earth | -22379-03-31 19:26 J | -6452416.70 | -6452416.69 | -6452416.68 | 0.1654 | 0.1648 |
| Mercury | -22373-04-25 11:02 J | -6450200.15 | -6450200.04 | -6450199.94 | 0.1649 | 0.0759 |
| Mercury | -22371-03-31 14:52 J | -6449494.96 | -6449494.88 | -6449494.80 | 0.1661 | 0.1187 |
| Mercury | -22370-02-07 05:02 J | -6449182.45 | -6449182.29 | -6449182.12 | 0.1866 | 0.0059 |
| Mercury | -22364-09-15 22:19 J | -6446769.65 | -6446769.57 | -6446769.50 | 0.1646 | 0.1212 |
| Mercury | -22362-08-22 01:40 J | -6446064.54 | -6446064.43 | -6446064.32 | 0.1658 | 0.0702 |
| Mercury | -22361-06-28 23:16 J | -6445752.64 | -6445752.53 | -6445752.42 | 0.1870 | 0.1377 |
| Mercury | -22352-01-11 12:43 J | -6442634.09 | -6442633.97 | -6442633.86 | 0.1655 | 0.0227 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Venus | -22351-11-13 22:19 J | -6441962.74 | -6441962.57 | -6441962.40 | 0.1645 | 0.0065 |
| Venus | -22348-08-16 20:52 J | -6440955.76 | -6440955.63 | -6440955.49 | 0.1878 | 0.1172 |
| Mercury | -22343-06-03 23:45 J | -6439203.63 | -6439203.51 | -6439203.40 | 0.1652 | 0.0243 |
| Mercury | -22340-03-18 11:02 J | -6438185.15 | -6438185.04 | -6438184.93 | 0.1861 | 0.1372 |
| Mercury | -22334-10-25 11:02 J | -6435773.15 | -6435773.04 | -6435772.94 | 0.1649 | 0.0703 |
| Mercury | -22332-09-29 14:38 J | -6435067.96 | -6435067.89 | -6435067.81 | 0.1661 | 0.1243 |
| Mercury | -22331-08-08 06:00 J | -6434755.42 | -6434755.25 | -6434755.08 | 0.1866 | 0.0094 |
| Mercury | -22324-03-16 22:04 J | -6432342.66 | -6432342.58 | -6432342.49 | 0.1646 | 0.1154 |
| Mercury | -22322-02-20 01:40 J | -6431637.54 | -6431637.43 | -6431637.33 | 0.1658 | 0.0763 |
| Mercury | -22322-12-29 00:00 J | -6431325.62 | -6431325.50 | -6431325.37 | 0.1870 | 0.1251 |
| Venus | -22319-11-12 14:38 J | -6430276.02 | -6430275.89 | -6430275.75 | 0.1649 | 0.0955 |
| Venus | -22317-09-11 18:28 J | -6429606.87 | -6429606.73 | -6429606.59 | 0.1640 | 0.0897 |
| Venus | -22316-08-16 22:19 J | -6429267.74 | -6429267.57 | -6429267.40 | 0.1872 | 0.0627 |
| Mercury | -22315-08-07 09:36 J | -6428912.13 | -6428912.10 | -6428912.08 | 0.1644 | 0.1598 |
| Mercury | -22313-07-12 12:43 J | -6428207.09 | -6428206.97 | -6428206.86 | 0.1655 | 0.0290 |
| Mercury | -22304-12-02 23:45 J | -6424776.63 | -6424776.51 | -6424776.39 | 0.1652 | 0.0180 |
| Mercury | -22301-09-16 11:45 J | -6423758.11 | -6423758.01 | -6423757.91 | 0.1861 | 0.1494 |
| Earth | -22300-04-02 22:48 J | -6423559.74 | -6423559.55 | -6423559.37 | 0.1652 | 0.0295 |
| Moon | -22300-04-03 00:28 J | -6423559.67 | -6423559.48 | -6423559.29 | 0.1652 | 0.0435 * |
| Mercury | -22294-04-25 10:48 J | -6421346.15 | -6421346.05 | -6421345.94 | 0.1649 | 0.0643 |
| Mercury | -22292-03-30 14:38 J | -6420640.96 | -6420640.89 | -6420640.82 | 0.1661 | 0.1309 |
| Mercury | -22291-02-06 06:28 J | -6420328.39 | -6420328.23 | -6420328.06 | 0.1866 | 0.0206 |
| Venus | -22285-09-10 10:33 J | -6417920.24 | -6417920.06 | -6417919.89 | 0.1644 | 0.0052 |
| Mercury | -22285-09-14 22:04 J | -6417915.66 | -6417915.58 | -6417915.49 | 0.1646 | 0.1096 |
| Mercury | -22283-08-21 01:40 J | -6417210.53 | -6417210.43 | -6417210.33 | 0.1658 | 0.0824 |
| Venus | -22282-06-13 22:48 J | -6416913.66 | -6416913.55 | -6416913.45 | 0.1880 | 0.1484 |
| Mercury | -22282-06-29 00:43 J | -6416898.60 | -6416898.47 | -6416898.34 | 0.1870 | 0.1131 |
| Mercury | -22275-02-05 09:21 J | -6414485.14 | -6414485.11 | -6414485.07 | 0.1644 | 0.1539 |
| Mercury | -22273-01-11 12:43 J | -6413780.09 | -6413779.97 | -6413779.86 | 0.1655 | 0.0353 |
| Mercury | -22264-06-02 23:45 J | -6410349.63 | -6410349.51 | -6410349.39 | 0.1652 | 0.0119 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -22261-03-17 12:43 J | -6409331.05 | -6409330.97 | -6409330.89 | 0.1861 | 0.1623 |
| Moon | -22260-09-30 13:55 J | -6408769.14 | -6408768.92 | -6408768.70 | 0.1867 | 0.0018 |
| Earth | -22260-09-30 18:57 J | -6408768.90 | -6408768.71 | -6408768.51 | 0.1868 | 0.0413 * |
| Mercury | -22255-10-24 10:48 J | -6406919.16 | -6406919.05 | -6406918.94 | 0.1649 | 0.0581 |
| Venus | -22253-09-09 03:07 J | -6406233.51 | -6406233.37 | -6406233.23 | 0.1648 | 0.0867 |
| Mercury | -22253-09-28 14:38 J | -6406213.95 | -6406213.89 | -6406213.82 | 0.1661 | 0.1371 |
| Mercury | -22252-08-07 07:11 J | -6405901.36 | -6405901.20 | -6405901.03 | 0.1866 | 0.0330 |
| Venus | -22251-07-10 06:57 J | -6405564.34 | -6405564.21 | -6405564.07 | 0.1639 | 0.0977 |
| Venus | -22250-06-14 01:11 J | -6405225.63 | -6405225.45 | -6405225.28 | 0.1874 | 0.0340 |
| Mercury | -22245-03-15 22:04 J | -6403488.67 | -6403488.58 | -6403488.49 | 0.1646 | 0.1033 |
| Mercury | -22243-02-19 01:40 J | -6402783.53 | -6402783.43 | -6402783.33 | 0.1658 | 0.0888 |
| Mercury | -22243-12-28 01:40 J | -6402471.57 | -6402471.43 | -6402471.29 | 0.1870 | 0.1002 |
| Mercury | -22236-08-06 09:21 J | -6400058.16 | -6400058.11 | -6400058.06 | 0.1644 | 0.1481 |
| Mercury | -22234-07-12 12:43 J | -6399353.09 | -6399352.97 | -6399352.86 | 0.1655 | 0.0414 |
| Mercury | -22225-12-01 23:31 J | -6395922.63 | -6395922.52 | -6395922.40 | 0.1651 | 0.0078 |
| Mercury | -22222-09-16 12:57 J | -6394904.02 | -6394903.96 | -6394903.90 | 0.1861 | 0.1724 |
| Earth | -22221-04-05 01:40 J | -6394702.57 | -6394702.43 | -6394702.28 | 0.1650 | 0.1040 |
| Moon | -22221-04-05 08:09 J | -6394702.29 | -6394702.16 | -6394702.04 | 0.1650 | 0.1221 * |
| Venus | -22219-07-08 23:16 J | -6393877.70 | -6393877.53 | -6393877.36 | 0.1643 | 0.0101 |
| Venus | -22216-04-10 01:11 J | -6392871.51 | -6392871.45 | -6392871.40 | 0.1882 | 0.1784 |
| Mercury | -22215-04-24 10:48 J | -6392492.16 | -6392492.05 | -6392491.94 | 0.1649 | 0.0520 |
| Mercury | -22213-03-29 14:38 J | -6391786.95 | -6391786.89 | -6391786.83 | 0.1661 | 0.1430 |
| Mercury | -22212-02-05 08:23 J | -6391474.31 | -6391474.15 | -6391473.99 | 0.1866 | 0.0467 |
| Mercury | -22206-09-14 22:04 J | -6389061.67 | -6389061.58 | -6389061.49 | 0.1646 | 0.0973 |
| Mercury | -22204-08-20 01:40 J | -6388356.53 | -6388356.43 | -6388356.34 | 0.1658 | 0.0950 |
| Mercury | -22203-06-28 02:23 J | -6388044.55 | -6388044.40 | -6388044.25 | 0.1870 | 0.0877 |
| Mercury | -22196-02-04 09:21 J | -6385631.17 | -6385631.11 | -6385631.05 | 0.1644 | 0.1421 |
| Mercury | -22194-01-10 12:28 J | -6384926.09 | -6384925.98 | -6384925.86 | 0.1654 | 0.0473 |
| Venus | -22187-07-07 15:36 J | -6382191.00 | -6382190.85 | -6382190.70 | 0.1647 | 0.0782 |
| Venus | -22185-05-06 19:55 J | -6381521.80 | -6381521.67 | -6381521.54 | 0.1638 | 0.1050 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -22185-06-01 23:45 J | -6381495.63 | -6381495.51 | -6381495.40 | 0.1652 | 0.0052 |
| Venus | -22184-04-10 03:07 J | -6381183.54 | -6381183.37 | -6381183.19 | 0.1876 | 0.0061 |
| Mercury | -22182-03-17 13:55 J | -6380476.92 | -6380476.92 | -6380476.91 | 0.1861 | 0.1858 |
| Mercury | -22176-10-23 10:48 J | -6378065.16 | -6378065.05 | -6378064.94 | 0.1649 | 0.0459 |
| Mercury | -22174-09-28 14:38 J | -6377359.94 | -6377359.89 | -6377359.84 | 0.1661 | 0.1495 |
| Mercury | -22173-08-06 08:38 J | -6377047.30 | -6377047.14 | -6377046.98 | 0.1866 | 0.0568 |
| Mercury | -22166-03-15 22:04 J | -6374634.68 | -6374634.58 | -6374634.49 | 0.1646 | 0.0917 |
| Mercury | -22164-02-18 01:26 J | -6373929.53 | -6373929.44 | -6373929.34 | 0.1657 | 0.1008 |
| Mercury | -22164-12-27 03:07 J | -6373617.52 | -6373617.37 | -6373617.22 | 0.1870 | 0.0758 |
| Mercury | -22157-08-05 09:21 J | -6371204.17 | -6371204.11 | -6371204.05 | 0.1644 | 0.1362 |
| Mercury | -22155-07-11 12:28 J | -6370499.09 | -6370498.98 | -6370498.87 | 0.1655 | 0.0532 |
| Venus | -22153-05-05 11:45 J | -6369835.18 | -6369835.01 | -6369834.84 | 0.1641 | 0.0181 |
| Venus | -22152-04-10 05:02 J | -6369495.32 | -6369495.29 | -6369495.25 | 0.1870 | 0.1826 |
| Mercury | -22146-12-01 23:31 J | -6367068.63 | -6367068.52 | -6367068.40 | 0.1652 | 0.0085 |
| Mercury | -22136-04-23 10:48 J | -6363638.16 | -6363638.05 | -6363637.94 | 0.1649 | 0.0398 |
| Mercury | -22134-03-29 14:38 J | -6362932.93 | -6362932.89 | -6362932.85 | 0.1661 | 0.1557 |
| Mercury | -22133-02-05 09:36 J | -6362620.25 | -6362620.10 | -6362619.95 | 0.1866 | 0.0698 |
| Mercury | -22127-09-13 22:04 J | -6360207.68 | -6360207.58 | -6360207.48 | 0.1646 | 0.0856 |
| Mercury | -22125-08-19 01:26 J | -6359502.52 | -6359502.44 | -6359502.35 | 0.1658 | 0.1073 |
| Mercury | -22124-06-27 03:50 J | -6359190.49 | -6359190.34 | -6359190.18 | 0.1870 | 0.0632 |
| Venus | -22121-05-04 04:19 J | -6358148.48 | -6358148.32 | -6358148.17 | 0.1645 | 0.0699 |
| Venus | -22119-03-04 08:09 J | -6357479.28 | -6357479.16 | -6357479.03 | 0.1637 | 0.1131 |
| Venus | -22118-02-05 05:45 J | -6357141.44 | -6357141.26 | -6357141.08 | 0.1878 | 0.0261 |
| Mercury | -22117-02-04 09:21 J | -6356777.18 | -6356777.11 | -6356777.05 | 0.1644 | 0.1305 |
| Mercury | -22115-01-09 12:28 J | -6356072.09 | -6356071.98 | -6356071.87 | 0.1654 | 0.0594 |
| Mercury | -22106-06-01 23:31 J | -6352641.64 | -6352641.52 | -6352641.40 | 0.1651 | 0.0123 |
| Mercury | -22097-10-22 10:48 J | -6349211.17 | -6349211.05 | -6349210.94 | 0.1649 | 0.0342 |
| Moon | -22095-04-01 20:38 J | -6348684.76 | -6348684.64 | -6348684.52 | 0.1658 | 0.1184 |
| Earth | -22095-04-01 22:48 J | -6348684.66 | -6348684.55 | -6348684.44 | 0.1658 | 0.1322 * |
| Mercury | -22095-09-27 14:38 J | -6348505.92 | -6348505.89 | -6348505.87 | 0.1661 | 0.1615 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -22094-08-06 10:33 J | -6348193.21 | -6348193.06 | -6348192.92 | 0.1866 | 0.0826 |
| Venus | -22089-05-02 20:52 J | -6346461.68 | -6346461.63 | -6346461.59 | 0.1650 | 0.1585 |
| Venus | -22087-03-03 00:28 J | -6345792.65 | -6345792.48 | -6345792.31 | 0.1640 | 0.0262 |
| Mercury | -22087-03-14 22:04 J | -6345780.69 | -6345780.58 | -6345780.48 | 0.1646 | 0.0796 |
| Venus | -22086-02-05 06:57 J | -6345453.31 | -6345453.21 | -6345453.10 | 0.1872 | 0.1526 |
| Mercury | -22085-02-18 01:26 J | -6345075.52 | -6345075.44 | -6345075.35 | 0.1658 | 0.1134 |
| Mercury | -22085-12-26 04:33 J | -6344763.47 | -6344763.31 | -6344763.15 | 0.1870 | 0.0508 |
| Mercury | -22078-08-05 09:21 J | -6342350.19 | -6342350.11 | -6342350.04 | 0.1644 | 0.1243 |
| Mercury | -22076-07-10 12:28 J | -6341645.09 | -6341644.98 | -6341644.87 | 0.1654 | 0.0656 |
| Mercury | -22075-05-17 22:33 J | -6341333.57 | -6341333.56 | -6341333.55 | 0.1874 | 0.1866 |
| Mercury | -22067-11-30 23:31 J | -6338214.63 | -6338214.52 | -6338214.40 | 0.1651 | 0.0185 |
| Mercury | -22057-04-22 10:48 J | -6334784.17 | -6334784.05 | -6334783.94 | 0.1649 | 0.0283 |
| Venus | -22055-03-01 16:33 J | -6334105.97 | -6334105.81 | -6334105.65 | 0.1644 | 0.0614 |
| Mercury | -22054-02-04 11:02 J | -6333766.19 | -6333766.04 | -6333765.90 | 0.1866 | 0.0934 |
| Venus | -22054-12-30 20:52 J | -6333436.74 | -6333436.63 | -6333436.52 | 0.1636 | 0.1205 |
| Venus | -22053-12-02 07:11 J | -6333099.37 | -6333099.20 | -6333099.03 | 0.1880 | 0.0578 |
| Mercury | -22048-09-12 21:50 J | -6331353.69 | -6331353.59 | -6331353.48 | 0.1646 | 0.0738 |
| Mercury | -22046-08-19 01:26 J | -6330648.52 | -6330648.44 | -6330648.36 | 0.1657 | 0.1193 |
| Mercury | -22045-06-26 05:31 J | -6330336.44 | -6330336.27 | -6330336.11 | 0.1870 | 0.0384 |
| Mercury | -22038-02-03 09:07 J | -6327923.19 | -6327923.12 | -6327923.04 | 0.1644 | 0.1186 |
| Mercury | -22036-01-08 12:28 J | -6327218.09 | -6327217.98 | -6327217.88 | 0.1654 | 0.0714 |
| Mercury | -22036-11-15 23:16 J | -6326906.59 | -6326906.53 | -6326906.47 | 0.1874 | 0.1741 |
| Mercury | -22029-06-25 20:38 J | -6324492.65 | -6324492.64 | -6324492.63 | 0.1641 | 0.1627 |
| Mercury | -22027-05-31 23:31 J | -6323787.63 | -6323787.52 | -6323787.40 | 0.1652 | 0.0246 |
| Venus | -22023-02-28 08:52 J | -6322419.20 | -6322419.13 | -6322419.06 | 0.1648 | 0.1491 |
| Venus | -22022-12-29 12:43 J | -6321750.13 | -6321749.97 | -6321749.80 | 0.1639 | 0.0345 |
| Venus | -22021-12-02 08:38 J | -6321411.27 | -6321411.14 | -6321411.00 | 0.1874 | 0.1215 |
| Mercury | -22018-10-22 10:48 J | -6320357.17 | -6320357.05 | -6320356.94 | 0.1649 | 0.0228 |
| Moon | -22016-04-03 20:09 J | -6319827.85 | -6319827.66 | -6319827.47 | 0.1656 | 0.0190 |
| Earth | -22016-04-04 02:38 J | -6319827.58 | -6319827.39 | -6319827.21 | 0.1656 | 0.0051 * |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -22015-08-05 11:45 J | -6319339.15 | -6319339.01 | -6319338.87 | 0.1866 | 0.1058 |
| Mercury | -22008-03-13 21:50 J | -6316926.69 | -6316926.59 | -6316926.48 | 0.1646 | 0.0676 |
| Mercury | -22006-02-17 01:26 J | -6316221.51 | -6316221.44 | -6316221.36 | 0.1657 | 0.1256 |
| Mercury | -22006-12-26 06:14 J | -6315909.41 | -6315909.24 | -6315909.08 | 0.1870 | 0.0263 |

22ND MILLENNIUM BCE

This is a list of transits visible from Mars in the 22nd millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|-------------|-------------|-------------|--------|----------|-------|---|
| Mercury | -21999-08-04 09:07 J | -6313496.20 | -6313496.12 | -6313496.04 | 0.1644 | 0.1127 | | |
| Mercury | -21997-07-09 12:28 J | -6312791.08 | -6312790.98 | -6312790.88 | 0.1654 | 0.0777 | | |
| Mercury | -21996-05-16 23:45 J | -6312479.59 | -6312479.51 | -6312479.42 | 0.1874 | 0.1631 | | |
| Mercury | -21990-12-25 20:38 J | -6310065.67 | -6310065.64 | -6310065.61 | 0.1641 | 0.1570 | | |
| Venus | -21990-12-28 05:02 J | -6310063.45 | -6310063.29 | -6310063.13 | 0.1643 | 0.0527 | | |
| Venus | -21988-10-27 09:36 J | -6309394.21 | -6309394.10 | -6309394.00 | 0.1635 | 0.1284 | | |
| Mercury | -21988-11-29 23:31 J | -6309360.64 | -6309360.52 | -6309360.41 | 0.1651 | 0.0305 | | |
| Venus | -21987-09-29 09:21 J | -6309057.26 | -6309057.11 | -6309056.95 | 0.1882 | 0.0881 | | |
| Mercury | -21978-04-22 10:33 J | -6305930.17 | -6305930.06 | -6305929.94 | 0.1649 | 0.0171 | | |
| Moon | -21976-09-29 22:48 J | -6305038.71 | -6305038.55 | -6305038.38 | 0.1862 | 0.0887 | | |
| Earth | -21976-09-30 01:26 J | -6305038.63 | -6305038.44 | -6305038.25 | 0.1862 | 0.0676 * | | |
| Mercury | -21975-02-03 12:43 J | -6304912.09 | -6304911.97 | -6304911.84 | 0.1866 | 0.1194 | | |
| Mercury | -21969-09-11 21:50 J | -6302499.70 | -6302499.59 | -6302499.48 | 0.1646 | 0.0616 | | |
| Mercury | -21967-08-18 01:26 J | -6301794.51 | -6301794.44 | -6301794.37 | 0.1658 | 0.1318 | | |
| Mercury | -21966-06-26 06:57 J | -6301482.38 | -6301482.21 | -6301482.05 | 0.1870 | 0.0140 | | |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -21959-02-02 09:07 J | -6299069.21 | -6299069.12 | -6299069.03 | 0.1644 | 0.1066 |
| Venus | -21958-12-26 21:21 J | -6298376.69 | -6298376.61 | -6298376.52 | 0.1647 | 0.1407 |
| Mercury | -21957-01-08 12:28 J | -6298364.08 | -6298363.98 | -6298363.88 | 0.1654 | 0.0838 |
| Mercury | -21957-11-15 00:43 J | -6298052.57 | -6298052.47 | -6298052.37 | 0.1874 | 0.1498 |
| Venus | -21956-10-26 01:40 J | -6297707.60 | -6297707.43 | -6297707.27 | 0.1638 | 0.0423 |
| Venus | -21955-09-29 11:16 J | -6297369.19 | -6297369.03 | -6297368.88 | 0.1876 | 0.0919 |
| Mercury | -21950-06-25 20:23 J | -6295638.69 | -6295638.65 | -6295638.60 | 0.1641 | 0.1511 |
| Mercury | -21948-05-30 23:31 J | -6294933.64 | -6294933.52 | -6294933.41 | 0.1651 | 0.0368 |
| Mercury | -21939-10-21 10:33 J | -6291503.17 | -6291503.06 | -6291502.94 | 0.1649 | 0.0104 |
| Moon | -21937-04-06 04:19 J | -6290970.41 | -6290970.32 | -6290970.23 | 0.1654 | 0.1465 |
| Earth | -21937-04-06 06:00 J | -6290970.34 | -6290970.25 | -6290970.15 | 0.1654 | 0.1399 * |
| Mercury | -21936-08-04 12:57 J | -6290485.07 | -6290484.96 | -6290484.84 | 0.1866 | 0.1291 |
| Mercury | -21929-03-12 21:50 J | -6288072.70 | -6288072.59 | -6288072.48 | 0.1646 | 0.0560 |
| Mercury | -21927-02-16 01:26 J | -6287367.51 | -6287367.44 | -6287367.38 | 0.1657 | 0.1375 |
| Mercury | -21927-12-25 07:40 J | -6287055.35 | -6287055.18 | -6287055.01 | 0.1870 | 0.0015 |
| Venus | -21924-10-24 17:45 J | -6286020.93 | -6286020.76 | -6286020.60 | 0.1641 | 0.0448 |
| Venus | -21922-08-24 22:04 J | -6285351.67 | -6285351.58 | -6285351.48 | 0.1634 | 0.1358 |
| Venus | -21921-07-26 11:02 J | -6285015.18 | -6285015.04 | -6285014.91 | 0.1883 | 0.1195 |
| Mercury | -21920-08-03 09:07 J | -6284642.21 | -6284642.12 | -6284642.03 | 0.1644 | 0.1006 |
| Mercury | -21918-07-09 12:28 J | -6283937.08 | -6283936.98 | -6283936.89 | 0.1654 | 0.0900 |
| Mercury | -21917-05-16 01:40 J | -6283625.54 | -6283625.43 | -6283625.31 | 0.1874 | 0.1361 |
| Mercury | -21911-12-24 20:23 J | -6281211.70 | -6281211.65 | -6281211.60 | 0.1641 | 0.1451 |
| Mercury | -21909-11-28 23:31 J | -6280506.64 | -6280506.52 | -6280506.41 | 0.1651 | 0.0429 |
| Mercury | -21899-04-21 10:33 J | -6277076.18 | -6277076.06 | -6277075.94 | 0.1649 | 0.0041 |
| Mercury | -21896-02-02 13:55 J | -6276058.02 | -6276057.92 | -6276057.81 | 0.1866 | 0.1423 |
| Venus | -21892-10-23 09:50 J | -6274334.19 | -6274334.09 | -6274333.99 | 0.1645 | 0.1320 |
| Venus | -21890-08-23 14:09 J | -6273665.08 | -6273664.91 | -6273664.75 | 0.1637 | 0.0502 |
| Mercury | -21890-09-11 21:50 J | -6273645.70 | -6273645.59 | -6273645.48 | 0.1646 | 0.0497 |
| Venus | -21889-07-26 12:43 J | -6273327.14 | -6273326.97 | -6273326.80 | 0.1878 | 0.0610 |
| Mercury | -21888-08-17 01:26 J | -6272940.50 | -6272940.44 | -6272940.38 | 0.1657 | 0.1440 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -21887-06-25 08:23 J | -6272628.32 | -6272628.15 | -6272627.98 | 0.1870 | 0.0109 |
| Mercury | -21880-02-01 09:07 J | -6270215.22 | -6270215.12 | -6270215.03 | 0.1643 | 0.0951 |
| Mercury | -21878-01-07 12:14 J | -6269510.08 | -6269509.99 | -6269509.89 | 0.1654 | 0.0963 |
| Mercury | -21878-11-15 02:09 J | -6269198.53 | -6269198.41 | -6269198.29 | 0.1874 | 0.1257 |
| Mercury | -21871-06-24 20:23 J | -6266784.71 | -6266784.65 | -6266784.59 | 0.1641 | 0.1393 |
| Mercury | -21869-05-29 23:16 J | -6266079.64 | -6266079.53 | -6266079.41 | 0.1651 | 0.0487 |
| Mercury | -21860-10-20 10:33 J | -6262649.18 | -6262649.06 | -6262648.94 | 0.1649 | 0.0022 |
| Venus | -21858-08-22 06:00 J | -6261978.42 | -6261978.25 | -6261978.09 | 0.1640 | 0.0364 |
| Mercury | -21857-08-03 14:52 J | -6261630.97 | -6261630.88 | -6261630.79 | 0.1866 | 0.1548 |
| Venus | -21856-06-21 10:48 J | -6261309.13 | -6261309.05 | -6261308.97 | 0.1633 | 0.1432 |
| Venus | -21855-05-23 12:43 J | -6260973.08 | -6260972.97 | -6260972.87 | 0.1885 | 0.1507 |
| Mercury | -21850-03-12 21:50 J | -6259218.71 | -6259218.59 | -6259218.48 | 0.1646 | 0.0439 |
| Mercury | -21848-02-15 01:26 J | -6258513.49 | -6258513.44 | -6258513.39 | 0.1657 | 0.1502 |
| Mercury | -21848-12-24 09:07 J | -6258201.28 | -6258201.12 | -6258200.95 | 0.1870 | 0.0234 |
| Mercury | -21841-08-02 09:07 J | -6255788.22 | -6255788.12 | -6255788.03 | 0.1644 | 0.0889 |
| Mercury | -21839-07-08 12:14 J | -6255083.08 | -6255082.99 | -6255082.89 | 0.1654 | 0.1023 |
| Mercury | -21838-05-16 03:07 J | -6254771.50 | -6254771.37 | -6254771.23 | 0.1874 | 0.1118 |
| Mercury | -21832-12-23 20:23 J | -6252357.72 | -6252357.65 | -6252357.59 | 0.1641 | 0.1334 |
| Mercury | -21830-11-28 23:16 J | -6251652.64 | -6251652.53 | -6251652.42 | 0.1651 | 0.0551 |
| Venus | -21826-08-20 22:19 J | -6250291.68 | -6250291.57 | -6250291.46 | 0.1644 | 0.1235 |
| Venus | -21824-06-20 02:38 J | -6249622.55 | -6249622.39 | -6249622.23 | 0.1636 | 0.0581 |
| Venus | -21823-05-23 15:36 J | -6249285.03 | -6249284.85 | -6249284.68 | 0.1880 | 0.0320 |
| Mercury | -21820-04-20 10:33 J | -6248222.18 | -6248222.06 | -6248221.94 | 0.1649 | 0.0085 |
| Mercury | -21817-02-02 15:21 J | -6247203.93 | -6247203.86 | -6247203.79 | 0.1866 | 0.1655 |
| Earth | -21811-04-03 01:55 J | -6244952.57 | -6244952.42 | -6244952.27 | 0.1661 | 0.0999 |
| Moon | -21811-04-03 08:38 J | -6244952.30 | -6244952.14 | -6244951.97 | 0.1661 | 0.0729 * |
| Mercury | -21811-09-10 21:36 J | -6244791.71 | -6244791.60 | -6244791.48 | 0.1646 | 0.0381 |
| Mercury | -21809-08-16 01:26 J | -6244086.48 | -6244086.44 | -6244086.41 | 0.1657 | 0.1561 |
| Mercury | -21808-06-24 10:04 J | -6243774.25 | -6243774.08 | -6243773.92 | 0.1870 | 0.0359 |
| Mercury | -21801-02-01 08:52 J | -6241361.23 | -6241361.13 | -6241361.03 | 0.1644 | 0.0832 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -21799-01-06 12:14 J | -6240656.08 | -6240655.99 | -6240655.90 | 0.1654 | 0.1081 |
| Mercury | -21799-11-14 03:50 J | -6240344.48 | -6240344.34 | -6240344.19 | 0.1874 | 0.0995 |
| Venus | -21792-06-18 18:43 J | -6237935.89 | -6237935.72 | -6237935.55 | 0.1639 | 0.0284 |
| Mercury | -21792-06-23 20:23 J | -6237930.72 | -6237930.65 | -6237930.58 | 0.1641 | 0.1274 |
| Venus | -21790-04-18 23:45 J | -6237266.57 | -6237266.51 | -6237266.44 | 0.1632 | 0.1502 |
| Mercury | -21790-05-29 23:16 J | -6237225.63 | -6237225.53 | -6237225.42 | 0.1651 | 0.0613 |
| Venus | -21789-03-19 14:38 J | -6236930.93 | -6236930.89 | -6236930.84 | 0.1886 | 0.1809 |
| Mercury | -21781-10-19 10:33 J | -6233795.18 | -6233795.06 | -6233794.95 | 0.1649 | 0.0148 |
| Mercury | -21778-08-03 16:04 J | -6232776.87 | -6232776.83 | -6232776.78 | 0.1866 | 0.1780 |
| Mercury | -21771-03-11 21:36 J | -6230364.71 | -6230364.60 | -6230364.48 | 0.1646 | 0.0321 |
| Mercury | -21769-02-15 01:26 J | -6229659.46 | -6229659.44 | -6229659.42 | 0.1657 | 0.1624 |
| Mercury | -21769-12-23 10:33 J | -6229347.22 | -6229347.06 | -6229346.90 | 0.1870 | 0.0475 |
| Mercury | -21762-08-02 08:52 J | -6226934.23 | -6226934.13 | -6226934.03 | 0.1643 | 0.0773 |
| Venus | -21760-06-17 10:48 J | -6226249.17 | -6226249.05 | -6226248.93 | 0.1643 | 0.1151 |
| Mercury | -21760-07-07 12:14 J | -6226229.07 | -6226228.99 | -6226228.90 | 0.1654 | 0.1144 |
| Mercury | -21759-05-15 04:33 J | -6225917.46 | -6225917.31 | -6225917.16 | 0.1874 | 0.0879 |
| Venus | -21758-04-17 15:36 J | -6225580.00 | -6225579.85 | -6225579.69 | 0.1635 | 0.0652 |
| Venus | -21757-03-19 17:16 J | -6225242.96 | -6225242.78 | -6225242.60 | 0.1881 | 0.0012 |
| Mercury | -21753-12-22 20:23 J | -6223503.73 | -6223503.65 | -6223503.58 | 0.1641 | 0.1217 |
| Mercury | -21751-11-27 23:16 J | -6222798.64 | -6222798.53 | -6222798.42 | 0.1651 | 0.0667 |
| Mercury | -21741-04-19 10:33 J | -6219368.18 | -6219368.06 | -6219367.95 | 0.1649 | 0.0208 |
| Earth | -21732-04-05 05:31 J | -6216095.46 | -6216095.27 | -6216095.09 | 0.1659 | 0.0372 |
| Moon | -21732-04-05 06:57 J | -6216095.38 | -6216095.21 | -6216095.03 | 0.1659 | 0.0286 * |
| Mercury | -21732-09-09 21:36 J | -6215937.71 | -6215937.60 | -6215937.48 | 0.1646 | 0.0258 |
| Mercury | -21729-06-23 11:31 J | -6214920.18 | -6214920.02 | -6214919.87 | 0.1870 | 0.0600 |
| Venus | -21726-04-16 07:26 J | -6213893.36 | -6213893.19 | -6213893.02 | 0.1638 | 0.0205 |
| Venus | -21725-03-19 19:40 J | -6213554.72 | -6213554.68 | -6213554.63 | 0.1876 | 0.1812 |
| Venus | -21724-02-13 12:28 J | -6213224.02 | -6213223.98 | -6213223.94 | 0.1632 | 0.1577 |
| Mercury | -21722-01-31 08:52 J | -6212507.23 | -6212507.13 | -6212507.02 | 0.1643 | 0.0711 |
| Mercury | -21720-01-05 12:14 J | -6211802.07 | -6211801.99 | -6211801.91 | 0.1654 | 0.1204 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -21720-11-13 05:31 J | -6211490.43 | -6211490.27 | -6211490.12 | 0.1874 | 0.0747 |
| Mercury | -21713-06-22 20:09 J | -6209076.74 | -6209076.66 | -6209076.57 | 0.1641 | 0.1158 |
| Mercury | -21711-05-28 23:16 J | -6208371.63 | -6208371.53 | -6208371.42 | 0.1651 | 0.0732 |
| Mercury | -21704-11-13 07:40 J | -6205646.20 | -6205646.18 | -6205646.16 | 0.1639 | 0.1600 |
| Mercury | -21702-10-19 10:19 J | -6204941.18 | -6204941.07 | -6204940.95 | 0.1648 | 0.0263 |
| Venus | -21694-04-14 23:31 J | -6202206.64 | -6202206.52 | -6202206.39 | 0.1641 | 0.1070 |
| Venus | -21692-02-12 04:04 J | -6201537.49 | -6201537.33 | -6201537.18 | 0.1634 | 0.0733 |
| Mercury | -21692-03-10 21:36 J | -6201510.72 | -6201510.60 | -6201510.49 | 0.1646 | 0.0200 |
| Earth | -21692-09-29 08:38 J | -6201308.22 | -6201308.14 | -6201308.06 | 0.1856 | 0.1694 |
| Moon | -21692-09-29 18:14 J | -6201307.85 | -6201307.74 | -6201307.62 | 0.1856 | 0.1530 |
| Venus | -21691-01-14 19:40 J | -6201200.85 | -6201200.68 | -6201200.50 | 0.1883 | 0.0287 |
| Mercury | -21690-12-23 12:14 J | -6200493.14 | -6200492.99 | -6200492.84 | 0.1870 | 0.0725 |
| Mercury | -21683-08-01 08:52 J | -6198080.24 | -6198080.13 | -6198080.02 | 0.1644 | 0.0650 |
| Mercury | -21681-07-06 12:14 J | -6197375.06 | -6197374.99 | -6197374.92 | 0.1654 | 0.1266 |
| Mercury | -21680-05-14 06:28 J | -6197063.39 | -6197063.23 | -6197063.08 | 0.1874 | 0.0614 |
| Mercury | -21674-12-22 20:09 J | -6194649.74 | -6194649.66 | -6194649.57 | 0.1641 | 0.1099 |
| Mercury | -21672-11-26 23:16 J | -6193944.63 | -6193944.53 | -6193944.43 | 0.1651 | 0.0791 |
| Mercury | -21664-05-14 07:40 J | -6191219.22 | -6191219.18 | -6191219.15 | 0.1639 | 0.1539 |
| Mercury | -21662-04-19 10:19 J | -6190514.18 | -6190514.07 | -6190513.95 | 0.1649 | 0.0327 |
| Venus | -21660-02-10 19:55 J | -6189850.84 | -6189850.67 | -6189850.50 | 0.1637 | 0.0126 |
| Venus | -21659-01-14 21:36 J | -6189512.70 | -6189512.60 | -6189512.49 | 0.1878 | 0.1507 |
| Mercury | -21653-09-08 21:36 J | -6187083.72 | -6187083.60 | -6187083.48 | 0.1646 | 0.0138 |
| Mercury | -21650-06-23 12:57 J | -6186066.11 | -6186065.96 | -6186065.81 | 0.1870 | 0.0843 |
| Mercury | -21643-01-30 08:52 J | -6183653.24 | -6183653.13 | -6183653.03 | 0.1643 | 0.0596 |
| Mercury | -21641-01-05 12:14 J | -6182948.06 | -6182947.99 | -6182947.92 | 0.1654 | 0.1326 |
| Mercury | -21641-11-12 06:43 J | -6182636.38 | -6182636.22 | -6182636.06 | 0.1874 | 0.0511 |
| Mercury | -21634-06-22 20:09 J | -6180222.75 | -6180222.66 | -6180222.57 | 0.1641 | 0.1040 |
| Mercury | -21632-05-27 23:16 J | -6179517.63 | -6179517.53 | -6179517.43 | 0.1651 | 0.0850 |
| Mercury | -21631-04-04 00:57 J | -6179206.48 | -6179206.46 | -6179206.44 | 0.1877 | 0.1861 |
| Venus | -21628-02-09 12:00 J | -6178164.14 | -6178164.00 | -6178163.87 | 0.1640 | 0.0985 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Venus | -21627-12-10 16:48 J | -6177494.95 | -6177494.80 | -6177494.65 | 0.1633 | 0.0804 |
| Venus | -21626-11-11 20:52 J | -6177158.80 | -6177158.63 | -6177158.46 | 0.1885 | 0.0606 |
| Mercury | -21625-11-12 07:40 J | -6176792.23 | -6176792.18 | -6176792.14 | 0.1639 | 0.1481 |
| Mercury | -21623-10-18 10:19 J | -6176087.18 | -6176087.07 | -6176086.95 | 0.1649 | 0.0385 |
| Mercury | -21613-03-09 21:36 J | -6172656.72 | -6172656.60 | -6172656.49 | 0.1646 | 0.0083 |
| Earth | -21613-10-02 16:04 J | -6172449.97 | -6172449.83 | -6172449.68 | 0.1859 | 0.1297 |
| Moon | -21613-10-02 19:55 J | -6172449.79 | -6172449.67 | -6172449.54 | 0.1859 | 0.1365 * |
| Mercury | -21611-12-22 13:40 J | -6171639.07 | -6171638.93 | -6171638.79 | 0.1870 | 0.0964 |
| Mercury | -21604-07-31 08:52 J | -6169226.24 | -6169226.13 | -6169226.02 | 0.1643 | 0.0534 |
| Mercury | -21602-07-06 12:14 J | -6168521.05 | -6168520.99 | -6168520.93 | 0.1654 | 0.1388 |
| Mercury | -21601-05-13 07:55 J | -6168209.34 | -6168209.17 | -6168209.01 | 0.1874 | 0.0370 |
| Venus | -21595-12-09 08:38 J | -6165808.31 | -6165808.14 | -6165807.97 | 0.1636 | 0.0048 |
| Mercury | -21595-12-21 20:09 J | -6165795.75 | -6165795.66 | -6165795.57 | 0.1641 | 0.0981 |
| Venus | -21594-11-11 23:02 J | -6165470.68 | -6165470.54 | -6165470.41 | 0.1880 | 0.1193 |
| Mercury | -21593-11-25 23:16 J | -6165090.63 | -6165090.53 | -6165090.43 | 0.1651 | 0.0913 |
| Mercury | -21592-10-03 01:11 J | -6164779.50 | -6164779.45 | -6164779.39 | 0.1877 | 0.1760 |
| Mercury | -21585-05-13 07:26 J | -6162365.24 | -6162365.19 | -6162365.13 | 0.1639 | 0.1423 |
| Mercury | -21583-04-18 10:19 J | -6161660.18 | -6161660.07 | -6161659.96 | 0.1648 | 0.0444 |
| Mercury | -21574-09-08 21:21 J | -6158229.72 | -6158229.61 | -6158229.49 | 0.1646 | 0.0066 |
| Mercury | -21571-06-22 14:38 J | -6157212.03 | -6157211.89 | -6157211.76 | 0.1870 | 0.1094 |
| Mercury | -21564-01-29 08:52 J | -6154799.25 | -6154799.13 | -6154799.02 | 0.1643 | 0.0476 |
| Venus | -21563-12-08 00:28 J | -6154121.62 | -6154121.48 | -6154121.33 | 0.1639 | 0.0904 |
| Mercury | -21562-01-04 12:14 J | -6154094.05 | -6154093.99 | -6154093.94 | 0.1654 | 0.1449 |
| Mercury | -21562-11-12 08:38 J | -6153782.31 | -6153782.14 | -6153781.98 | 0.1874 | 0.0248 |
| Venus | -21561-10-07 05:16 J | -6153452.42 | -6153452.28 | -6153452.13 | 0.1632 | 0.0883 |
| Venus | -21560-09-07 23:16 J | -6153116.69 | -6153116.53 | -6153116.38 | 0.1886 | 0.0907 |
| Mercury | -21555-06-21 20:09 J | -6151368.76 | -6151368.66 | -6151368.57 | 0.1641 | 0.0921 |
| Mercury | -21553-05-26 23:16 J | -6150663.63 | -6150663.53 | -6150663.44 | 0.1651 | 0.0976 |
| Mercury | -21552-04-03 02:23 J | -6150352.49 | -6150352.40 | -6150352.32 | 0.1877 | 0.1619 |
| Mercury | -21546-11-12 07:26 J | -6147938.25 | -6147938.19 | -6147938.13 | 0.1639 | 0.1363 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -21544-10-17 10:19 J | -6147233.18 | -6147233.07 | -6147232.96 | 0.1648 | 0.0504 |
| Mercury | -21534-03-09 21:21 J | -6143802.72 | -6143802.61 | -6143802.49 | 0.1646 | 0.0075 |
| Mercury | -21532-12-21 15:07 J | -6142784.99 | -6142784.87 | -6142784.74 | 0.1870 | 0.1205 |
| Venus | -21529-10-05 21:21 J | -6141765.78 | -6141765.61 | -6141765.44 | 0.1635 | 0.0033 |
| Venus | -21528-09-08 01:26 J | -6141428.60 | -6141428.44 | -6141428.28 | 0.1882 | 0.0896 |
| Moon | -21527-04-04 04:33 J | -6141220.50 | -6141220.31 | -6141220.12 | 0.1665 | 0.0524 |
| Earth | -21527-04-04 04:33 J | -6141220.48 | -6141220.31 | -6141220.14 | 0.1665 | 0.0684 * |
| Mercury | -21525-07-30 08:38 J | -6140372.25 | -6140372.14 | -6140372.02 | 0.1643 | 0.0417 |
| Mercury | -21523-07-05 12:14 J | -6139667.04 | -6139666.99 | -6139666.95 | 0.1654 | 0.1511 |
| Mercury | -21522-05-13 09:21 J | -6139355.28 | -6139355.11 | -6139354.95 | 0.1874 | 0.0138 |
| Mercury | -21516-12-20 20:09 J | -6136941.76 | -6136941.66 | -6136941.57 | 0.1641 | 0.0864 |
| Mercury | -21514-11-25 23:02 J | -6136236.63 | -6136236.54 | -6136236.45 | 0.1651 | 0.1033 |
| Mercury | -21513-10-02 03:07 J | -6135925.47 | -6135925.37 | -6135925.27 | 0.1877 | 0.1488 |
| Mercury | -21506-05-13 07:26 J | -6133511.26 | -6133511.19 | -6133511.12 | 0.1639 | 0.1304 |
| Mercury | -21504-04-17 10:19 J | -6132806.18 | -6132806.07 | -6132805.96 | 0.1649 | 0.0566 |
| Venus | -21497-10-04 13:11 J | -6130079.10 | -6130078.95 | -6130078.80 | 0.1638 | 0.0825 |
| Venus | -21495-08-04 18:14 J | -6129409.88 | -6129409.74 | -6129409.60 | 0.1632 | 0.0954 |
| Mercury | -21495-09-07 21:21 J | -6129375.72 | -6129375.61 | -6129375.49 | 0.1646 | 0.0115 |
| Venus | -21494-07-06 00:43 J | -6129074.61 | -6129074.47 | -6129074.34 | 0.1887 | 0.1222 |
| Mercury | -21492-06-21 15:50 J | -6128357.95 | -6128357.84 | -6128357.72 | 0.1870 | 0.1333 |
| Mercury | -21485-01-29 08:38 J | -6125945.25 | -6125945.14 | -6125945.02 | 0.1643 | 0.0356 |
| Mercury | -21483-01-03 12:14 J | -6125240.03 | -6125239.99 | -6125239.96 | 0.1654 | 0.1572 |
| Mercury | -21483-11-11 10:04 J | -6124928.25 | -6124928.08 | -6124927.91 | 0.1874 | 0.0021 |
| Mercury | -21476-06-20 19:55 J | -6122514.77 | -6122514.67 | -6122514.56 | 0.1641 | 0.0806 |
| Mercury | -21474-05-26 23:16 J | -6121809.62 | -6121809.53 | -6121809.45 | 0.1651 | 0.1097 |
| Mercury | -21473-04-02 03:36 J | -6121498.46 | -6121498.35 | -6121498.23 | 0.1877 | 0.1376 |
| Mercury | -21467-11-11 07:26 J | -6119084.27 | -6119084.19 | -6119084.12 | 0.1639 | 0.1249 |
| Mercury | -21465-10-16 10:19 J | -6118379.18 | -6118379.07 | -6118378.97 | 0.1648 | 0.0626 |
| Venus | -21463-08-03 10:04 J | -6117723.25 | -6117723.08 | -6117722.91 | 0.1634 | 0.0111 |
| Venus | -21462-07-06 02:52 J | -6117386.55 | -6117386.38 | -6117386.21 | 0.1883 | 0.0584 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -21455-03-08 21:21 J | -6114948.72 | -6114948.61 | -6114948.49 | 0.1646 | 0.0163 |
| Mercury | -21453-12-20 16:48 J | -6113930.90 | -6113930.80 | -6113930.70 | 0.1870 | 0.1460 |
| Earth | -21448-04-06 08:38 J | -6112363.31 | -6112363.14 | -6112362.97 | 0.1663 | 0.0709 |
| Moon | -21448-04-06 15:21 J | -6112363.04 | -6112362.86 | -6112362.69 | 0.1663 | 0.0650 * |
| Mercury | -21446-07-30 08:38 J | -6111518.25 | -6111518.14 | -6111518.02 | 0.1643 | 0.0295 |
| Mercury | -21444-07-04 12:14 J | -6110813.01 | -6110812.99 | -6110812.98 | 0.1654 | 0.1634 |
| Mercury | -21443-05-12 11:02 J | -6110501.21 | -6110501.04 | -6110500.88 | 0.1874 | 0.0133 |
| Mercury | -21437-12-19 19:55 J | -6108087.77 | -6108087.67 | -6108087.56 | 0.1641 | 0.0745 |
| Mercury | -21435-11-24 23:02 J | -6107382.62 | -6107382.54 | -6107382.45 | 0.1651 | 0.1158 |
| Mercury | -21434-10-02 04:33 J | -6107071.43 | -6107071.31 | -6107071.19 | 0.1877 | 0.1247 |
| Venus | -21431-08-02 01:40 J | -6106036.58 | -6106036.43 | -6106036.28 | 0.1637 | 0.0743 |
| Venus | -21429-06-01 06:57 J | -6105367.34 | -6105367.21 | -6105367.08 | 0.1631 | 0.1028 |
| Venus | -21428-05-02 02:23 J | -6105032.50 | -6105032.40 | -6105032.29 | 0.1889 | 0.1532 |
| Mercury | -21427-05-12 07:26 J | -6104657.27 | -6104657.19 | -6104657.11 | 0.1639 | 0.1186 |
| Mercury | -21425-04-16 10:19 J | -6103952.18 | -6103952.07 | -6103951.97 | 0.1648 | 0.0689 |
| Mercury | -21418-10-02 18:43 J | -6101226.73 | -6101226.72 | -6101226.71 | 0.1637 | 0.1627 |
| Mercury | -21416-09-06 21:21 J | -6100521.72 | -6100521.61 | -6100521.49 | 0.1646 | 0.0224 |
| Mercury | -21413-06-20 17:31 J | -6099503.86 | -6099503.77 | -6099503.69 | 0.1870 | 0.1572 |
| Mercury | -21406-01-28 08:38 J | -6097091.26 | -6097091.14 | -6097091.03 | 0.1643 | 0.0240 |
| Mercury | -21404-11-10 11:31 J | -6096074.19 | -6096074.02 | -6096073.86 | 0.1874 | 0.0239 |
| Venus | -21399-07-31 17:45 J | -6094349.79 | -6094349.76 | -6094349.72 | 0.1640 | 0.1602 |
| Venus | -21397-05-30 22:48 J | -6093680.72 | -6093680.55 | -6093680.38 | 0.1633 | 0.0188 |
| Mercury | -21397-06-19 19:55 J | -6093660.77 | -6093660.67 | -6093660.56 | 0.1641 | 0.0685 |
| Venus | -21396-05-02 05:31 J | -6093344.44 | -6093344.27 | -6093344.09 | 0.1884 | 0.0292 |
| Mercury | -21395-05-25 23:02 J | -6092955.62 | -6092955.54 | -6092955.46 | 0.1651 | 0.1216 |
| Mercury | -21394-04-02 05:45 J | -6092644.40 | -6092644.26 | -6092644.13 | 0.1877 | 0.1101 |
| Mercury | -21388-11-10 07:26 J | -6090230.28 | -6090230.19 | -6090230.11 | 0.1639 | 0.1129 |
| Mercury | -21386-10-16 10:19 J | -6089525.18 | -6089525.07 | -6089524.97 | 0.1648 | 0.0750 |
| Mercury | -21378-04-02 18:43 J | -6086799.75 | -6086799.72 | -6086799.69 | 0.1637 | 0.1566 |
| Mercury | -21376-03-07 21:21 J | -6086094.73 | -6086094.61 | -6086094.50 | 0.1646 | 0.0283 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -21374-12-20 18:14 J | -6085076.81 | -6085076.74 | -6085076.68 | 0.1870 | 0.1693 |
| Mercury | -21367-07-29 08:38 J | -6082664.26 | -6082664.14 | -6082664.02 | 0.1643 | 0.0174 |
| Venus | -21365-05-29 14:38 J | -6081994.05 | -6081993.89 | -6081993.74 | 0.1636 | 0.0670 |
| Mercury | -21364-05-11 12:28 J | -6081647.14 | -6081646.98 | -6081646.81 | 0.1874 | 0.0379 |
| Venus | -21363-03-29 19:55 J | -6081324.79 | -6081324.67 | -6081324.54 | 0.1630 | 0.1099 |
| Venus | -21362-02-27 04:19 J | -6080990.36 | -6080990.32 | -6080990.28 | 0.1889 | 0.1835 |
| Mercury | -21358-12-19 19:55 J | -6079233.78 | -6079233.67 | -6079233.56 | 0.1641 | 0.0626 |
| Mercury | -21356-11-23 23:02 J | -6078528.61 | -6078528.54 | -6078528.46 | 0.1651 | 0.1279 |
| Mercury | -21355-10-01 06:00 J | -6078217.39 | -6078217.25 | -6078217.11 | 0.1877 | 0.1001 |
| Mercury | -21348-05-11 07:11 J | -6075803.28 | -6075803.20 | -6075803.11 | 0.1639 | 0.1072 |
| Mercury | -21346-04-16 10:04 J | -6075098.18 | -6075098.08 | -6075097.98 | 0.1648 | 0.0807 |
| Mercury | -21339-10-01 18:43 J | -6072372.76 | -6072372.72 | -6072372.68 | 0.1637 | 0.1509 |
| Mercury | -21337-09-05 21:21 J | -6071667.73 | -6071667.61 | -6071667.50 | 0.1646 | 0.0343 |
| Mercury | -21334-06-20 19:11 J | -6070649.73 | -6070649.70 | -6070649.67 | 0.1870 | 0.1827 |
| Venus | -21333-05-28 06:28 J | -6070307.29 | -6070307.23 | -6070307.17 | 0.1639 | 0.1521 |
| Venus | -21331-03-28 11:45 J | -6069638.18 | -6069638.01 | -6069637.84 | 0.1632 | 0.0258 |
| Venus | -21330-02-27 07:11 J | -6069302.38 | -6069302.20 | -6069302.02 | 0.1886 | 0.0044 |
| Earth | -21329-10-02 00:28 J | -6068719.68 | -6068719.48 | -6068719.28 | 0.1853 | 0.0295 |
| Moon | -21329-10-02 06:43 J | -6068719.43 | -6068719.22 | -6068719.01 | 0.1853 | 0.0317 * |
| Mercury | -21327-01-27 08:38 J | -6068237.26 | -6068237.14 | -6068237.03 | 0.1643 | 0.0117 |
| Mercury | -21325-11-09 13:11 J | -6067220.11 | -6067219.95 | -6067219.79 | 0.1874 | 0.0499 |
| Mercury | -21318-06-19 19:55 J | -6064806.78 | -6064806.67 | -6064806.56 | 0.1641 | 0.0565 |
| Mercury | -21316-05-24 23:02 J | -6064101.60 | -6064101.54 | -6064101.47 | 0.1651 | 0.1341 |
| Mercury | -21315-04-01 07:11 J | -6063790.35 | -6063790.20 | -6063790.06 | 0.1877 | 0.0863 |
| Mercury | -21309-11-09 07:11 J | -6061376.29 | -6061376.20 | -6061376.11 | 0.1639 | 0.1012 |
| Mercury | -21307-10-15 10:04 J | -6060671.18 | -6060671.08 | -6060670.98 | 0.1648 | 0.0868 |
| Venus | -21299-03-27 03:07 J | -6057951.52 | -6057951.37 | -6057951.21 | 0.1635 | 0.0591 |
| Mercury | -21299-04-01 18:43 J | -6057945.77 | -6057945.72 | -6057945.67 | 0.1637 | 0.1451 |
| Venus | -21298-02-27 10:04 J | -6057614.13 | -6057614.08 | -6057614.02 | 0.1882 | 0.1791 |
| Venus | -21297-01-25 08:23 J | -6057282.26 | -6057282.15 | -6057282.03 | 0.1630 | 0.1174 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -21297-03-06 21:21 J | -6057240.72 | -6057240.61 | -6057240.50 | 0.1646 | 0.0404 |
| Mercury | -21288-07-28 08:23 J | -6053810.26 | -6053810.15 | -6053810.03 | 0.1643 | 0.0087 |
| Mercury | -21285-05-10 13:55 J | -6052793.08 | -6052792.92 | -6052792.76 | 0.1874 | 0.0618 |
| Mercury | -21279-12-18 19:55 J | -6050379.78 | -6050379.67 | -6050379.56 | 0.1641 | 0.0508 |
| Mercury | -21277-11-22 23:02 J | -6049674.60 | -6049674.54 | -6049674.48 | 0.1651 | 0.1397 |
| Mercury | -21276-09-30 07:55 J | -6049363.32 | -6049363.17 | -6049363.01 | 0.1877 | 0.0731 |
| Mercury | -21269-05-10 07:11 J | -6046949.29 | -6046949.20 | -6046949.10 | 0.1639 | 0.0951 |
| Venus | -21267-03-25 19:11 J | -6046264.77 | -6046264.70 | -6046264.62 | 0.1638 | 0.1441 |
| Mercury | -21267-04-15 10:04 J | -6046244.17 | -6046244.08 | -6046243.98 | 0.1648 | 0.0931 |
| Venus | -21265-01-24 00:00 J | -6045595.67 | -6045595.50 | -6045595.33 | 0.1632 | 0.0336 |
| Venus | -21265-12-24 09:36 J | -6045260.28 | -6045260.10 | -6045259.92 | 0.1887 | 0.0317 |
| Mercury | -21260-09-30 18:43 J | -6043518.78 | -6043518.72 | -6043518.66 | 0.1637 | 0.1391 |
| Mercury | -21258-09-05 21:21 J | -6042813.72 | -6042813.61 | -6042813.50 | 0.1646 | 0.0466 |
| Mercury | -21248-01-26 08:38 J | -6039383.26 | -6039383.14 | -6039383.03 | 0.1643 | 0.0060 |
| Mercury | -21246-11-09 14:38 J | -6038366.04 | -6038365.89 | -6038365.73 | 0.1874 | 0.0746 |
| Moon | -21243-04-05 01:11 J | -6037488.63 | -6037488.45 | -6037488.27 | 0.1669 | 0.0324 |
| Earth | -21243-04-05 06:57 J | -6037488.39 | -6037488.21 | -6037488.02 | 0.1669 | 0.0367 * |
| Mercury | -21239-06-18 19:40 J | -6035952.79 | -6035952.68 | -6035952.56 | 0.1641 | 0.0452 |
| Mercury | -21237-05-23 23:02 J | -6035247.59 | -6035247.54 | -6035247.49 | 0.1651 | 0.1462 |
| Mercury | -21236-03-31 08:23 J | -6034936.30 | -6034936.15 | -6034935.99 | 0.1877 | 0.0620 |
| Venus | -21233-01-22 15:50 J | -6033909.00 | -6033908.84 | -6033908.68 | 0.1634 | 0.0512 |
| Venus | -21233-12-24 12:00 J | -6033572.11 | -6033572.00 | -6033571.89 | 0.1883 | 0.1481 |
| Venus | -21232-11-21 21:21 J | -6033239.71 | -6033239.61 | -6033239.50 | 0.1629 | 0.1246 |
| Mercury | -21230-11-09 07:11 J | -6032522.30 | -6032522.20 | -6032522.10 | 0.1639 | 0.0894 |
| Mercury | -21228-10-14 10:04 J | -6031817.17 | -6031817.08 | -6031816.99 | 0.1648 | 0.0988 |
| Mercury | -21220-03-31 18:43 J | -6029091.79 | -6029091.72 | -6029091.66 | 0.1637 | 0.1332 |
| Mercury | -21218-03-06 21:21 J | -6028386.72 | -6028386.61 | -6028386.50 | 0.1646 | 0.0527 |
| Mercury | -21209-07-27 08:23 J | -6024956.26 | -6024956.15 | -6024956.03 | 0.1643 | 0.0084 |
| Mercury | -21206-05-10 15:36 J | -6023938.99 | -6023938.85 | -6023938.70 | 0.1874 | 0.0874 |
| Venus | -21201-01-21 07:40 J | -6022222.27 | -6022222.18 | -6022222.08 | 0.1637 | 0.1359 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Venus | -21200-11-20 13:11 J | -6021553.12 | -6021552.95 | -6021552.79 | 0.1631 | 0.0406 |
| Mercury | -21200-12-17 19:40 J | -6021525.79 | -6021525.68 | -6021525.56 | 0.1641 | 0.0392 |
| Venus | -21199-10-21 10:48 J | -6021218.22 | -6021218.05 | -6021217.88 | 0.1888 | 0.0633 |
| Mercury | -21198-11-22 23:02 J | -6020820.58 | -6020820.54 | -6020820.50 | 0.1651 | 0.1523 |
| Mercury | -21197-09-29 09:21 J | -6020509.27 | -6020509.11 | -6020508.95 | 0.1877 | 0.0488 |
| Mercury | -21190-05-10 07:11 J | -6018095.30 | -6018095.20 | -6018095.10 | 0.1639 | 0.0832 |
| Mercury | -21188-04-14 10:04 J | -6017390.17 | -6017390.08 | -6017389.99 | 0.1648 | 0.1051 |
| Mercury | -21187-02-19 02:52 J | -6017079.39 | -6017079.38 | -6017079.38 | 0.1881 | 0.1877 |
| Mercury | -21181-09-29 18:28 J | -6014664.80 | -6014664.73 | -6014664.66 | 0.1637 | 0.1277 |
| Mercury | -21179-09-04 21:07 J | -6013959.72 | -6013959.62 | -6013959.51 | 0.1646 | 0.0588 |
| Mercury | -21169-01-26 08:23 J | -6010529.27 | -6010529.15 | -6010529.03 | 0.1643 | 0.0123 |
| Venus | -21168-11-19 04:48 J | -6009866.47 | -6009866.30 | -6009866.14 | 0.1633 | 0.0437 |
| Venus | -21167-10-21 13:11 J | -6009530.09 | -6009529.95 | -6009529.81 | 0.1885 | 0.1168 |
| Mercury | -21167-11-08 16:04 J | -6009511.97 | -6009511.83 | -6009511.68 | 0.1874 | 0.0986 |
| Venus | -21166-09-19 10:04 J | -6009197.17 | -6009197.08 | -6009196.98 | 0.1629 | 0.1318 |
| Moon | -21164-04-07 07:40 J | -6008631.34 | -6008631.18 | -6008631.01 | 0.1667 | 0.0930 |
| Earth | -21164-04-07 11:45 J | -6008631.15 | -6008631.01 | -6008630.87 | 0.1667 | 0.1047 * |
| Mercury | -21160-06-17 19:40 J | -6007098.79 | -6007098.68 | -6007098.56 | 0.1641 | 0.0330 |
| Mercury | -21158-05-23 23:02 J | -6006393.57 | -6006393.54 | -6006393.51 | 0.1651 | 0.1583 |
| Mercury | -21157-03-30 10:33 J | -6006082.23 | -6006082.06 | -6006081.90 | 0.1877 | 0.0344 |
| Mercury | -21151-11-08 07:11 J | -6003668.30 | -6003668.20 | -6003668.10 | 0.1639 | 0.0775 |
| Mercury | -21149-10-13 10:04 J | -6002963.17 | -6002963.08 | -6002963.00 | 0.1648 | 0.1111 |
| Mercury | -21148-08-20 03:36 J | -6002652.41 | -6002652.35 | -6002652.30 | 0.1881 | 0.1757 |
| Mercury | -21141-03-30 18:28 J | -6000237.80 | -6000237.73 | -6000237.65 | 0.1637 | 0.1215 |
| Mercury | -21139-03-05 21:07 J | -5999532.72 | -5999532.62 | -5999532.51 | 0.1646 | 0.0647 |
| Venus | -21136-11-17 20:23 J | -5998179.75 | -5998179.65 | -5998179.54 | 0.1636 | 0.1280 |
| Venus | -21134-09-18 01:40 J | -5997510.60 | -5997510.43 | -5997510.27 | 0.1630 | 0.0483 |
| Venus | -21133-08-17 13:11 J | -5997176.11 | -5997175.95 | -5997175.80 | 0.1889 | 0.0931 |
| Mercury | -21130-07-27 08:23 J | -5996102.26 | -5996102.15 | -5996102.03 | 0.1643 | 0.0189 |
| Mercury | -21127-05-09 17:16 J | -5995084.91 | -5995084.78 | -5995084.65 | 0.1874 | 0.1122 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -21121-12-16 19:40 J | -5992671.79 | -5992671.68 | -5992671.56 | 0.1641 | 0.0269 |
| Mercury | -21119-11-21 23:02 J | -5991966.55 | -5991966.54 | -5991966.54 | 0.1651 | 0.1645 |
| Mercury | -21118-09-29 10:48 J | -5991655.22 | -5991655.05 | -5991654.88 | 0.1877 | 0.0246 |
| Mercury | -21111-05-09 06:57 J | -5989241.31 | -5989241.21 | -5989241.10 | 0.1639 | 0.0719 |
| Mercury | -21109-04-13 10:04 J | -5988536.16 | -5988536.08 | -5988536.00 | 0.1648 | 0.1171 |
| Mercury | -21108-02-18 04:33 J | -5988225.39 | -5988225.31 | -5988225.23 | 0.1881 | 0.1618 |
| Venus | -21102-09-16 17:31 J | -5985823.94 | -5985823.77 | -5985823.61 | 0.1632 | 0.0363 |
| Mercury | -21102-09-29 18:28 J | -5985810.81 | -5985810.73 | -5985810.65 | 0.1637 | 0.1157 |
| Venus | -21101-08-17 15:36 J | -5985488.01 | -5985487.85 | -5985487.69 | 0.1886 | 0.0870 |
| Venus | -21100-07-16 22:48 J | -5985154.63 | -5985154.55 | -5985154.46 | 0.1628 | 0.1390 |
| Mercury | -21100-09-03 21:07 J | -5985105.72 | -5985105.62 | -5985105.51 | 0.1646 | 0.0706 |
| Mercury | -21092-02-19 06:00 J | -5982380.27 | -5982380.25 | -5982380.23 | 0.1635 | 0.1591 |
| Mercury | -21090-01-25 08:23 J | -5981675.26 | -5981675.15 | -5981675.03 | 0.1643 | 0.0246 |
| Mercury | -21088-11-07 17:45 J | -5980657.88 | -5980657.76 | -5980657.63 | 0.1874 | 0.1241 |
| Mercury | -21081-06-16 19:40 J | -5978244.79 | -5978244.68 | -5978244.56 | 0.1641 | 0.0208 |
| Mercury | -21078-03-30 12:00 J | -5977228.17 | -5977228.00 | -5977227.84 | 0.1877 | 0.0117 |
| Mercury | -21072-11-07 06:57 J | -5974814.31 | -5974814.21 | -5974814.10 | 0.1639 | 0.0659 |
| Venus | -21070-09-15 09:07 J | -5974137.23 | -5974137.12 | -5974137.00 | 0.1635 | 0.1203 |
| Mercury | -21070-10-13 10:04 J | -5974109.16 | -5974109.08 | -5974109.01 | 0.1648 | 0.1233 |
| Mercury | -21069-08-19 05:02 J | -5973798.39 | -5973798.29 | -5973798.19 | 0.1881 | 0.1502 |
| Venus | -21068-07-15 14:38 J | -5973468.05 | -5973467.89 | -5973467.73 | 0.1630 | 0.0552 |
| Venus | -21067-06-14 14:23 J | -5973134.03 | -5973133.90 | -5973133.76 | 0.1890 | 0.1245 |
| Mercury | -21062-03-30 18:28 J | -5971383.82 | -5971383.73 | -5971383.65 | 0.1637 | 0.1099 |
| Mercury | -21060-03-04 21:07 J | -5970678.72 | -5970678.62 | -5970678.51 | 0.1646 | 0.0767 |
| Mercury | -21053-08-20 06:00 J | -5967953.29 | -5967953.25 | -5967953.22 | 0.1635 | 0.1535 |
| Mercury | -21051-07-26 08:23 J | -5967248.27 | -5967248.15 | -5967248.04 | 0.1643 | 0.0305 |
| Mercury | -21048-05-08 18:43 J | -5966230.84 | -5966230.72 | -5966230.61 | 0.1874 | 0.1362 |
| Moon | -21045-10-01 02:09 J | -5964989.57 | -5964989.41 | -5964989.24 | 0.1846 | 0.1069 |
| Earth | -21045-10-01 11:02 J | -5964989.23 | -5964989.04 | -5964988.85 | 0.1846 | 0.0592 |
| Mercury | -21042-12-16 19:40 J | -5963817.80 | -5963817.68 | -5963817.57 | 0.1641 | 0.0150 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -21039-09-28 12:43 J | -5962801.14 | -5962800.97 | -5962800.80 | 0.1877 | 0.0033 |
| Earth | -21038-04-04 03:36 J | -5962613.43 | -5962613.35 | -5962613.27 | 0.1676 | 0.1498 |
| Moon | -21038-04-04 10:04 J | -5962613.13 | -5962613.08 | -5962613.02 | 0.1676 | 0.1602 |
| Venus | -21036-07-14 06:14 J | -5961781.41 | -5961781.24 | -5961781.07 | 0.1631 | 0.0287 |
| Venus | -21035-06-14 17:02 J | -5961445.96 | -5961445.79 | -5961445.62 | 0.1887 | 0.0557 |
| Venus | -21034-05-14 11:45 J | -5961112.08 | -5961112.01 | -5961111.93 | 0.1628 | 0.1457 |
| Mercury | -21032-05-08 06:57 J | -5960387.31 | -5960387.21 | -5960387.10 | 0.1639 | 0.0598 |
| Mercury | -21030-04-13 10:04 J | -5959682.15 | -5959682.08 | -5959682.01 | 0.1648 | 0.1296 |
| Mercury | -21029-02-18 06:00 J | -5959371.36 | -5959371.25 | -5959371.13 | 0.1881 | 0.1366 |
| Mercury | -21023-09-28 18:28 J | -5956956.82 | -5956956.73 | -5956956.64 | 0.1637 | 0.1038 |
| Mercury | -21021-09-02 21:07 J | -5956251.72 | -5956251.62 | -5956251.52 | 0.1646 | 0.0827 |
| Mercury | -21013-02-19 05:45 J | -5953526.30 | -5953526.26 | -5953526.21 | 0.1635 | 0.1478 |
| Mercury | -21011-01-24 08:23 J | -5952821.27 | -5952821.15 | -5952821.04 | 0.1643 | 0.0366 |
| Mercury | -21009-11-06 19:26 J | -5951803.79 | -5951803.69 | -5951803.59 | 0.1874 | 0.1484 |
| Venus | -21004-07-12 21:50 J | -5950094.71 | -5950094.59 | -5950094.47 | 0.1634 | 0.1124 |
| Venus | -21002-05-13 03:21 J | -5949425.51 | -5949425.36 | -5949425.20 | 0.1629 | 0.0624 |
| Mercury | -21002-06-16 19:40 J | -5949390.80 | -5949390.68 | -5949390.57 | 0.1641 | 0.0093 |
| Venus | -21001-04-10 16:19 J | -5949091.92 | -5949091.82 | -5949091.72 | 0.1891 | 0.1552 |

21ST MILLENNIUM BCE

This is a list of transits visible from Mars in the 21st millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|-------------|-------------|-------------|--------|--------|-------|---|
| Mercury | -20999-03-29 13:26 J | -5948374.11 | -5948373.94 | -5948373.78 | 0.1877 | 0.0148 | | |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -20993-11-06 06:57 J | -5945960.32 | -5945960.21 | -5945960.10 | 0.1639 | 0.0538 |
| Mercury | -20991-10-12 09:50 J | -5945255.15 | -5945255.09 | -5945255.02 | 0.1648 | 0.1353 |
| Mercury | -20990-08-19 06:57 J | -5944944.34 | -5944944.21 | -5944944.08 | 0.1881 | 0.1237 |
| Mercury | -20983-03-29 18:28 J | -5942529.82 | -5942529.73 | -5942529.64 | 0.1637 | 0.0980 |
| Mercury | -20981-03-03 21:07 J | -5941824.72 | -5941824.62 | -5941824.52 | 0.1646 | 0.0886 |
| Mercury | -20974-08-20 05:45 J | -5939099.31 | -5939099.26 | -5939099.20 | 0.1635 | 0.1418 |
| Mercury | -20972-07-25 08:23 J | -5938394.26 | -5938394.15 | -5938394.04 | 0.1643 | 0.0428 |
| Venus | -20970-05-11 19:11 J | -5937738.87 | -5937738.70 | -5937738.53 | 0.1631 | 0.0214 |
| Venus | -20969-04-10 19:40 J | -5937403.86 | -5937403.68 | -5937403.50 | 0.1888 | 0.0265 |
| Mercury | -20969-05-07 20:23 J | -5937376.73 | -5937376.65 | -5937376.57 | 0.1874 | 0.1614 |
| Venus | -20968-03-11 00:28 J | -5937069.53 | -5937069.48 | -5937069.42 | 0.1627 | 0.1530 |
| Mercury | -20963-12-15 19:40 J | -5934963.80 | -5934963.68 | -5934963.57 | 0.1641 | 0.0046 |
| Mercury | -20960-09-27 14:09 J | -5933947.07 | -5933946.91 | -5933946.74 | 0.1878 | 0.0270 |
| Earth | -20959-04-06 09:21 J | -5933756.30 | -5933756.11 | -5933755.92 | 0.1673 | 0.0048 |
| Moon | -20959-04-06 12:28 J | -5933756.15 | -5933755.98 | -5933755.80 | 0.1673 | 0.0132 * |
| Mercury | -20953-05-07 06:57 J | -5931533.32 | -5931533.21 | -5931533.10 | 0.1639 | 0.0478 |
| Mercury | -20951-04-12 10:04 J | -5930828.14 | -5930828.08 | -5930828.03 | 0.1648 | 0.1417 |
| Mercury | -20950-02-17 07:40 J | -5930517.31 | -5930517.18 | -5930517.04 | 0.1881 | 0.1113 |
| Mercury | -20944-09-27 18:14 J | -5928102.83 | -5928102.74 | -5928102.64 | 0.1637 | 0.0925 |
| Mercury | -20942-09-02 21:07 J | -5927397.72 | -5927397.62 | -5927397.53 | 0.1645 | 0.0947 |
| Venus | -20938-05-10 10:48 J | -5926052.18 | -5926052.05 | -5926051.92 | 0.1633 | 0.1055 |
| Venus | -20936-03-09 16:19 J | -5925382.97 | -5925382.82 | -5925382.66 | 0.1629 | 0.0695 |
| Venus | -20935-02-05 18:14 J | -5925049.77 | -5925049.74 | -5925049.71 | 0.1892 | 0.1853 |
| Mercury | -20934-02-18 05:45 J | -5924672.32 | -5924672.26 | -5924672.19 | 0.1635 | 0.1360 |
| Mercury | -20932-01-23 08:09 J | -5923967.27 | -5923967.16 | -5923967.04 | 0.1643 | 0.0486 |
| Mercury | -20930-11-06 20:52 J | -5922949.69 | -5922949.63 | -5922949.57 | 0.1874 | 0.1729 |
| Mercury | -20923-06-15 19:40 J | -5920536.80 | -5920536.68 | -5920536.57 | 0.1641 | 0.0053 |
| Mercury | -20920-03-28 15:21 J | -5919520.03 | -5919519.86 | -5919519.70 | 0.1877 | 0.0410 |
| Mercury | -20914-11-06 06:57 J | -5917106.32 | -5917106.21 | -5917106.10 | 0.1639 | 0.0419 |
| Mercury | -20912-10-11 09:50 J | -5916401.13 | -5916401.09 | -5916401.04 | 0.1648 | 0.1478 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -20911-08-18 08:23 J | -5916090.29 | -5916090.15 | -5916090.01 | 0.1881 | 0.0990 |
| Venus | -20904-03-08 07:55 J | -5913696.34 | -5913696.17 | -5913696.00 | 0.1630 | 0.0146 |
| Mercury | -20904-03-28 18:14 J | -5913675.83 | -5913675.74 | -5913675.64 | 0.1637 | 0.0864 |
| Venus | -20903-02-05 21:07 J | -5913361.80 | -5913361.62 | -5913361.44 | 0.1889 | 0.0045 |
| Venus | -20902-01-06 13:11 J | -5913026.97 | -5913026.95 | -5913026.92 | 0.1627 | 0.1600 |
| Mercury | -20902-03-03 21:07 J | -5912970.71 | -5912970.62 | -5912970.53 | 0.1645 | 0.1009 |
| Mercury | -20895-08-19 05:45 J | -5910245.33 | -5910245.26 | -5910245.19 | 0.1635 | 0.1301 |
| Mercury | -20893-07-24 08:23 J | -5909540.26 | -5909540.15 | -5909540.04 | 0.1643 | 0.0550 |
| Mercury | -20890-05-07 21:50 J | -5908522.60 | -5908522.59 | -5908522.57 | 0.1874 | 0.1859 |
| Mercury | -20884-12-14 19:26 J | -5906109.80 | -5906109.69 | -5906109.57 | 0.1641 | 0.0099 |
| Mercury | -20881-09-26 15:36 J | -5905093.01 | -5905092.85 | -5905092.69 | 0.1878 | 0.0507 |
| Moon | -20880-04-08 10:33 J | -5904899.17 | -5904899.06 | -5904898.95 | 0.1671 | 0.1303 |
| Earth | -20880-04-08 14:09 J | -5904899.01 | -5904898.91 | -5904898.80 | 0.1671 | 0.1381 * |
| Mercury | -20874-05-07 06:57 J | -5902679.33 | -5902679.21 | -5902679.10 | 0.1639 | 0.0361 |
| Venus | -20872-03-06 23:31 J | -5902009.66 | -5902009.52 | -5902009.39 | 0.1632 | 0.0975 |
| Mercury | -20872-04-11 09:50 J | -5901974.13 | -5901974.09 | -5901974.05 | 0.1648 | 0.1535 |
| Venus | -20871-02-06 00:28 J | -5901673.54 | -5901673.48 | -5901673.42 | 0.1886 | 0.1767 |
| Mercury | -20871-02-16 09:36 J | -5901663.25 | -5901663.10 | -5901662.95 | 0.1881 | 0.0848 |
| Venus | -20870-01-05 05:02 J | -5901340.44 | -5901340.29 | -5901340.14 | 0.1628 | 0.0769 |
| Mercury | -20865-09-26 18:14 J | -5899248.84 | -5899248.74 | -5899248.64 | 0.1637 | 0.0804 |
| Mercury | -20863-09-01 21:07 J | -5898543.71 | -5898543.62 | -5898543.53 | 0.1646 | 0.1069 |
| Mercury | -20855-02-17 05:45 J | -5895818.33 | -5895818.26 | -5895818.19 | 0.1635 | 0.1241 |
| Mercury | -20853-01-23 08:09 J | -5895113.26 | -5895113.16 | -5895113.05 | 0.1643 | 0.0608 |
| Mercury | -20844-06-14 19:26 J | -5891682.80 | -5891682.69 | -5891682.57 | 0.1641 | 0.0161 |
| Mercury | -20841-03-27 16:48 J | -5890665.96 | -5890665.80 | -5890665.65 | 0.1877 | 0.0651 |
| Venus | -20838-01-03 20:23 J | -5889653.82 | -5889653.65 | -5889653.48 | 0.1629 | 0.0064 |
| Venus | -20838-12-03 23:31 J | -5889319.70 | -5889319.52 | -5889319.35 | 0.1890 | 0.0346 |
| Mercury | -20835-11-05 06:57 J | -5888252.33 | -5888252.21 | -5888252.10 | 0.1639 | 0.0303 |
| Mercury | -20833-10-10 09:50 J | -5887547.11 | -5887547.09 | -5887547.06 | 0.1648 | 0.1599 |
| Mercury | -20832-08-17 10:04 J | -5887236.23 | -5887236.08 | -5887235.93 | 0.1881 | 0.0735 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -20825-03-27 18:14 J | -5884821.84 | -5884821.74 | -5884821.64 | 0.1637 | 0.0746 |
| Mercury | -20823-03-02 21:07 J | -5884116.71 | -5884116.62 | -5884116.54 | 0.1645 | 0.1129 |
| Mercury | -20816-08-18 05:45 J | -5881391.34 | -5881391.26 | -5881391.18 | 0.1635 | 0.1184 |
| Mercury | -20814-07-24 08:09 J | -5880686.27 | -5880686.16 | -5880686.05 | 0.1643 | 0.0664 |
| Venus | -20806-01-02 12:14 J | -5877967.13 | -5877966.99 | -5877966.85 | 0.1631 | 0.0900 |
| Mercury | -20806-01-08 17:16 J | -5877960.79 | -5877960.78 | -5877960.77 | 0.1633 | 0.1618 |
| Venus | -20806-12-04 01:55 J | -5877631.53 | -5877631.42 | -5877631.30 | 0.1887 | 0.1453 |
| Venus | -20805-11-01 18:00 J | -5877297.90 | -5877297.75 | -5877297.61 | 0.1628 | 0.0841 |
| Mercury | -20805-12-13 19:26 J | -5877255.80 | -5877255.69 | -5877255.57 | 0.1641 | 0.0215 |
| Mercury | -20802-09-26 17:31 J | -5876238.92 | -5876238.77 | -5876238.62 | 0.1877 | 0.0777 |
| Mercury | -20795-05-06 06:57 J | -5873825.33 | -5873825.21 | -5873825.10 | 0.1639 | 0.0245 |
| Mercury | -20792-02-15 11:02 J | -5872809.20 | -5872809.04 | -5872808.88 | 0.1881 | 0.0601 |
| Mercury | -20786-09-26 18:14 J | -5870394.85 | -5870394.74 | -5870394.64 | 0.1637 | 0.0686 |
| Mercury | -20784-08-31 21:07 J | -5869689.70 | -5869689.62 | -5869689.54 | 0.1645 | 0.1191 |
| Mercury | -20776-02-16 05:45 J | -5866964.35 | -5866964.26 | -5866964.18 | 0.1635 | 0.1127 |
| Mercury | -20774-01-22 08:09 J | -5866259.26 | -5866259.16 | -5866259.05 | 0.1643 | 0.0727 |
| Venus | -20773-10-31 09:36 J | -5865611.27 | -5865611.10 | -5865610.93 | 0.1629 | 0.0012 |
| Venus | -20772-09-30 00:43 J | -5865277.63 | -5865277.47 | -5865277.30 | 0.1891 | 0.0661 |
| Mercury | -20767-07-09 17:16 J | -5863533.81 | -5863533.78 | -5863533.75 | 0.1633 | 0.1561 |
| Mercury | -20765-06-13 19:26 J | -5862828.80 | -5862828.69 | -5862828.57 | 0.1641 | 0.0269 |
| Mercury | -20762-03-27 18:00 J | -5861811.89 | -5861811.75 | -5861811.60 | 0.1878 | 0.0891 |
| Earth | -20761-10-01 00:00 J | -5861258.64 | -5861258.50 | -5861258.37 | 0.1840 | 0.1370 |
| Moon | -20761-10-01 04:33 J | -5861258.40 | -5861258.31 | -5861258.22 | 0.1840 | 0.1597 * |
| Mercury | -20756-11-04 06:43 J | -5859398.33 | -5859398.22 | -5859398.10 | 0.1639 | 0.0188 |
| Moon | -20754-04-05 00:43 J | -5858881.58 | -5858881.47 | -5858881.36 | 0.1680 | 0.1366 |
| Earth | -20754-04-05 04:48 J | -5858881.42 | -5858881.30 | -5858881.17 | 0.1680 | 0.1207 * |
| Mercury | -20753-08-16 12:00 J | -5858382.17 | -5858382.00 | -5858381.84 | 0.1881 | 0.0474 |
| Mercury | -20746-03-27 18:14 J | -5855967.85 | -5855967.74 | -5855967.64 | 0.1637 | 0.0627 |
| Mercury | -20744-03-01 21:07 J | -5855262.70 | -5855262.62 | -5855262.55 | 0.1645 | 0.1251 |
| Mercury | -20743-01-06 05:02 J | -5854952.29 | -5854952.29 | -5854952.29 | 0.1883 | 0.1883 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Venus | -20741-10-30 01:11 J | -5853924.60 | -5853924.45 | -5853924.31 | 0.1631 | 0.0826 |
| Venus | -20740-09-30 03:36 J | -5853589.50 | -5853589.35 | -5853589.21 | 0.1889 | 0.1139 |
| Venus | -20739-08-30 06:43 J | -5853255.36 | -5853255.22 | -5853255.08 | 0.1627 | 0.0912 |
| Mercury | -20737-08-17 05:45 J | -5852537.35 | -5852537.26 | -5852537.18 | 0.1635 | 0.1067 |
| Mercury | -20735-07-23 08:09 J | -5851832.26 | -5851832.16 | -5851832.06 | 0.1643 | 0.0788 |
| Mercury | -20727-01-07 17:16 J | -5849106.83 | -5849106.78 | -5849106.74 | 0.1633 | 0.1502 |
| Mercury | -20726-12-13 19:26 J | -5848401.80 | -5848401.69 | -5848401.57 | 0.1641 | 0.0331 |
| Mercury | -20723-09-25 18:57 J | -5847384.85 | -5847384.71 | -5847384.57 | 0.1878 | 0.1018 |
| Mercury | -20716-05-05 06:43 J | -5844971.33 | -5844971.22 | -5844971.10 | 0.1639 | 0.0126 |
| Mercury | -20713-02-15 12:28 J | -5843955.14 | -5843954.98 | -5843954.81 | 0.1881 | 0.0354 |
| Venus | -20707-08-28 22:04 J | -5841568.75 | -5841568.58 | -5841568.41 | 0.1628 | 0.0084 |
| Mercury | -20707-09-25 18:14 J | -5841540.85 | -5841540.74 | -5841540.64 | 0.1637 | 0.0574 |
| Venus | -20706-07-28 03:07 J | -5841235.53 | -5841235.37 | -5841235.22 | 0.1892 | 0.0956 |
| Mercury | -20705-08-30 20:52 J | -5840835.69 | -5840835.63 | -5840835.56 | 0.1645 | 0.1311 |
| Mercury | -20704-07-07 05:31 J | -5840525.32 | -5840525.27 | -5840525.21 | 0.1884 | 0.1766 |
| Mercury | -20697-02-16 05:31 J | -5838110.36 | -5838110.27 | -5838110.18 | 0.1635 | 0.1009 |
| Mercury | -20695-01-21 08:09 J | -5837405.26 | -5837405.16 | -5837405.06 | 0.1643 | 0.0845 |
| Mercury | -20688-07-08 17:02 J | -5834679.84 | -5834679.79 | -5834679.73 | 0.1633 | 0.1444 |
| Mercury | -20686-06-13 19:26 J | -5833974.80 | -5833974.69 | -5833974.58 | 0.1641 | 0.0390 |
| Mercury | -20683-03-26 19:55 J | -5832957.80 | -5832957.67 | -5832957.54 | 0.1877 | 0.1155 |
| Moon | -20682-10-04 22:33 J | -5832400.65 | -5832400.56 | -5832400.47 | 0.1844 | 0.1601 |
| Earth | -20682-10-05 04:33 J | -5832400.44 | -5832400.31 | -5832400.18 | 0.1844 | 0.1417 |
| Mercury | -20677-11-03 06:43 J | -5830544.34 | -5830544.22 | -5830544.10 | 0.1639 | 0.0064 |
| Earth | -20675-04-07 10:48 J | -5830024.23 | -5830024.05 | -5830023.86 | 0.1677 | 0.0258 |
| Moon | -20675-04-07 15:21 J | -5830024.05 | -5830023.86 | -5830023.66 | 0.1677 | 0.0420 * |
| Venus | -20675-08-27 13:40 J | -5829882.08 | -5829881.93 | -5829881.77 | 0.1630 | 0.0750 |
| Venus | -20674-07-28 05:31 J | -5829547.43 | -5829547.27 | -5829547.11 | 0.1889 | 0.0838 |
| Mercury | -20674-08-16 13:26 J | -5829528.11 | -5829527.94 | -5829527.78 | 0.1881 | 0.0231 |
| Venus | -20673-06-26 19:26 J | -5829212.83 | -5829212.69 | -5829212.56 | 0.1627 | 0.0985 |
| Mercury | -20667-03-26 18:14 J | -5827113.85 | -5827113.74 | -5827113.63 | 0.1637 | 0.0510 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -20665-02-29 20:52 J | -5826408.69 | -5826408.63 | -5826408.56 | 0.1645 | 0.1372 |
| Mercury | -20664-01-05 06:28 J | -5826098.31 | -5826098.23 | -5826098.14 | 0.1884 | 0.1628 |
| Mercury | -20658-08-17 05:31 J | -5823683.36 | -5823683.27 | -5823683.17 | 0.1635 | 0.0951 |
| Mercury | -20656-07-22 08:09 J | -5822978.26 | -5822978.16 | -5822978.06 | 0.1643 | 0.0907 |
| Mercury | -20648-01-06 17:02 J | -5820252.85 | -5820252.79 | -5820252.73 | 0.1633 | 0.1387 |
| Mercury | -20647-12-12 19:26 J | -5819547.81 | -5819547.69 | -5819547.58 | 0.1640 | 0.0449 |
| Mercury | -20644-09-24 20:23 J | -5818530.78 | -5818530.65 | -5818530.53 | 0.1878 | 0.1256 |
| Venus | -20643-08-26 05:31 J | -5818195.31 | -5818195.27 | -5818195.23 | 0.1632 | 0.1580 |
| Venus | -20641-06-25 11:02 J | -5817526.21 | -5817526.04 | -5817525.87 | 0.1628 | 0.0153 |
| Venus | -20640-05-24 04:33 J | -5817193.44 | -5817193.31 | -5817193.18 | 0.1892 | 0.1266 |
| Mercury | -20637-05-04 06:43 J | -5816117.34 | -5816117.22 | -5816117.10 | 0.1639 | 0.0003 |
| Mercury | -20634-02-14 14:23 J | -5815101.06 | -5815100.90 | -5815100.73 | 0.1881 | 0.0093 |
| Mercury | -20628-09-24 18:00 J | -5812686.86 | -5812686.75 | -5812686.63 | 0.1637 | 0.0453 |
| Mercury | -20626-08-30 20:52 J | -5811981.68 | -5811981.63 | -5811981.57 | 0.1645 | 0.1432 |
| Mercury | -20625-07-06 07:26 J | -5811671.29 | -5811671.19 | -5811671.09 | 0.1884 | 0.1500 |
| Mercury | -20618-02-15 05:31 J | -5809256.37 | -5809256.27 | -5809256.17 | 0.1635 | 0.0891 |
| Mercury | -20616-01-20 08:09 J | -5808551.26 | -5808551.16 | -5808551.07 | 0.1643 | 0.0967 |
| Venus | -20609-06-24 02:38 J | -5805839.54 | -5805839.39 | -5805839.23 | 0.1629 | 0.0676 |
| Mercury | -20609-07-07 17:02 J | -5805825.85 | -5805825.79 | -5805825.72 | 0.1633 | 0.1326 |
| Venus | -20608-05-24 07:11 J | -5805505.37 | -5805505.20 | -5805505.03 | 0.1890 | 0.0528 |
| Venus | -20607-04-24 08:23 J | -5805170.28 | -5805170.15 | -5805170.02 | 0.1627 | 0.1050 |
| Mercury | -20607-06-12 19:26 J | -5805120.80 | -5805120.69 | -5805120.58 | 0.1641 | 0.0511 |
| Mercury | -20604-03-25 21:21 J | -5804103.71 | -5804103.61 | -5804103.49 | 0.1878 | 0.1400 |
| Mercury | -20598-11-03 06:43 J | -5801690.34 | -5801690.22 | -5801690.11 | 0.1638 | 0.0060 |
| Mercury | -20595-08-15 14:52 J | -5800674.05 | -5800673.88 | -5800673.71 | 0.1881 | 0.0025 |
| Mercury | -20588-03-25 18:00 J | -5798259.86 | -5798259.75 | -5798259.64 | 0.1637 | 0.0393 |
| Mercury | -20586-02-28 20:52 J | -5797554.68 | -5797554.63 | -5797554.58 | 0.1645 | 0.1489 |
| Mercury | -20585-01-05 08:09 J | -5797244.28 | -5797244.16 | -5797244.05 | 0.1884 | 0.1382 |
| Mercury | -20579-08-16 05:31 J | -5794829.37 | -5794829.27 | -5794829.17 | 0.1635 | 0.0832 |
| Venus | -20577-06-22 18:00 J | -5794152.81 | -5794152.75 | -5794152.68 | 0.1631 | 0.1503 |

Mercury -20577-07-21 08:09 J -5794124.25 -5794124.16 -5794124.07 0.1643 0.1027

Venus -20575-04-23 00:00 J -5793483.67 -5793483.50 -5793483.33 0.1628 0.0223

Venus -20574-03-21 06:14 J -5793151.33 -5793151.24 -5793151.14 0.1893 0.1571

Mercury -20569-01-06 17:02 J -5791398.86 -5791398.79 -5791398.72 0.1633 0.1269

Mercury -20568-12-11 19:26 J -5790693.80 -5790693.69 -5790693.58 0.1641 0.0571

Mercury -20565-09-23 22:19 J -5789676.67 -5789676.57 -5789676.48 0.1877 0.1521

Mercury -20558-05-04 06:43 J -5787263.34 -5787263.22 -5787263.11 0.1639 0.0120

Mercury -20555-02-13 15:50 J -5786247.01 -5786246.84 -5786246.67 0.1881 0.0158

Mercury -20549-09-23 18:00 J -5783832.86 -5783832.75 -5783832.64 0.1637 0.0332

Mercury -20547-08-29 20:52 J -5783127.66 -5783127.63 -5783127.59 0.1645 0.1552

Mercury -20546-07-06 09:07 J -5782817.25 -5782817.12 -5782817.00 0.1884 0.1246

Venus -20543-04-21 15:36 J -5781797.01 -5781796.85 -5781796.69 0.1629 0.0604

Venus -20542-03-21 09:36 J -5781463.28 -5781463.10 -5781462.93 0.1891 0.0235

Venus -20541-02-19 21:07 J -5781127.75 -5781127.62 -5781127.50 0.1627 0.1125

Mercury -20539-02-14 05:31 J -5780402.37 -5780402.27 -5780402.17 0.1635 0.0775

Mercury -20537-01-20 08:09 J -5779697.25 -5779697.16 -5779697.08 0.1643 0.1089

Mercury -20530-07-07 17:02 J -5776971.87 -5776971.79 -5776971.72 0.1633 0.1213

Mercury -20528-06-11 19:11 J -5776266.80 -5776266.70 -5776266.59 0.1640 0.0629

Mercury -20525-03-24 22:48 J -5775249.63 -5775249.55 -5775249.47 0.1878 0.1633

Mercury -20519-11-02 06:28 J -5772836.34 -5772836.23 -5772836.11 0.1639 0.0184

Mercury -20516-08-14 16:48 J -5771819.97 -5771819.80 -5771819.63 0.1881 0.0290

Venus -20511-04-20 07:11 J -5770110.28 -5770110.20 -5770110.12 0.1631 0.1432

Venus -20509-02-18 12:43 J -5769441.14 -5769440.97 -5769440.80 0.1627 0.0295

Mercury -20509-03-24 18:00 J -5769405.86 -5769405.75 -5769405.64 0.1637 0.0272

Venus -20508-01-15 08:09 J -5769109.18 -5769109.16 -5769109.13 0.1893 0.1871

Mercury -20507-02-27 20:52 J -5768700.65 -5768700.63 -5768700.61 0.1645 0.1612

Mercury -20506-01-04 09:50 J -5768390.22 -5768390.09 -5768389.95 0.1884 0.1116

Mercury -20500-08-15 05:31 J -5765975.38 -5765975.27 -5765975.17 0.1635 0.0716

Mercury -20498-07-21 07:55 J -5765270.25 -5765270.17 -5765270.08 0.1643 0.1150

Mercury -20490-01-05 16:48 J -5762544.88 -5762544.80 -5762544.71 0.1633 0.1155

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -20489-12-10 19:11 J | -5761839.80 | -5761839.70 | -5761839.59 | 0.1640 | 0.0689 |
| Mercury | -20486-09-23 23:45 J | -5760822.57 | -5760822.51 | -5760822.46 | 0.1878 | 0.1760 |
| Mercury | -20481-05-28 04:19 J | -5759114.34 | -5759114.32 | -5759114.29 | 0.1632 | 0.1588 |
| Mercury | -20479-05-03 06:28 J | -5758409.34 | -5758409.23 | -5758409.11 | 0.1638 | 0.0243 |
| Venus | -20477-02-17 04:19 J | -5757754.48 | -5757754.32 | -5757754.16 | 0.1628 | 0.0531 |
| Venus | -20476-01-15 11:02 J | -5757421.22 | -5757421.04 | -5757420.86 | 0.1892 | 0.0077 |
| Mercury | -20476-02-12 17:16 J | -5757392.94 | -5757392.78 | -5757392.61 | 0.1881 | 0.0407 |
| Venus | -20476-12-17 09:50 J | -5757085.20 | -5757085.09 | -5757084.97 | 0.1626 | 0.1193 |
| Moon | -20470-04-06 00:28 J | -5755149.61 | -5755149.48 | -5755149.35 | 0.1685 | 0.1129 |
| Earth | -20470-04-06 05:31 J | -5755149.42 | -5755149.27 | -5755149.11 | 0.1685 | 0.0925 * |
| Mercury | -20470-09-23 18:00 J | -5754978.87 | -5754978.75 | -5754978.64 | 0.1637 | 0.0223 |
| Mercury | -20467-07-05 10:33 J | -5753963.20 | -5753963.06 | -5753962.92 | 0.1884 | 0.0995 |
| Mercury | -20460-02-13 05:31 J | -5751548.38 | -5751548.27 | -5751548.17 | 0.1635 | 0.0659 |
| Mercury | -20458-01-19 07:55 J | -5750843.25 | -5750843.17 | -5750843.09 | 0.1643 | 0.1205 |
| Mercury | -20451-07-06 16:48 J | -5748117.88 | -5748117.80 | -5748117.71 | 0.1633 | 0.1095 |
| Mercury | -20449-06-10 19:11 J | -5747412.80 | -5747412.70 | -5747412.59 | 0.1641 | 0.0749 |
| Venus | -20445-02-15 19:40 J | -5746067.77 | -5746067.68 | -5746067.59 | 0.1630 | 0.1354 |
| Venus | -20444-01-15 14:38 J | -5745732.96 | -5745732.89 | -5745732.82 | 0.1890 | 0.1730 |
| Venus | -20444-12-16 01:26 J | -5745398.60 | -5745398.44 | -5745398.27 | 0.1627 | 0.0368 |
| Mercury | -20442-11-27 04:19 J | -5744687.35 | -5744687.32 | -5744687.28 | 0.1632 | 0.1527 |
| Mercury | -20440-11-01 06:28 J | -5743982.34 | -5743982.23 | -5743982.11 | 0.1638 | 0.0296 |
| Mercury | -20437-08-13 18:14 J | -5742965.90 | -5742965.74 | -5742965.58 | 0.1881 | 0.0531 |
| Mercury | -20430-03-24 18:00 J | -5740551.87 | -5740551.75 | -5740551.64 | 0.1636 | 0.0157 |
| Mercury | -20427-01-03 11:31 J | -5739536.17 | -5739536.02 | -5739535.87 | 0.1884 | 0.0864 |
| Mercury | -20421-08-14 05:16 J | -5737121.39 | -5737121.28 | -5737121.17 | 0.1635 | 0.0601 |
| Mercury | -20419-07-20 07:55 J | -5736416.24 | -5736416.17 | -5736416.09 | 0.1643 | 0.1267 |
| Venus | -20412-12-14 17:02 J | -5733711.96 | -5733711.79 | -5733711.63 | 0.1628 | 0.0457 |
| Mercury | -20411-01-04 16:48 J | -5733690.89 | -5733690.80 | -5733690.71 | 0.1633 | 0.1038 |
| Venus | -20411-11-12 12:57 J | -5733379.13 | -5733378.96 | -5733378.78 | 0.1892 | 0.0379 |
| Venus | -20410-10-14 22:33 J | -5733042.67 | -5733042.56 | -5733042.45 | 0.1626 | 0.1266 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -20410-12-10 19:11 J | -5732985.80 | -5732985.70 | -5732985.60 | 0.1640 | 0.0805 |
| Mercury | -20402-05-28 04:19 J | -5730260.37 | -5730260.32 | -5730260.27 | 0.1632 | 0.1469 |
| Mercury | -20400-05-02 06:28 J | -5729555.34 | -5729555.23 | -5729555.11 | 0.1639 | 0.0354 |
| Earth | -20398-10-04 18:28 J | -5728669.92 | -5728669.73 | -5728669.55 | 0.1837 | 0.0650 |
| Moon | -20398-10-05 02:23 J | -5728669.55 | -5728669.40 | -5728669.24 | 0.1838 | 0.1119 * |
| Mercury | -20397-02-12 19:11 J | -5728538.85 | -5728538.70 | -5728538.54 | 0.1881 | 0.0674 |
| Moon | -20391-04-08 05:02 J | -5726292.48 | -5726292.29 | -5726292.11 | 0.1682 | 0.0502 |
| Earth | -20391-04-08 11:31 J | -5726292.19 | -5726292.02 | -5726291.84 | 0.1682 | 0.0554 * |
| Mercury | -20391-09-22 17:45 J | -5726124.87 | -5726124.76 | -5726124.64 | 0.1637 | 0.0115 |
| Mercury | -20388-07-04 12:14 J | -5725109.15 | -5725108.99 | -5725108.84 | 0.1884 | 0.0738 |
| Mercury | -20381-02-13 05:16 J | -5722694.39 | -5722694.28 | -5722694.17 | 0.1635 | 0.0540 |
| Venus | -20380-12-13 08:38 J | -5722025.24 | -5722025.14 | -5722025.04 | 0.1629 | 0.1283 |
| Mercury | -20379-01-18 07:55 J | -5721989.24 | -5721989.17 | -5721989.10 | 0.1643 | 0.1327 |
| Venus | -20379-11-12 15:50 J | -5721690.96 | -5721690.84 | -5721690.73 | 0.1890 | 0.1415 |
| Venus | -20378-10-13 14:09 J | -5721356.07 | -5721355.91 | -5721355.74 | 0.1627 | 0.0443 |
| Mercury | -20372-07-05 16:48 J | -5719263.89 | -5719263.80 | -5719263.71 | 0.1633 | 0.0978 |
| Mercury | -20370-06-10 19:11 J | -5718558.80 | -5718558.70 | -5718558.60 | 0.1640 | 0.0868 |
| Mercury | -20363-11-26 04:19 J | -5715833.38 | -5715833.32 | -5715833.27 | 0.1632 | 0.1414 |
| Mercury | -20361-10-31 06:28 J | -5715128.34 | -5715128.23 | -5715128.12 | 0.1638 | 0.0411 |
| Mercury | -20358-08-13 19:40 J | -5714111.83 | -5714111.68 | -5714111.53 | 0.1881 | 0.0772 |
| Mercury | -20351-03-23 17:45 J | -5711697.87 | -5711697.76 | -5711697.64 | 0.1636 | 0.0047 |
| Mercury | -20348-01-02 12:57 J | -5710682.12 | -5710681.96 | -5710681.80 | 0.1884 | 0.0614 |
| Venus | -20346-10-12 06:00 J | -5709669.42 | -5709669.25 | -5709669.09 | 0.1628 | 0.0387 |
| Venus | -20345-09-08 14:38 J | -5709337.06 | -5709336.89 | -5709336.73 | 0.1892 | 0.0688 |
| Venus | -20344-08-11 11:16 J | -5709000.13 | -5709000.03 | -5708999.94 | 0.1626 | 0.1337 |
| Mercury | -20342-08-14 05:16 J | -5708267.39 | -5708267.28 | -5708267.17 | 0.1635 | 0.0481 |
| Mercury | -20340-07-19 07:55 J | -5707562.23 | -5707562.17 | -5707562.11 | 0.1643 | 0.1386 |
| Mercury | -20332-01-03 16:48 J | -5704836.90 | -5704836.80 | -5704836.71 | 0.1633 | 0.0921 |
| Mercury | -20331-12-09 19:11 J | -5704131.80 | -5704131.70 | -5704131.61 | 0.1640 | 0.0927 |
| Mercury | -20323-05-27 04:19 J | -5701406.38 | -5701406.32 | -5701406.26 | 0.1632 | 0.1353 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -20321-05-01 06:28 J | -5700701.34 | -5700701.23 | -5700701.12 | 0.1638 | 0.0472 |
| Mercury | -20318-02-11 20:38 J | -5699684.79 | -5699684.64 | -5699684.49 | 0.1881 | 0.0909 |
| Venus | -20314-10-10 21:21 J | -5697982.72 | -5697982.61 | -5697982.50 | 0.1629 | 0.1207 |
| Venus | -20313-09-08 17:16 J | -5697648.92 | -5697648.78 | -5697648.64 | 0.1891 | 0.1101 |
| Venus | -20312-08-10 03:07 J | -5697313.54 | -5697313.37 | -5697313.21 | 0.1626 | 0.0513 |
| Mercury | -20312-09-21 17:45 J | -5697270.87 | -5697270.76 | -5697270.64 | 0.1636 | 0.0048 |
| Mercury | -20309-07-03 13:55 J | -5696255.08 | -5696254.92 | -5696254.76 | 0.1884 | 0.0482 |
| Mercury | -20302-02-12 05:16 J | -5693840.39 | -5693840.28 | -5693840.17 | 0.1635 | 0.0426 |
| Mercury | -20300-01-17 07:55 J | -5693135.22 | -5693135.17 | -5693135.12 | 0.1643 | 0.1446 |
| Mercury | -20293-07-04 16:48 J | -5690409.90 | -5690409.80 | -5690409.71 | 0.1633 | 0.0865 |
| Mercury | -20291-06-09 18:57 J | -5689704.80 | -5689704.71 | -5689704.61 | 0.1640 | 0.0986 |
| Mercury | -20284-11-25 04:19 J | -5686979.39 | -5686979.32 | -5686979.26 | 0.1632 | 0.1297 |
| Mercury | -20282-10-31 06:28 J | -5686274.34 | -5686274.23 | -5686274.12 | 0.1638 | 0.0532 |
| Venus | -20280-08-08 18:28 J | -5685626.90 | -5685626.73 | -5685626.56 | 0.1627 | 0.0311 |
| Venus | -20279-07-06 16:48 J | -5685294.95 | -5685294.80 | -5685294.65 | 0.1893 | 0.0984 |
| Mercury | -20279-08-12 21:36 J | -5685257.74 | -5685257.60 | -5685257.46 | 0.1881 | 0.1041 |
| Venus | -20278-06-09 00:00 J | -5684957.58 | -5684957.50 | -5684957.42 | 0.1626 | 0.1408 |
| Mercury | -20272-03-22 17:45 J | -5682843.87 | -5682843.76 | -5682843.64 | 0.1636 | 0.0083 |
| Mercury | -20269-01-02 14:38 J | -5681828.05 | -5681827.89 | -5681827.72 | 0.1884 | 0.0357 |
| Mercury | -20263-08-13 05:16 J | -5679413.40 | -5679413.28 | -5679413.17 | 0.1635 | 0.0365 |
| Mercury | -20261-07-18 07:55 J | -5678708.22 | -5678708.17 | -5678708.13 | 0.1643 | 0.1506 |
| Mercury | -20260-05-24 07:26 J | -5678398.24 | -5678398.19 | -5678398.13 | 0.1886 | 0.1778 |
| Mercury | -20253-01-03 16:33 J | -5675982.91 | -5675982.81 | -5675982.71 | 0.1633 | 0.0806 |
| Mercury | -20252-12-08 19:11 J | -5675277.79 | -5675277.70 | -5675277.61 | 0.1640 | 0.1046 |
| Venus | -20248-08-07 10:04 J | -5673940.20 | -5673940.08 | -5673939.96 | 0.1628 | 0.1133 |
| Venus | -20247-07-06 19:11 J | -5673606.86 | -5673606.70 | -5673606.54 | 0.1892 | 0.0799 |
| Venus | -20246-06-07 15:36 J | -5673271.00 | -5673270.85 | -5673270.68 | 0.1626 | 0.0587 |
| Mercury | -20244-05-26 04:04 J | -5672552.40 | -5672552.33 | -5672552.25 | 0.1632 | 0.1241 |
| Mercury | -20242-05-01 06:28 J | -5671847.34 | -5671847.23 | -5671847.13 | 0.1638 | 0.0593 |
| Mercury | -20239-02-10 22:04 J | -5670830.71 | -5670830.58 | -5670830.45 | 0.1881 | 0.1151 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -20233-09-20 17:45 J | -5668416.88 | -5668416.76 | -5668416.65 | 0.1636 | 0.0140 |
| Mercury | -20230-07-03 15:21 J | -5667401.02 | -5667400.86 | -5667400.69 | 0.1884 | 0.0235 |
| Mercury | -20223-02-11 05:02 J | -5664986.40 | -5664986.29 | -5664986.17 | 0.1635 | 0.0313 |
| Mercury | -20221-01-17 07:55 J | -5664281.21 | -5664281.17 | -5664281.14 | 0.1643 | 0.1565 |
| Mercury | -20221-11-22 08:23 J | -5663971.23 | -5663971.15 | -5663971.07 | 0.1886 | 0.1645 |
| Venus | -20214-06-06 07:26 J | -5661584.36 | -5661584.19 | -5661584.02 | 0.1627 | 0.0242 |
| Mercury | -20214-07-04 16:33 J | -5661555.91 | -5661555.81 | -5661555.70 | 0.1633 | 0.0747 |
| Venus | -20213-05-02 18:28 J | -5661252.86 | -5661252.73 | -5661252.60 | 0.1893 | 0.1293 |
| Venus | -20212-04-05 12:57 J | -5660915.03 | -5660914.96 | -5660914.89 | 0.1626 | 0.1478 |
| Mercury | -20212-06-08 19:11 J | -5660850.79 | -5660850.70 | -5660850.62 | 0.1640 | 0.1108 |
| Mercury | -20205-11-24 04:04 J | -5658125.40 | -5658125.33 | -5658125.25 | 0.1632 | 0.1181 |
| Mercury | -20203-10-30 06:14 J | -5657420.34 | -5657420.24 | -5657420.13 | 0.1638 | 0.0651 |
| Mercury | -20200-08-11 22:48 J | -5656403.67 | -5656403.55 | -5656403.42 | 0.1881 | 0.1278 |
| Mercury | -20195-04-16 15:36 J | -5654694.86 | -5654694.85 | -5654694.83 | 0.1630 | 0.1613 |
| Mercury | -20193-03-21 17:45 J | -5653989.88 | -5653989.76 | -5653989.65 | 0.1636 | 0.0200 |
| Mercury | -20190-01-01 16:19 J | -5652973.99 | -5652973.82 | -5652973.65 | 0.1884 | 0.0111 |
| Earth | -20186-04-07 04:48 J | -5651417.47 | -5651417.30 | -5651417.13 | 0.1690 | 0.0671 |
| Moon | -20186-04-07 10:33 J | -5651417.23 | -5651417.06 | -5651416.89 | 0.1690 | 0.0671 * |
| Mercury | -20184-08-12 05:02 J | -5650559.40 | -5650559.29 | -5650559.17 | 0.1634 | 0.0251 |
| Venus | -20182-06-04 23:02 J | -5649897.67 | -5649897.54 | -5649897.42 | 0.1628 | 0.1061 |
| Mercury | -20182-07-18 07:55 J | -5649854.19 | -5649854.17 | -5649854.16 | 0.1643 | 0.1626 |
| Venus | -20181-05-02 20:38 J | -5649564.81 | -5649564.64 | -5649564.46 | 0.1892 | 0.0487 |
| Mercury | -20181-05-23 08:52 J | -5649544.22 | -5649544.13 | -5649544.03 | 0.1886 | 0.1534 |
| Venus | -20180-04-04 04:48 J | -5649228.46 | -5649228.30 | -5649228.14 | 0.1626 | 0.0653 |
| Mercury | -20174-01-02 16:33 J | -5647128.91 | -5647128.81 | -5647128.71 | 0.1633 | 0.0688 |
| Mercury | -20173-12-07 18:57 J | -5646423.79 | -5646423.71 | -5646423.63 | 0.1640 | 0.1162 |
| Mercury | -20165-05-25 04:04 J | -5643698.41 | -5643698.33 | -5643698.25 | 0.1632 | 0.1123 |
| Mercury | -20163-04-30 06:14 J | -5642993.34 | -5642993.24 | -5642993.13 | 0.1638 | 0.0710 |
| Mercury | -20160-02-10 00:00 J | -5641976.61 | -5641976.50 | -5641976.39 | 0.1881 | 0.1416 |
| Mercury | -20156-10-15 15:36 J | -5640267.88 | -5640267.85 | -5640267.82 | 0.1630 | 0.1555 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -20154-09-20 17:45 J | -5639562.88 | -5639562.76 | -5639562.65 | 0.1636 | 0.0262 |
| Mercury | -20151-07-02 17:02 J | -5638546.96 | -5638546.79 | -5638546.62 | 0.1884 | 0.0021 |
| Venus | -20148-04-02 20:09 J | -5637541.83 | -5637541.66 | -5637541.49 | 0.1627 | 0.0170 |
| Venus | -20147-02-27 19:55 J | -5637210.76 | -5637210.67 | -5637210.58 | 0.1893 | 0.1598 |
| Venus | -20146-02-01 01:26 J | -5636872.49 | -5636872.44 | -5636872.39 | 0.1626 | 0.1549 |
| Mercury | -20144-02-10 05:02 J | -5636132.40 | -5636132.29 | -5636132.17 | 0.1634 | 0.0190 |
| Mercury | -20142-11-22 10:04 J | -5635117.20 | -5635117.08 | -5635116.97 | 0.1886 | 0.1397 |
| Mercury | -20135-07-03 16:33 J | -5632701.92 | -5632701.81 | -5632701.70 | 0.1633 | 0.0629 |
| Mercury | -20133-06-07 18:57 J | -5631996.78 | -5631996.71 | -5631996.63 | 0.1640 | 0.1225 |
| Mercury | -20126-11-24 04:04 J | -5629271.42 | -5629271.33 | -5629271.25 | 0.1631 | 0.1069 |
| Mercury | -20124-10-29 06:14 J | -5628566.34 | -5628566.24 | -5628566.14 | 0.1638 | 0.0765 |
| Mercury | -20121-08-11 00:14 J | -5627549.58 | -5627549.49 | -5627549.39 | 0.1881 | 0.1515 |
| Venus | -20116-04-01 11:45 J | -5625855.14 | -5625855.01 | -5625854.87 | 0.1628 | 0.0987 |
| Mercury | -20116-04-15 15:36 J | -5625840.89 | -5625840.85 | -5625840.81 | 0.1630 | 0.1497 |
| Venus | -20115-02-27 22:48 J | -5625522.73 | -5625522.55 | -5625522.37 | 0.1892 | 0.0190 |
| Venus | -20114-01-30 17:02 J | -5625185.94 | -5625185.79 | -5625185.63 | 0.1626 | 0.0729 |
| Mercury | -20114-03-21 17:31 J | -5625135.88 | -5625135.77 | -5625135.65 | 0.1636 | 0.0319 |
| Moon | -20114-10-04 06:14 J | -5624939.46 | -5624939.24 | -5624939.02 | 0.1830 | 0.0007 |
| Earth | -20114-10-04 09:21 J | -5624939.31 | -5624939.11 | -5624938.91 | 0.1830 | 0.0055 * |
| Mercury | -20112-12-31 17:45 J | -5624119.92 | -5624119.76 | -5624119.59 | 0.1884 | 0.0155 |
| Moon | -20107-04-09 09:36 J | -5622560.25 | -5622560.10 | -5622559.95 | 0.1687 | 0.0859 |
| Earth | -20107-04-09 11:31 J | -5622560.18 | -5622560.02 | -5622559.86 | 0.1687 | 0.0832 * |
| Mercury | -20105-08-11 05:02 J | -5621705.41 | -5621705.29 | -5621705.17 | 0.1635 | 0.0130 |
| Mercury | -20102-05-23 11:02 J | -5620690.17 | -5620690.04 | -5620689.92 | 0.1886 | 0.1257 |
| Mercury | -20095-01-01 16:33 J | -5618274.92 | -5618274.81 | -5618274.70 | 0.1633 | 0.0574 |
| Mercury | -20094-12-07 18:57 J | -5617569.78 | -5617569.71 | -5617569.64 | 0.1640 | 0.1282 |
| Mercury | -20086-05-25 04:04 J | -5614844.42 | -5614844.33 | -5614844.24 | 0.1631 | 0.1007 |
| Mercury | -20084-04-29 06:14 J | -5614139.34 | -5614139.24 | -5614139.14 | 0.1638 | 0.0827 |
| Venus | -20082-01-29 08:52 J | -5613499.30 | -5613499.13 | -5613498.96 | 0.1626 | 0.0096 |
| Mercury | -20081-02-10 01:11 J | -5613122.52 | -5613122.45 | -5613122.37 | 0.1881 | 0.1653 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Venus | -20081-11-28 14:09 J | -5612829.92 | -5612829.91 | -5612829.90 | 0.1627 | 0.1622 |
| Mercury | -20077-10-14 15:36 J | -5611413.90 | -5611413.85 | -5611413.80 | 0.1630 | 0.1440 |
| Mercury | -20075-09-19 17:31 J | -5610708.88 | -5610708.77 | -5610708.65 | 0.1636 | 0.0379 |
| Mercury | -20072-07-01 18:43 J | -5609692.89 | -5609692.72 | -5609692.56 | 0.1884 | 0.0274 |
| Mercury | -20065-02-10 05:02 J | -5607278.41 | -5607278.29 | -5607278.18 | 0.1634 | 0.0087 |
| Mercury | -20063-11-21 11:16 J | -5606263.16 | -5606263.03 | -5606262.90 | 0.1887 | 0.1157 |
| Mercury | -20056-07-02 16:19 J | -5603847.92 | -5603847.82 | -5603847.71 | 0.1633 | 0.0518 |
| Mercury | -20054-06-07 18:57 J | -5603142.78 | -5603142.71 | -5603142.65 | 0.1640 | 0.1340 |
| Venus | -20050-01-28 00:28 J | -5601812.62 | -5601812.48 | -5601812.34 | 0.1627 | 0.0914 |
| Venus | -20050-12-26 00:28 J | -5601480.66 | -5601480.48 | -5601480.30 | 0.1893 | 0.0121 |
| Venus | -20049-11-27 06:00 J | -5601143.39 | -5601143.25 | -5601143.10 | 0.1626 | 0.0797 |
| Mercury | -20047-11-23 04:04 J | -5600417.43 | -5600417.33 | -5600417.24 | 0.1632 | 0.0951 |
| Mercury | -20045-10-28 06:14 J | -5599712.34 | -5599712.24 | -5599712.14 | 0.1638 | 0.0886 |
| Mercury | -20042-08-11 02:09 J | -5598695.46 | -5598695.41 | -5598695.36 | 0.1881 | 0.1784 |
| Mercury | -20037-04-14 15:36 J | -5596986.91 | -5596986.85 | -5596986.79 | 0.1630 | 0.1382 |
| Mercury | -20035-03-20 17:31 J | -5596281.88 | -5596281.77 | -5596281.66 | 0.1636 | 0.0435 |
| Mercury | -20033-12-30 19:26 J | -5595265.86 | -5595265.69 | -5595265.53 | 0.1884 | 0.0396 |
| Mercury | -20026-08-11 05:02 J | -5592851.41 | -5592851.29 | -5592851.18 | 0.1634 | 0.0051 |
| Mercury | -20023-05-22 12:28 J | -5591836.12 | -5591835.98 | -5591835.84 | 0.1886 | 0.1010 |
| Venus | -20018-12-26 04:04 J | -5589792.41 | -5589792.33 | -5589792.25 | 0.1892 | 0.1680 |
| Venus | -20017-11-25 21:50 J | -5589456.76 | -5589456.59 | -5589456.42 | 0.1626 | 0.0030 |
| Mercury | -20017-12-31 16:19 J | -5589420.93 | -5589420.82 | -5589420.70 | 0.1633 | 0.0459 |
| Mercury | -20015-12-06 18:57 J | -5588715.77 | -5588715.71 | -5588715.65 | 0.1640 | 0.1402 |
| Mercury | -20007-05-24 03:50 J | -5585990.43 | -5585990.34 | -5585990.24 | 0.1631 | 0.0895 |
| Mercury | -20005-04-28 06:14 J | -5585285.34 | -5585285.24 | -5585285.15 | 0.1638 | 0.0945 |

20TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 20th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|-------------|-------------|-------------|--------|--------|-------|---|
| Mercury | -19998-10-14 15:21 J | -5582559.92 | -5582559.86 | -5582559.79 | 0.1630 | 0.1327 | | |
| Mercury | -19996-09-18 17:31 J | -5581854.88 | -5581854.77 | -5581854.66 | 0.1636 | 0.0490 | | |
| Mercury | -19993-06-30 20:09 J | -5580838.82 | -5580838.66 | -5580838.49 | 0.1884 | 0.0527 | | |
| Mercury | -19986-02-09 05:02 J | -5578424.41 | -5578424.29 | -5578424.18 | 0.1635 | 0.0078 | | |
| Venus | -19985-11-24 13:11 J | -5577770.09 | -5577769.95 | -5577769.80 | 0.1627 | 0.0840 | | |
| Venus | -19984-10-22 02:38 J | -5577438.57 | -5577438.39 | -5577438.22 | 0.1893 | 0.0419 | | |
| Mercury | -19984-11-20 13:26 J | -5577409.09 | -5577408.94 | -5577408.80 | 0.1886 | 0.0882 | | |
| Venus | -19983-09-24 18:43 J | -5577100.87 | -5577100.72 | -5577100.58 | 0.1626 | 0.0870 | | |
| Mercury | -19977-07-01 16:19 J | -5574993.93 | -5574993.82 | -5574993.71 | 0.1633 | 0.0397 | | |
| Mercury | -19975-06-06 18:57 J | -5574288.76 | -5574288.71 | -5574288.66 | 0.1640 | 0.1463 | | |
| Mercury | -19968-11-22 03:50 J | -5571563.44 | -5571563.34 | -5571563.24 | 0.1631 | 0.0835 | | |
| Mercury | -19966-10-28 06:14 J | -5570858.34 | -5570858.24 | -5570858.15 | 0.1638 | 0.1005 | | |
| Mercury | -19958-04-14 15:21 J | -5568132.93 | -5568132.86 | -5568132.79 | 0.1630 | 0.1269 | | |
| Mercury | -19956-03-19 17:31 J | -5567427.88 | -5567427.77 | -5567427.66 | 0.1636 | 0.0551 | | |
| Mercury | -19954-12-30 21:07 J | -5566411.78 | -5566411.62 | -5566411.47 | 0.1884 | 0.0649 | | |
| Venus | -19952-10-22 05:02 J | -5565750.41 | -5565750.29 | -5565750.16 | 0.1892 | 0.1364 | | |
| Venus | -19951-09-23 10:19 J | -5565414.24 | -5565414.07 | -5565413.90 | 0.1626 | 0.0056 | | |
| Mercury | -19947-08-10 04:48 J | -5563997.41 | -5563997.30 | -5563997.18 | 0.1634 | 0.0104 | | |
| Mercury | -19944-05-21 13:55 J | -5562982.07 | -5562981.92 | -5562981.77 | 0.1887 | 0.0767 | | |
| Mercury | -19938-12-31 16:19 J | -5560566.93 | -5560566.82 | -5560566.71 | 0.1633 | 0.0339 | | |
| Mercury | -19936-12-05 18:43 J | -5559861.76 | -5559861.72 | -5559861.68 | 0.1640 | 0.1518 | | |
| Mercury | -19928-05-23 03:50 J | -5557136.44 | -5557136.34 | -5557136.24 | 0.1632 | 0.0777 | | |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -19926-04-28 06:00 J | -5556431.33 | -5556431.25 | -5556431.16 | 0.1638 | 0.1065 |
| Venus | -19919-09-22 01:55 J | -5553727.57 | -5553727.42 | -5553727.27 | 0.1627 | 0.0771 |
| Mercury | -19919-10-13 15:21 J | -5553705.93 | -5553705.86 | -5553705.78 | 0.1630 | 0.1210 |
| Venus | -19918-08-19 04:04 J | -5553396.50 | -5553396.33 | -5553396.17 | 0.1893 | 0.0724 |
| Venus | -19917-07-22 07:26 J | -5553058.33 | -5553058.19 | -5553058.05 | 0.1626 | 0.0941 |
| Mercury | -19917-09-17 17:31 J | -5553000.88 | -5553000.77 | -5553000.66 | 0.1636 | 0.0611 |
| Mercury | -19914-06-30 21:50 J | -5551984.74 | -5551984.59 | -5551984.44 | 0.1884 | 0.0774 |
| Mercury | -19907-02-08 04:48 J | -5549570.41 | -5549570.30 | -5549570.18 | 0.1634 | 0.0164 |
| Mercury | -19905-11-19 14:52 J | -5548555.04 | -5548554.88 | -5548554.72 | 0.1886 | 0.0634 |
| Earth | -19902-04-08 03:36 J | -5547685.53 | -5547685.35 | -5547685.17 | 0.1695 | 0.0421 |
| Moon | -19902-04-08 05:02 J | -5547685.48 | -5547685.29 | -5547685.09 | 0.1695 | 0.0453 * |
| Mercury | -19898-07-01 16:19 J | -5546139.94 | -5546139.82 | -5546139.71 | 0.1633 | 0.0282 |
| Mercury | -19896-06-05 18:43 J | -5545434.74 | -5545434.72 | -5545434.69 | 0.1640 | 0.1581 |
| Mercury | -19889-11-21 03:50 J | -5542709.45 | -5542709.34 | -5542709.24 | 0.1631 | 0.0722 |
| Venus | -19887-09-20 17:16 J | -5542040.81 | -5542040.78 | -5542040.74 | 0.1627 | 0.1582 |
| Mercury | -19887-10-27 06:00 J | -5542004.33 | -5542004.25 | -5542004.16 | 0.1638 | 0.1121 |
| Venus | -19886-08-19 06:28 J | -5541708.37 | -5541708.23 | -5541708.08 | 0.1893 | 0.1052 |
| Venus | -19885-07-20 23:16 J | -5541371.70 | -5541371.53 | -5541371.36 | 0.1626 | 0.0122 |
| Mercury | -19879-04-13 15:21 J | -5539278.94 | -5539278.86 | -5539278.78 | 0.1630 | 0.1152 |
| Mercury | -19877-03-18 17:16 J | -5538573.88 | -5538573.78 | -5538573.67 | 0.1636 | 0.0671 |
| Mercury | -19875-12-29 22:33 J | -5537557.70 | -5537557.56 | -5537557.41 | 0.1884 | 0.0903 |
| Mercury | -19870-09-04 02:52 J | -5535848.40 | -5535848.38 | -5535848.35 | 0.1629 | 0.1583 |
| Mercury | -19868-08-09 04:48 J | -5535143.42 | -5535143.30 | -5535143.18 | 0.1634 | 0.0221 |
| Mercury | -19865-05-20 15:50 J | -5534128.00 | -5534127.84 | -5534127.68 | 0.1886 | 0.0497 |
| Mercury | -19859-12-30 16:19 J | -5531712.94 | -5531712.82 | -5531712.71 | 0.1633 | 0.0227 |
| Mercury | -19857-12-04 18:43 J | -5531007.72 | -5531007.72 | -5531007.72 | 0.1640 | 0.1639 |
| Venus | -19853-07-19 14:38 J | -5529685.04 | -5529684.89 | -5529684.74 | 0.1626 | 0.0696 |
| Venus | -19852-06-15 06:14 J | -5529354.39 | -5529354.24 | -5529354.09 | 0.1893 | 0.1017 |
| Venus | -19851-05-19 20:09 J | -5529015.80 | -5529015.66 | -5529015.53 | 0.1627 | 0.1011 |
| Mercury | -19849-05-22 03:50 J | -5528282.45 | -5528282.34 | -5528282.24 | 0.1631 | 0.0660 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -19847-04-27 06:00 J | -5527577.33 | -5527577.25 | -5527577.17 | 0.1638 | 0.1183 |
| Mercury | -19840-10-12 15:21 J | -5524851.95 | -5524851.86 | -5524851.78 | 0.1630 | 0.1098 |
| Mercury | -19838-09-17 17:16 J | -5524146.88 | -5524146.78 | -5524146.67 | 0.1636 | 0.0730 |
| Mercury | -19835-06-29 23:16 J | -5523130.67 | -5523130.53 | -5523130.38 | 0.1884 | 0.1023 |
| Mercury | -19830-03-05 02:52 J | -5521421.42 | -5521421.38 | -5521421.34 | 0.1629 | 0.1527 |
| Moon | -19830-10-03 19:11 J | -5521208.87 | -5521208.70 | -5521208.53 | 0.1822 | 0.0786 |
| Earth | -19830-10-04 01:11 J | -5521208.63 | -5521208.45 | -5521208.26 | 0.1823 | 0.0698 * |
| Mercury | -19828-02-07 04:48 J | -5520716.42 | -5520716.30 | -5520716.19 | 0.1634 | 0.0283 |
| Mercury | -19826-11-19 16:19 J | -5519700.99 | -5519700.82 | -5519700.66 | 0.1887 | 0.0395 |
| Earth | -19823-04-10 10:19 J | -5518828.22 | -5518828.07 | -5518827.93 | 0.1692 | 0.1095 |
| Moon | -19823-04-10 17:02 J | -5518827.93 | -5518827.79 | -5518827.66 | 0.1691 | 0.1157 * |
| Venus | -19821-07-18 06:14 J | -5517998.30 | -5517998.24 | -5517998.18 | 0.1627 | 0.1510 |
| Venus | -19820-06-15 08:38 J | -5517666.31 | -5517666.14 | -5517665.98 | 0.1893 | 0.0752 |
| Venus | -19819-05-18 12:00 J | -5517329.17 | -5517329.00 | -5517328.83 | 0.1626 | 0.0192 |
| Mercury | -19819-06-30 16:19 J | -5517285.94 | -5517285.82 | -5517285.71 | 0.1633 | 0.0172 |
| Mercury | -19816-04-10 09:21 J | -5516271.15 | -5516271.11 | -5516271.06 | 0.1889 | 0.1796 |
| Mercury | -19810-11-21 03:36 J | -5513855.45 | -5513855.35 | -5513855.24 | 0.1631 | 0.0607 |
| Mercury | -19808-10-26 06:00 J | -5513150.32 | -5513150.25 | -5513150.17 | 0.1638 | 0.1240 |
| Mercury | -19800-04-12 15:21 J | -5510424.95 | -5510424.86 | -5510424.78 | 0.1630 | 0.1038 |
| Mercury | -19798-03-18 17:16 J | -5509719.88 | -5509719.78 | -5509719.68 | 0.1636 | 0.0787 |
| Mercury | -19796-12-29 00:14 J | -5508703.63 | -5508703.49 | -5508703.36 | 0.1884 | 0.1145 |
| Mercury | -19791-09-03 02:52 J | -5506994.43 | -5506994.38 | -5506994.33 | 0.1629 | 0.1468 |
| Mercury | -19789-08-08 04:48 J | -5506289.42 | -5506289.30 | -5506289.19 | 0.1634 | 0.0340 |
| Venus | -19787-05-17 03:36 J | -5505642.50 | -5505642.35 | -5505642.19 | 0.1626 | 0.0630 |
| Venus | -19786-04-12 08:09 J | -5505312.29 | -5505312.16 | -5505312.03 | 0.1893 | 0.1318 |
| Mercury | -19786-05-20 17:31 J | -5505273.94 | -5505273.77 | -5505273.61 | 0.1886 | 0.0251 |
| Venus | -19785-03-16 08:52 J | -5504973.25 | -5504973.13 | -5504973.00 | 0.1627 | 0.1083 |
| Mercury | -19780-12-29 16:04 J | -5502858.94 | -5502858.83 | -5502858.71 | 0.1633 | 0.0117 |
| Mercury | -19777-10-09 09:50 J | -5501844.16 | -5501844.09 | -5501844.02 | 0.1889 | 0.1692 |
| Mercury | -19770-05-22 03:36 J | -5499428.46 | -5499428.35 | -5499428.24 | 0.1631 | 0.0548 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -19768-04-26 06:00 J | -5498723.32 | -5498723.25 | -5498723.18 | 0.1638 | 0.1298 |
| Mercury | -19761-10-11 15:07 J | -5495997.96 | -5495997.87 | -5495997.78 | 0.1630 | 0.0981 |
| Mercury | -19759-09-16 17:16 J | -5495292.88 | -5495292.78 | -5495292.68 | 0.1636 | 0.0844 |
| Mercury | -19756-06-29 01:11 J | -5494276.58 | -5494276.45 | -5494276.33 | 0.1884 | 0.1279 |
| Venus | -19755-05-15 19:11 J | -5493955.77 | -5493955.70 | -5493955.62 | 0.1627 | 0.1440 |
| Venus | -19754-04-12 10:04 J | -5493624.25 | -5493624.08 | -5493623.90 | 0.1893 | 0.0445 |
| Venus | -19753-03-15 00:57 J | -5493286.63 | -5493286.46 | -5493286.29 | 0.1626 | 0.0261 |
| Mercury | -19751-03-04 02:52 J | -5492567.44 | -5492567.38 | -5492567.33 | 0.1629 | 0.1410 |
| Moon | -19751-10-06 18:57 J | -5492350.74 | -5492350.71 | -5492350.67 | 0.1827 | 0.1802 |
| Mercury | -19749-02-07 04:33 J | -5491862.42 | -5491862.31 | -5491862.19 | 0.1634 | 0.0402 |
| Mercury | -19747-11-18 18:14 J | -5490846.91 | -5490846.74 | -5490846.57 | 0.1886 | 0.0122 |
| Mercury | -19740-06-29 16:04 J | -5488431.94 | -5488431.83 | -5488431.71 | 0.1633 | 0.0060 |
| Mercury | -19737-04-09 10:48 J | -5487417.14 | -5487417.05 | -5487416.95 | 0.1889 | 0.1553 |
| Mercury | -19731-11-20 03:36 J | -5485001.46 | -5485001.35 | -5485001.24 | 0.1631 | 0.0488 |
| Mercury | -19729-10-25 06:00 J | -5484296.32 | -5484296.25 | -5484296.19 | 0.1638 | 0.1358 |
| Venus | -19721-03-13 16:19 J | -5481599.98 | -5481599.82 | -5481599.66 | 0.1626 | 0.0556 |
| Mercury | -19721-04-11 15:07 J | -5481570.96 | -5481570.87 | -5481570.77 | 0.1630 | 0.0923 |
| Venus | -19720-02-06 09:50 J | -5481270.18 | -5481270.09 | -5481270.00 | 0.1892 | 0.1618 |
| Venus | -19719-01-11 21:21 J | -5480930.73 | -5480930.61 | -5480930.49 | 0.1627 | 0.1156 |
| Mercury | -19719-03-17 17:16 J | -5480865.88 | -5480865.78 | -5480865.68 | 0.1636 | 0.0905 |
| Mercury | -19717-12-28 01:40 J | -5479849.54 | -5479849.43 | -5479849.31 | 0.1884 | 0.1396 |
| Mercury | -19712-09-02 02:38 J | -5478140.45 | -5478140.39 | -5478140.32 | 0.1629 | 0.1355 |
| Mercury | -19710-08-08 04:33 J | -5477435.42 | -5477435.31 | -5477435.20 | 0.1634 | 0.0454 |
| Mercury | -19707-05-19 18:43 J | -5476419.89 | -5476419.72 | -5476419.55 | 0.1887 | 0.0034 |
| Mercury | -19701-12-28 16:04 J | -5474004.95 | -5474004.83 | -5474004.71 | 0.1633 | 0.0011 |
| Mercury | -19698-10-09 11:45 J | -5472990.12 | -5472990.01 | -5472989.90 | 0.1889 | 0.1418 |
| Mercury | -19691-05-21 03:36 J | -5470574.46 | -5470574.35 | -5470574.24 | 0.1631 | 0.0428 |
| Venus | -19689-03-12 07:55 J | -5469913.26 | -5469913.17 | -5469913.08 | 0.1627 | 0.1367 |
| Mercury | -19689-04-25 06:00 J | -5469869.31 | -5469869.25 | -5469869.20 | 0.1638 | 0.1419 |
| Venus | -19688-02-06 12:28 J | -5469582.16 | -5469581.98 | -5469581.81 | 0.1893 | 0.0156 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Venus | -19687-01-10 13:11 J | -5469244.12 | -5469243.95 | -5469243.78 | 0.1626 | 0.0336 |
| Mercury | -19682-10-11 15:07 J | -5467143.97 | -5467143.87 | -5467143.77 | 0.1630 | 0.0864 |
| Mercury | -19680-09-15 17:16 J | -5466438.87 | -5466438.78 | -5466438.69 | 0.1636 | 0.0964 |
| Mercury | -19677-06-28 02:38 J | -5465422.49 | -5465422.39 | -5465422.30 | 0.1884 | 0.1521 |
| Mercury | -19672-03-03 02:38 J | -5463713.45 | -5463713.39 | -5463713.32 | 0.1629 | 0.1297 |
| Mercury | -19670-02-06 04:33 J | -5463008.42 | -5463008.31 | -5463008.20 | 0.1634 | 0.0514 |
| Mercury | -19668-11-17 19:40 J | -5461992.85 | -5461992.68 | -5461992.51 | 0.1887 | 0.0128 |
| Mercury | -19661-06-28 16:04 J | -5459577.95 | -5459577.83 | -5459577.72 | 0.1633 | 0.0070 |
| Mercury | -19658-04-09 12:28 J | -5458563.10 | -5458562.98 | -5458562.86 | 0.1889 | 0.1301 |
| Venus | -19655-01-09 05:02 J | -5457557.46 | -5457557.29 | -5457557.13 | 0.1626 | 0.0484 |
| Venus | -19654-11-09 10:04 J | -5456888.19 | -5456888.08 | -5456887.97 | 0.1627 | 0.1228 |
| Mercury | -19652-11-19 03:36 J | -5456147.47 | -5456147.35 | -5456147.24 | 0.1631 | 0.0376 |
| Mercury | -19650-10-25 05:45 J | -5455442.30 | -5455442.26 | -5455442.21 | 0.1638 | 0.1476 |
| Mercury | -19642-04-11 15:07 J | -5452716.97 | -5452716.87 | -5452716.77 | 0.1630 | 0.0806 |
| Mercury | -19640-03-16 17:16 J | -5452011.87 | -5452011.78 | -5452011.69 | 0.1636 | 0.1022 |
| Mercury | -19638-12-28 03:21 J | -5450995.43 | -5450995.36 | -5450995.28 | 0.1884 | 0.1651 |
| Mercury | -19633-09-01 02:38 J | -5449286.46 | -5449286.39 | -5449286.32 | 0.1629 | 0.1239 |
| Mercury | -19631-08-07 04:33 J | -5448581.42 | -5448581.31 | -5448581.20 | 0.1634 | 0.0572 |
| Mercury | -19628-05-18 20:38 J | -5447565.80 | -5447565.64 | -5447565.47 | 0.1886 | 0.0265 |
| Venus | -19623-01-07 20:38 J | -5445870.74 | -5445870.64 | -5445870.54 | 0.1626 | 0.1295 |
| Venus | -19623-12-04 13:55 J | -5445540.10 | -5445539.92 | -5445539.74 | 0.1893 | 0.0161 |
| Venus | -19622-11-08 02:09 J | -5445201.57 | -5445201.41 | -5445201.24 | 0.1626 | 0.0404 |
| Mercury | -19622-12-28 16:04 J | -5445150.95 | -5445150.83 | -5445150.72 | 0.1633 | 0.0130 |
| Mercury | -19619-10-08 13:11 J | -5444136.08 | -5444135.95 | -5444135.82 | 0.1889 | 0.1173 |
| Moon | -19618-04-08 19:11 J | -5443953.89 | -5443953.70 | -5443953.52 | 0.1700 | 0.0295 |
| Earth | -19618-04-09 01:55 J | -5443953.61 | -5443953.42 | -5443953.23 | 0.1700 | 0.0183 * |
| Mercury | -19612-05-20 03:36 J | -5441720.47 | -5441720.35 | -5441720.24 | 0.1631 | 0.0314 |
| Mercury | -19610-04-25 06:00 J | -5441015.29 | -5441015.25 | -5441015.22 | 0.1638 | 0.1538 |
| Mercury | -19603-10-10 14:52 J | -5438289.98 | -5438289.88 | -5438289.77 | 0.1630 | 0.0754 |
| Mercury | -19601-09-14 17:02 J | -5437584.87 | -5437584.79 | -5437584.70 | 0.1636 | 0.1082 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -19598-06-28 04:04 J | -5436568.38 | -5436568.33 | -5436568.27 | 0.1884 | 0.1768 |
| Mercury | -19593-03-02 02:38 J | -5434859.47 | -5434859.39 | -5434859.31 | 0.1629 | 0.1182 |
| Mercury | -19591-02-05 04:33 J | -5434154.42 | -5434154.31 | -5434154.21 | 0.1634 | 0.0629 |
| Venus | -19591-12-04 17:16 J | -5433851.87 | -5433851.78 | -5433851.69 | 0.1893 | 0.1626 |
| Venus | -19590-11-06 18:00 J | -5433514.92 | -5433514.75 | -5433514.59 | 0.1626 | 0.0413 |
| Mercury | -19589-11-16 21:07 J | -5433138.78 | -5433138.62 | -5433138.45 | 0.1887 | 0.0371 |
| Venus | -19588-09-05 22:48 J | -5432845.65 | -5432845.55 | -5432845.45 | 0.1628 | 0.1299 |
| Mercury | -19584-07-23 14:09 J | -5431428.92 | -5431428.91 | -5431428.89 | 0.1628 | 0.1609 |
| Mercury | -19582-06-28 16:04 J | -5430723.95 | -5430723.83 | -5430723.72 | 0.1633 | 0.0192 |
| Mercury | -19579-04-08 14:23 J | -5429709.04 | -5429708.90 | -5429708.76 | 0.1889 | 0.1025 |
| Mercury | -19573-11-18 03:21 J | -5427293.47 | -5427293.36 | -5427293.24 | 0.1631 | 0.0262 |
| Mercury | -19571-10-24 05:45 J | -5426588.28 | -5426588.26 | -5426588.23 | 0.1638 | 0.1595 |
| Mercury | -19563-04-10 14:52 J | -5423862.98 | -5423862.88 | -5423862.77 | 0.1630 | 0.0694 |
| Mercury | -19561-03-15 17:02 J | -5423157.87 | -5423157.79 | -5423157.70 | 0.1636 | 0.1142 |
| Venus | -19558-11-05 09:36 J | -5421828.21 | -5421828.10 | -5421827.99 | 0.1626 | 0.1222 |
| Venus | -19557-09-30 16:19 J | -5421497.99 | -5421497.82 | -5421497.65 | 0.1893 | 0.0453 |
| Venus | -19556-09-04 14:38 J | -5421159.05 | -5421158.89 | -5421158.73 | 0.1627 | 0.0478 |
| Mercury | -19554-09-01 02:38 J | -5420432.47 | -5420432.39 | -5420432.31 | 0.1629 | 0.1124 |
| Mercury | -19552-08-06 04:33 J | -5419727.42 | -5419727.31 | -5419727.21 | 0.1634 | 0.0691 |
| Mercury | -19549-05-17 22:19 J | -5418711.73 | -5418711.57 | -5418711.41 | 0.1887 | 0.0515 |
| Earth | -19546-10-03 19:40 J | -5417477.82 | -5417477.68 | -5417477.53 | 0.1815 | 0.1235 |
| Moon | -19546-10-04 03:50 J | -5417477.49 | -5417477.34 | -5417477.20 | 0.1816 | 0.1167 |
| Mercury | -19544-01-21 14:09 J | -5417001.94 | -5417001.91 | -5417001.88 | 0.1628 | 0.1554 |
| Mercury | -19543-12-27 15:50 J | -5416296.95 | -5416296.84 | -5416296.72 | 0.1632 | 0.0251 |
| Mercury | -19540-10-07 14:38 J | -5415282.03 | -5415281.89 | -5415281.74 | 0.1889 | 0.0926 |
| Moon | -19539-04-11 06:28 J | -5415096.36 | -5415096.23 | -5415096.09 | 0.1697 | 0.1273 |
| Earth | -19539-04-11 08:52 J | -5415096.24 | -5415096.13 | -5415096.02 | 0.1697 | 0.1362 * |
| Mercury | -19533-05-19 03:21 J | -5412866.47 | -5412866.36 | -5412866.24 | 0.1631 | 0.0199 |
| Venus | -19525-09-30 18:43 J | -5409809.85 | -5409809.72 | -5409809.59 | 0.1893 | 0.1314 |
| Venus | -19524-09-03 06:28 J | -5409472.40 | -5409472.23 | -5409472.06 | 0.1626 | 0.0340 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -19524-10-09 14:52 J | -5409435.98 | -5409435.88 | -5409435.77 | 0.1630 | 0.0635 |
| Venus | -19522-07-04 11:16 J | -5408803.12 | -5408803.03 | -5408802.94 | 0.1628 | 0.1373 |
| Mercury | -19522-09-14 17:02 J | -5408730.87 | -5408730.79 | -5408730.71 | 0.1636 | 0.1199 |
| Mercury | -19514-03-02 02:38 J | -5406005.48 | -5406005.39 | -5406005.31 | 0.1629 | 0.1067 |
| Mercury | -19512-02-04 04:33 J | -5405300.42 | -5405300.31 | -5405300.21 | 0.1634 | 0.0750 |
| Mercury | -19510-11-16 23:02 J | -5404284.70 | -5404284.54 | -5404284.38 | 0.1886 | 0.0636 |
| Mercury | -19505-07-22 14:09 J | -5402574.95 | -5402574.91 | -5402574.87 | 0.1628 | 0.1495 |
| Mercury | -19503-06-27 15:50 J | -5401869.95 | -5401869.84 | -5401869.72 | 0.1633 | 0.0306 |
| Mercury | -19500-04-07 15:50 J | -5400854.99 | -5400854.84 | -5400854.69 | 0.1889 | 0.0782 |
| Mercury | -19494-11-18 03:21 J | -5398439.47 | -5398439.36 | -5398439.24 | 0.1631 | 0.0140 |
| Venus | -19492-09-01 22:19 J | -5397785.69 | -5397785.57 | -5397785.45 | 0.1626 | 0.1152 |
| Venus | -19491-07-28 18:00 J | -5397455.91 | -5397455.75 | -5397455.59 | 0.1892 | 0.0753 |
| Venus | -19490-07-03 03:21 J | -5397116.52 | -5397116.36 | -5397116.19 | 0.1627 | 0.0549 |
| Mercury | -19484-04-09 14:52 J | -5395008.99 | -5395008.88 | -5395008.77 | 0.1630 | 0.0576 |
| Mercury | -19482-03-15 17:02 J | -5394303.86 | -5394303.79 | -5394303.71 | 0.1636 | 0.1258 |
| Mercury | -19475-08-31 02:23 J | -5391578.49 | -5391578.40 | -5391578.31 | 0.1629 | 0.1011 |
| Mercury | -19473-08-05 04:19 J | -5390873.42 | -5390873.32 | -5390873.22 | 0.1634 | 0.0806 |
| Mercury | -19470-05-17 23:45 J | -5389857.67 | -5389857.51 | -5389857.36 | 0.1887 | 0.0756 |
| Moon | -19467-10-06 18:57 J | -5388619.83 | -5388619.71 | -5388619.59 | 0.1820 | 0.1364 |
| Earth | -19467-10-06 20:09 J | -5388619.79 | -5388619.66 | -5388619.51 | 0.1820 | 0.1280 * |
| Mercury | -19465-01-21 14:09 J | -5388147.96 | -5388147.91 | -5388147.86 | 0.1628 | 0.1439 |
| Mercury | -19464-12-26 15:50 J | -5387442.95 | -5387442.84 | -5387442.72 | 0.1633 | 0.0362 |
| Mercury | -19461-10-06 16:48 J | -5386427.96 | -5386427.80 | -5386427.64 | 0.1889 | 0.0646 |
| Venus | -19459-07-28 20:09 J | -5385767.81 | -5385767.66 | -5385767.51 | 0.1894 | 0.1005 |
| Venus | -19458-07-01 19:26 J | -5385429.86 | -5385429.69 | -5385429.52 | 0.1626 | 0.0270 |
| Venus | -19456-05-01 00:00 J | -5384760.57 | -5384760.50 | -5384760.42 | 0.1629 | 0.1441 |
| Mercury | -19454-05-19 03:21 J | -5384012.48 | -5384012.36 | -5384012.24 | 0.1631 | 0.0079 |
| Mercury | -19445-10-08 14:52 J | -5380581.99 | -5380581.88 | -5380581.77 | 0.1630 | 0.0517 |
| Mercury | -19443-09-13 17:02 J | -5379876.86 | -5379876.79 | -5379876.72 | 0.1636 | 0.1317 |
| Mercury | -19435-03-01 02:23 J | -5377151.49 | -5377151.40 | -5377151.31 | 0.1629 | 0.0952 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -19433-02-04 04:19 J | -5376446.41 | -5376446.32 | -5376446.22 | 0.1634 | 0.0867 |
| Mercury | -19431-11-16 00:43 J | -5375430.62 | -5375430.47 | -5375430.33 | 0.1887 | 0.0888 |
| Venus | -19426-06-30 10:48 J | -5373743.17 | -5373743.05 | -5373742.92 | 0.1626 | 0.1080 |
| Mercury | -19426-07-22 13:55 J | -5373720.97 | -5373720.92 | -5373720.86 | 0.1628 | 0.1383 |
| Venus | -19425-05-24 20:38 J | -5373413.79 | -5373413.64 | -5373413.49 | 0.1892 | 0.1038 |
| Venus | -19424-04-29 16:19 J | -5373073.98 | -5373073.82 | -5373073.66 | 0.1627 | 0.0618 |
| Mercury | -19424-06-26 15:50 J | -5373015.95 | -5373015.84 | -5373015.73 | 0.1632 | 0.0420 |
| Mercury | -19421-04-06 17:31 J | -5372000.94 | -5372000.77 | -5372000.61 | 0.1889 | 0.0532 |
| Mercury | -19415-11-17 03:21 J | -5369585.48 | -5369585.36 | -5369585.25 | 0.1631 | 0.0050 |
| Earth | -19413-04-06 14:23 J | -5369078.97 | -5369078.90 | -5369078.83 | 0.1709 | 0.1580 |
| Moon | -19413-04-06 21:50 J | -5369078.69 | -5369078.59 | -5369078.49 | 0.1709 | 0.1425 |
| Mercury | -19405-04-08 14:52 J | -5366154.99 | -5366154.88 | -5366154.77 | 0.1630 | 0.0460 |
| Mercury | -19403-03-14 17:02 J | -5365449.85 | -5365449.79 | -5365449.73 | 0.1636 | 0.1375 |
| Mercury | -19396-08-30 02:23 J | -5362724.50 | -5362724.40 | -5362724.30 | 0.1629 | 0.0893 |
| Mercury | -19394-08-05 04:19 J | -5362019.41 | -5362019.32 | -5362019.22 | 0.1634 | 0.0927 |
| Venus | -19393-05-24 22:33 J | -5361725.73 | -5361725.56 | -5361725.40 | 0.1893 | 0.0710 |
| Venus | -19392-04-28 08:09 J | -5361387.33 | -5361387.16 | -5361386.99 | 0.1626 | 0.0201 |
| Mercury | -19391-05-17 01:40 J | -5361003.57 | -5361003.43 | -5361003.29 | 0.1887 | 0.1022 |
| Venus | -19390-02-26 12:28 J | -5360718.04 | -5360717.98 | -5360717.92 | 0.1629 | 0.1514 |
| Mercury | -19386-01-20 13:55 J | -5359293.98 | -5359293.92 | -5359293.85 | 0.1628 | 0.1323 |
| Mercury | -19385-12-25 15:50 J | -5358588.95 | -5358588.84 | -5358588.73 | 0.1632 | 0.0479 |
| Mercury | -19382-10-06 18:14 J | -5357573.90 | -5357573.74 | -5357573.57 | 0.1889 | 0.0402 |
| Mercury | -19375-05-18 03:21 J | -5355158.48 | -5355158.36 | -5355158.25 | 0.1631 | 0.0054 |
| Mercury | -19372-02-25 10:48 J | -5354144.08 | -5354144.05 | -5354144.01 | 0.1891 | 0.1840 |
| Mercury | -19366-10-08 14:38 J | -5351728.00 | -5351727.89 | -5351727.77 | 0.1630 | 0.0408 |
| Mercury | -19364-09-12 17:02 J | -5351022.85 | -5351022.79 | -5351022.74 | 0.1636 | 0.1434 |
| Venus | -19360-04-27 00:00 J | -5349700.63 | -5349700.50 | -5349700.36 | 0.1626 | 0.1014 |
| Venus | -19359-03-21 22:33 J | -5349371.69 | -5349371.56 | -5349371.44 | 0.1891 | 0.1336 |
| Venus | -19358-02-25 04:48 J | -5349031.45 | -5349031.30 | -5349031.14 | 0.1628 | 0.0691 |
| Mercury | -19356-02-28 02:23 J | -5348297.50 | -5348297.40 | -5348297.30 | 0.1629 | 0.0836 |

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| Mercury | -19354-02-03 04:19 J | -5347592.41 | -5347592.32 | -5347592.23 | 0.1634 | 0.0981 |
| Mercury | -19352-11-15 02:09 J | -5346576.55 | -5346576.41 | -5346576.28 | 0.1887 | 0.1132 |
| Mercury | -19347-07-21 13:55 J | -5344866.99 | -5344866.92 | -5344866.85 | 0.1628 | 0.1266 |
| Mercury | -19345-06-25 15:50 J | -5344161.95 | -5344161.84 | -5344161.73 | 0.1633 | 0.0538 |
| Mercury | -19342-04-06 19:26 J | -5343146.86 | -5343146.69 | -5343146.52 | 0.1889 | 0.0256 |
| Mercury | -19336-11-16 03:07 J | -5340731.48 | -5340731.37 | -5340731.25 | 0.1631 | 0.0108 |
| Earth | -19334-04-09 23:02 J | -5340221.73 | -5340221.54 | -5340221.35 | 0.1705 | 0.0036 |
| Moon | -19334-04-10 01:55 J | -5340221.59 | -5340221.42 | -5340221.24 | 0.1705 | 0.0128 * |
| Mercury | -19333-08-26 11:31 J | -5339717.08 | -5339717.02 | -5339716.95 | 0.1891 | 0.1716 |
| Venus | -19327-03-22 00:00 J | -5337683.67 | -5337683.50 | -5337683.32 | 0.1893 | 0.0404 |
| Venus | -19326-02-23 21:07 J | -5337344.79 | -5337344.62 | -5337344.45 | 0.1626 | 0.0133 |
| Mercury | -19326-04-08 14:52 J | -5337301.00 | -5337300.88 | -5337300.77 | 0.1630 | 0.0345 |
| Venus | -19325-12-24 01:11 J | -5336675.49 | -5336675.45 | -5336675.42 | 0.1630 | 0.1587 |
| Mercury | -19324-03-13 17:02 J | -5336595.84 | -5336595.79 | -5336595.75 | 0.1636 | 0.1495 |
| Mercury | -19317-08-29 02:23 J | -5333870.50 | -5333870.40 | -5333870.30 | 0.1629 | 0.0779 |
| Mercury | -19315-08-04 04:19 J | -5333165.41 | -5333165.32 | -5333165.23 | 0.1634 | 0.1044 |
| Mercury | -19312-05-16 03:07 J | -5332149.49 | -5332149.37 | -5332149.24 | 0.1887 | 0.1271 |
| Mercury | -19307-01-19 13:55 J | -5330440.00 | -5330439.92 | -5330439.85 | 0.1628 | 0.1211 |
| Mercury | -19306-12-25 15:36 J | -5329734.95 | -5329734.85 | -5329734.74 | 0.1632 | 0.0598 |
| Mercury | -19303-10-05 19:40 J | -5328719.84 | -5328719.68 | -5328719.51 | 0.1889 | 0.0161 |
| Mercury | -19296-05-17 03:07 J | -5326304.48 | -5326304.37 | -5326304.25 | 0.1631 | 0.0159 |
| Venus | -19294-02-22 12:43 J | -5325658.11 | -5325657.97 | -5325657.83 | 0.1626 | 0.0942 |
| Venus | -19293-01-17 00:28 J | -5325329.56 | -5325329.48 | -5325329.39 | 0.1891 | 0.1626 |
| Mercury | -19293-02-25 12:43 J | -5325290.06 | -5325289.97 | -5325289.88 | 0.1891 | 0.1575 |
| Venus | -19293-12-22 17:31 J | -5324988.92 | -5324988.77 | -5324988.62 | 0.1628 | 0.0761 |
| Mercury | -19287-10-07 14:38 J | -5322874.00 | -5322873.89 | -5322873.77 | 0.1630 | 0.0289 |
| Mercury | -19285-09-11 17:02 J | -5322168.83 | -5322168.79 | -5322168.76 | 0.1636 | 0.1554 |
| Mercury | -19277-02-28 02:23 J | -5319443.51 | -5319443.40 | -5319443.30 | 0.1629 | 0.0722 |
| Mercury | -19275-02-02 04:19 J | -5318738.41 | -5318738.32 | -5318738.24 | 0.1634 | 0.1101 |
| Mercury | -19273-11-14 03:50 J | -5317722.45 | -5317722.34 | -5317722.23 | 0.1887 | 0.1390 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -19268-07-20 13:55 J | -5316013.00 | -5316012.92 | -5316012.84 | 0.1628 | 0.1151 |
| Mercury | -19266-06-25 15:50 J | -5315307.95 | -5315307.84 | -5315307.74 | 0.1632 | 0.0658 |
| Mercury | -19263-04-05 20:52 J | -5314292.80 | -5314292.63 | -5314292.46 | 0.1889 | 0.0019 |
| Earth | -19262-10-03 16:19 J | -5313746.88 | -5313746.82 | -5313746.75 | 0.1808 | 0.1690 |
| Venus | -19261-01-17 02:38 J | -5313641.57 | -5313641.39 | -5313641.22 | 0.1892 | 0.0120 |
| Venus | -19261-12-21 09:36 J | -5313302.28 | -5313302.10 | -5313301.93 | 0.1627 | 0.0069 |
| Mercury | -19259-12-11 01:26 J | -5312582.46 | -5312582.44 | -5312582.41 | 0.1627 | 0.1579 |
| Mercury | -19257-11-15 03:07 J | -5311877.48 | -5311877.37 | -5311877.25 | 0.1631 | 0.0213 |
| Moon | -19255-04-12 02:23 J | -5311364.48 | -5311364.40 | -5311364.31 | 0.1702 | 0.1488 |
| Earth | -19255-04-12 07:40 J | -5311364.23 | -5311364.18 | -5311364.13 | 0.1702 | 0.1630 |
| Mercury | -19254-08-26 13:26 J | -5310863.05 | -5310862.94 | -5310862.84 | 0.1891 | 0.1457 |
| Mercury | -19247-04-07 14:38 J | -5308447.00 | -5308446.89 | -5308446.77 | 0.1630 | 0.0229 |
| Mercury | -19245-03-12 16:48 J | -5307741.81 | -5307741.80 | -5307741.78 | 0.1636 | 0.1612 |
| Mercury | -19238-08-29 02:09 J | -5305016.51 | -5305016.41 | -5305016.30 | 0.1629 | 0.0665 |
| Mercury | -19236-08-03 04:19 J | -5304311.40 | -5304311.32 | -5304311.24 | 0.1634 | 0.1159 |
| Mercury | -19233-05-15 04:33 J | -5303295.40 | -5303295.31 | -5303295.21 | 0.1887 | 0.1517 |
| Venus | -19229-01-17 05:16 J | -5301953.30 | -5301953.28 | -5301953.27 | 0.1893 | 0.1881 |
| Venus | -19229-12-20 01:26 J | -5301615.58 | -5301615.44 | -5301615.30 | 0.1626 | 0.0872 |
| Mercury | -19228-01-18 13:55 J | -5301586.01 | -5301585.92 | -5301585.84 | 0.1628 | 0.1094 |
| Venus | -19227-10-20 06:14 J | -5300946.39 | -5300946.24 | -5300946.09 | 0.1628 | 0.0834 |
| Mercury | -19227-12-24 15:36 J | -5300880.95 | -5300880.85 | -5300880.74 | 0.1632 | 0.0716 |
| Mercury | -19224-10-04 21:50 J | -5299865.76 | -5299865.59 | -5299865.42 | 0.1889 | 0.0123 |
| Mercury | -19219-06-11 01:26 J | -5298155.48 | -5298155.44 | -5298155.40 | 0.1627 | 0.1520 |
| Mercury | -19217-05-16 03:07 J | -5297450.48 | -5297450.37 | -5297450.25 | 0.1631 | 0.0271 |
| Mercury | -19214-02-24 14:23 J | -5296436.02 | -5296435.90 | -5296435.78 | 0.1891 | 0.1322 |
| Mercury | -19208-10-06 14:38 J | -5294020.00 | -5294019.89 | -5294019.77 | 0.1630 | 0.0169 |
| Mercury | -19198-02-27 02:09 J | -5290589.51 | -5290589.41 | -5290589.30 | 0.1629 | 0.0606 |
| Mercury | -19196-02-01 04:19 J | -5289884.40 | -5289884.32 | -5289884.25 | 0.1634 | 0.1220 |
| Venus | -19196-11-13 04:04 J | -5289599.51 | -5289599.33 | -5289599.15 | 0.1892 | 0.0189 |
| Venus | -19195-10-18 22:19 J | -5289259.74 | -5289259.57 | -5289259.39 | 0.1627 | 0.0029 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -19194-11-14 05:31 J | -5288868.35 | -5288868.27 | -5288868.19 | 0.1887 | 0.1643 |
| Mercury | -19189-07-19 13:40 J | -5287159.01 | -5287158.93 | -5287158.84 | 0.1628 | 0.1038 |
| Mercury | -19187-06-24 15:36 J | -5286453.95 | -5286453.85 | -5286453.75 | 0.1632 | 0.0771 |
| Mercury | -19184-04-04 22:19 J | -5285438.73 | -5285438.57 | -5285438.40 | 0.1889 | 0.0240 |
| Earth | -19183-10-06 15:50 J | -5284889.01 | -5284888.84 | -5284888.66 | 0.1812 | 0.0752 |
| Moon | -19183-10-06 23:16 J | -5284888.69 | -5284888.53 | -5284888.36 | 0.1813 | 0.1108 * |
| Mercury | -19180-12-10 01:26 J | -5283728.49 | -5283728.44 | -5283728.39 | 0.1627 | 0.1464 |
| Mercury | -19178-11-15 03:07 J | -5283023.49 | -5283023.37 | -5283023.26 | 0.1631 | 0.0328 |
| Mercury | -19175-08-25 15:07 J | -5282009.00 | -5282008.87 | -5282008.74 | 0.1891 | 0.1193 |
| Mercury | -19168-04-06 14:38 J | -5279593.01 | -5279592.89 | -5279592.77 | 0.1630 | 0.0110 |
| Venus | -19164-11-13 07:11 J | -5277911.30 | -5277911.20 | -5277911.11 | 0.1894 | 0.1582 |
| Venus | -19163-10-17 14:09 J | -5277573.06 | -5277572.91 | -5277572.76 | 0.1626 | 0.0801 |
| Venus | -19161-08-16 18:43 J | -5276903.86 | -5276903.72 | -5276903.58 | 0.1629 | 0.0906 |
| Mercury | -19159-08-28 02:09 J | -5276162.52 | -5276162.41 | -5276162.30 | 0.1629 | 0.0546 |
| Mercury | -19157-08-02 04:19 J | -5275457.39 | -5275457.32 | -5275457.25 | 0.1634 | 0.1280 |
| Mercury | -19154-05-15 06:28 J | -5274441.28 | -5274441.23 | -5274441.18 | 0.1887 | 0.1774 |
| Mercury | -19149-01-18 13:40 J | -5272732.02 | -5272731.93 | -5272731.84 | 0.1628 | 0.0979 |
| Mercury | -19148-12-23 15:36 J | -5272026.95 | -5272026.85 | -5272026.75 | 0.1632 | 0.0831 |
| Mercury | -19145-10-03 23:16 J | -5271011.69 | -5271011.53 | -5271011.36 | 0.1889 | 0.0367 |
| Mercury | -19140-06-10 01:26 J | -5269301.50 | -5269301.44 | -5269301.39 | 0.1627 | 0.1408 |
| Mercury | -19138-05-16 03:07 J | -5268596.48 | -5268596.37 | -5268596.26 | 0.1631 | 0.0388 |
| Mercury | -19135-02-23 16:04 J | -5267581.97 | -5267581.83 | -5267581.69 | 0.1891 | 0.1063 |
| Venus | -19131-10-16 06:00 J | -5265886.28 | -5265886.25 | -5265886.23 | 0.1626 | 0.1603 |
| Venus | -19130-09-10 06:57 J | -5265557.39 | -5265557.21 | -5265557.04 | 0.1891 | 0.0474 |
| Moon | -19129-04-07 08:23 J | -5265347.26 | -5265347.15 | -5265347.04 | 0.1715 | 0.1440 |
| Earth | -19129-04-07 10:48 J | -5265347.15 | -5265347.05 | -5265346.94 | 0.1715 | 0.1390 * |
| Venus | -19129-08-15 10:48 J | -5265217.22 | -5265217.05 | -5265216.88 | 0.1627 | 0.0086 |
| Mercury | -19129-10-05 14:38 J | -5265166.01 | -5265165.89 | -5265165.78 | 0.1630 | 0.0073 |
| Mercury | -19119-02-26 02:09 J | -5261735.52 | -5261735.41 | -5261735.30 | 0.1629 | 0.0489 |
| Mercury | -19117-02-01 04:04 J | -5261030.39 | -5261030.33 | -5261030.26 | 0.1634 | 0.1335 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -19110-07-19 13:40 J | -5258305.02 | -5258304.93 | -5258304.83 | 0.1628 | 0.0921 |
| Mercury | -19108-06-23 15:36 J | -5257599.95 | -5257599.85 | -5257599.75 | 0.1632 | 0.0889 |
| Mercury | -19105-04-04 00:28 J | -5256584.64 | -5256584.48 | -5256584.32 | 0.1889 | 0.0512 |
| Mercury | -19101-12-09 01:26 J | -5254874.50 | -5254874.44 | -5254874.38 | 0.1627 | 0.1348 |
| Mercury | -19099-11-14 03:07 J | -5254169.49 | -5254169.37 | -5254169.26 | 0.1631 | 0.0448 |
| Venus | -19098-09-10 08:52 J | -5253869.26 | -5253869.13 | -5253869.00 | 0.1893 | 0.1275 |
| Venus | -19097-08-14 02:52 J | -5253530.53 | -5253530.38 | -5253530.23 | 0.1626 | 0.0729 |
| Mercury | -19096-08-24 16:48 J | -5253154.95 | -5253154.80 | -5253154.65 | 0.1891 | 0.0937 |
| Venus | -19095-06-14 07:11 J | -5252861.33 | -5252861.20 | -5252861.06 | 0.1630 | 0.0981 |
| Mercury | -19089-04-05 14:38 J | -5250739.01 | -5250738.89 | -5250738.78 | 0.1630 | 0.0032 |
| Mercury | -19080-08-27 02:09 J | -5247308.52 | -5247308.41 | -5247308.30 | 0.1629 | 0.0434 |
| Mercury | -19078-08-02 04:04 J | -5246603.38 | -5246603.33 | -5246603.27 | 0.1634 | 0.1397 |
| Mercury | -19070-01-17 13:40 J | -5243878.03 | -5243877.93 | -5243877.83 | 0.1628 | 0.0866 |
| Mercury | -19069-12-22 15:36 J | -5243172.95 | -5243172.85 | -5243172.76 | 0.1632 | 0.0947 |
| Mercury | -19066-10-04 00:43 J | -5242157.63 | -5242157.47 | -5242157.31 | 0.1889 | 0.0614 |
| Venus | -19065-08-12 18:43 J | -5241843.77 | -5241843.72 | -5241843.66 | 0.1626 | 0.1536 |
| Venus | -19064-07-07 08:38 J | -5241515.30 | -5241515.14 | -5241514.97 | 0.1891 | 0.0769 |
| Venus | -19063-06-12 23:31 J | -5241174.69 | -5241174.52 | -5241174.34 | 0.1628 | 0.0161 |
| Mercury | -19061-06-09 01:26 J | -5240447.51 | -5240447.44 | -5240447.38 | 0.1627 | 0.1292 |
| Mercury | -19059-05-15 02:52 J | -5239742.49 | -5239742.38 | -5239742.27 | 0.1631 | 0.0508 |
| Mercury | -19056-02-22 18:00 J | -5238727.91 | -5238727.75 | -5238727.60 | 0.1891 | 0.0796 |
| Earth | -19050-04-10 20:09 J | -5236489.85 | -5236489.66 | -5236489.48 | 0.1711 | 0.0258 |
| Moon | -19050-04-11 02:23 J | -5236489.59 | -5236489.40 | -5236489.21 | 0.1711 | 0.0377 * |
| Mercury | -19050-10-05 14:38 J | -5236312.01 | -5236311.89 | -5236311.78 | 0.1630 | 0.0091 |
| Mercury | -19040-02-25 02:09 J | -5232881.53 | -5232881.41 | -5232881.30 | 0.1629 | 0.0378 |
| Mercury | -19038-01-31 04:04 J | -5232176.38 | -5232176.33 | -5232176.28 | 0.1634 | 0.1454 |
| Venus | -19032-07-07 10:33 J | -5229827.22 | -5229827.06 | -5229826.91 | 0.1893 | 0.0970 |
| Venus | -19031-06-11 15:50 J | -5229488.00 | -5229487.84 | -5229487.69 | 0.1627 | 0.0660 |
| Mercury | -19031-07-18 13:40 J | -5229451.03 | -5229450.93 | -5229450.83 | 0.1628 | 0.0805 |
| Venus | -19029-04-10 20:09 J | -5228818.79 | -5228818.66 | -5228818.53 | 0.1630 | 0.1048 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -19029-06-22 15:36 J | -5228745.94 | -5228745.85 | -5228745.76 | 0.1632 | 0.1008 |
| Mercury | -19026-04-04 01:55 J | -5227730.57 | -5227730.42 | -5227730.26 | 0.1889 | 0.0760 |
| Mercury | -19022-12-09 01:11 J | -5226020.52 | -5226020.45 | -5226020.37 | 0.1627 | 0.1236 |
| Mercury | -19020-11-13 02:52 J | -5225315.49 | -5225315.38 | -5225315.27 | 0.1631 | 0.0564 |
| Mercury | -19017-08-23 18:28 J | -5224300.89 | -5224300.73 | -5224300.57 | 0.1891 | 0.0683 |
| Mercury | -19010-04-05 14:23 J | -5221885.01 | -5221884.90 | -5221884.78 | 0.1630 | 0.0122 |
| Mercury | -19001-08-26 01:55 J | -5218454.53 | -5218454.42 | -5218454.30 | 0.1629 | 0.0321 |

19TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 19th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|-------------|-------------|-------------|--------|--------|-------|---|
| Venus | -18999-06-10 07:26 J | -5217801.26 | -5217801.19 | -5217801.12 | 0.1626 | 0.1463 | | |
| Mercury | -18999-08-01 04:04 J | -5217749.37 | -5217749.33 | -5217749.29 | 0.1634 | 0.1512 | | |
| Venus | -18998-05-04 11:45 J | -5217473.16 | -5217473.01 | -5217472.87 | 0.1890 | 0.1047 | | |
| Venus | -18997-04-09 12:28 J | -5217132.15 | -5217131.98 | -5217131.81 | 0.1628 | 0.0227 | | |
| Mercury | -18991-01-16 13:40 J | -5215024.04 | -5215023.93 | -5215023.83 | 0.1628 | 0.0750 | | |
| Mercury | -18990-12-22 15:36 J | -5214318.94 | -5214318.85 | -5214318.77 | 0.1632 | 0.1067 | | |
| Mercury | -18987-10-03 02:52 J | -5213303.53 | -5213303.38 | -5213303.23 | 0.1889 | 0.0887 | | |
| Mercury | -18982-06-09 01:11 J | -5211593.53 | -5211593.45 | -5211593.37 | 0.1627 | 0.1177 | | |
| Mercury | -18980-05-14 02:52 J | -5210888.48 | -5210888.38 | -5210888.27 | 0.1631 | 0.0621 | | |
| Mercury | -18977-02-22 19:26 J | -5209873.85 | -5209873.69 | -5209873.53 | 0.1891 | 0.0546 | | |
| Mercury | -18973-10-29 12:57 J | -5208162.98 | -5208162.96 | -5208162.95 | 0.1626 | 0.1605 | | |
| Mercury | -18971-10-04 14:23 J | -5207458.01 | -5207457.90 | -5207457.78 | 0.1630 | 0.0184 | | |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Venus | -18966-05-04 12:57 J | -5205785.13 | -5205784.96 | -5205784.79 | 0.1892 | 0.0678 |
| Venus | -18965-04-08 04:33 J | -5205445.47 | -5205445.31 | -5205445.15 | 0.1627 | 0.0589 |
| Venus | -18963-02-06 08:23 J | -5204776.28 | -5204776.15 | -5204776.03 | 0.1631 | 0.1124 |
| Mercury | -18961-02-25 01:55 J | -5204027.53 | -5204027.42 | -5204027.30 | 0.1628 | 0.0259 |
| Mercury | -18959-01-30 04:04 J | -5203322.36 | -5203322.33 | -5203322.30 | 0.1634 | 0.1573 |
| Mercury | -18952-07-17 13:26 J | -5200597.04 | -5200596.94 | -5200596.83 | 0.1628 | 0.0694 |
| Mercury | -18950-06-22 15:21 J | -5199891.94 | -5199891.86 | -5199891.77 | 0.1632 | 0.1123 |
| Mercury | -18947-04-03 03:21 J | -5198876.50 | -5198876.36 | -5198876.22 | 0.1889 | 0.1000 |
| Mercury | -18943-12-08 01:11 J | -5197166.53 | -5197166.45 | -5197166.37 | 0.1627 | 0.1120 |
| Mercury | -18941-11-12 02:52 J | -5196461.49 | -5196461.38 | -5196461.28 | 0.1631 | 0.0677 |
| Mercury | -18938-08-23 20:23 J | -5195446.82 | -5195446.65 | -5195446.49 | 0.1891 | 0.0414 |
| Venus | -18933-04-06 20:23 J | -5193758.73 | -5193758.65 | -5193758.56 | 0.1626 | 0.1397 |
| Mercury | -18933-04-29 12:57 J | -5193736.00 | -5193735.96 | -5193735.93 | 0.1626 | 0.1546 |
| Venus | -18932-02-28 13:26 J | -5193431.06 | -5193430.94 | -5193430.81 | 0.1889 | 0.1339 |
| Venus | -18931-02-05 00:57 J | -5193089.63 | -5193089.46 | -5193089.29 | 0.1629 | 0.0300 |
| Mercury | -18931-04-04 14:23 J | -5193031.01 | -5193030.90 | -5193030.78 | 0.1630 | 0.0240 |
| Mercury | -18928-01-12 12:28 J | -5192017.00 | -5192016.98 | -5192016.95 | 0.1892 | 0.1867 |
| Mercury | -18922-08-26 01:55 J | -5189600.53 | -5189600.42 | -5189600.30 | 0.1628 | 0.0199 |
| Mercury | -18920-07-31 04:04 J | -5188895.33 | -5188895.33 | -5188895.33 | 0.1634 | 0.1631 |
| Mercury | -18912-01-15 13:26 J | -5186170.04 | -5186169.94 | -5186169.83 | 0.1627 | 0.0635 |
| Mercury | -18911-12-21 15:21 J | -5185464.94 | -5185464.86 | -5185464.78 | 0.1632 | 0.1183 |
| Mercury | -18908-10-02 04:19 J | -5184449.45 | -5184449.32 | -5184449.18 | 0.1889 | 0.1132 |
| Mercury | -18903-06-08 01:11 J | -5182739.54 | -5182739.45 | -5182739.37 | 0.1627 | 0.1064 |
| Mercury | -18901-05-13 02:52 J | -5182034.48 | -5182034.38 | -5182034.28 | 0.1631 | 0.0738 |
| Venus | -18900-02-28 14:38 J | -5181743.07 | -5181742.89 | -5181742.72 | 0.1892 | 0.0376 |
| Venus | -18899-02-03 17:16 J | -5181402.95 | -5181402.78 | -5181402.62 | 0.1627 | 0.0520 |
| Moon | -18899-10-06 06:28 J | -5181158.43 | -5181158.23 | -5181158.03 | 0.1805 | 0.0461 |
| Earth | -18899-10-06 13:55 J | -5181158.12 | -5181157.92 | -5181157.73 | 0.1805 | 0.0311 * |
| Mercury | -18898-02-21 21:07 J | -5181019.79 | -5181019.62 | -5181019.45 | 0.1891 | 0.0289 |
| Venus | -18898-12-04 20:52 J | -5180733.74 | -5180733.63 | -5180733.51 | 0.1632 | 0.1196 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -18894-10-29 12:43 J | -5179309.01 | -5179308.97 | -5179308.92 | 0.1626 | 0.1490 |
| Mercury | -18892-10-03 14:23 J | -5178604.02 | -5178603.90 | -5178603.79 | 0.1629 | 0.0296 |
| Mercury | -18889-07-13 13:11 J | -5177590.01 | -5177589.95 | -5177589.89 | 0.1893 | 0.1751 |
| Mercury | -18882-02-24 01:55 J | -5175173.54 | -5175173.42 | -5175173.31 | 0.1629 | 0.0142 |
| Mercury | -18873-07-16 13:26 J | -5171743.05 | -5171742.94 | -5171742.83 | 0.1628 | 0.0576 |
| Mercury | -18871-06-21 15:21 J | -5171037.93 | -5171037.86 | -5171037.78 | 0.1632 | 0.1242 |
| Mercury | -18868-04-02 05:31 J | -5170022.40 | -5170022.27 | -5170022.15 | 0.1889 | 0.1274 |
| Venus | -18867-02-02 08:52 J | -5169716.22 | -5169716.13 | -5169716.03 | 0.1626 | 0.1325 |
| Venus | -18867-12-26 16:04 J | -5169388.92 | -5169388.83 | -5169388.74 | 0.1888 | 0.1620 |
| Venus | -18866-12-03 13:40 J | -5169047.10 | -5169046.93 | -5169046.76 | 0.1629 | 0.0369 |
| Mercury | -18864-12-07 01:11 J | -5168312.54 | -5168312.45 | -5168312.36 | 0.1627 | 0.1005 |
| Mercury | -18862-11-12 02:52 J | -5167607.48 | -5167607.38 | -5167607.28 | 0.1631 | 0.0796 |
| Mercury | -18859-08-22 21:50 J | -5166592.76 | -5166592.59 | -5166592.42 | 0.1891 | 0.0164 |
| Mercury | -18854-04-29 12:43 J | -5164882.02 | -5164881.97 | -5164881.92 | 0.1626 | 0.1432 |
| Mercury | -18852-04-03 14:23 J | -5164177.01 | -5164176.90 | -5164176.79 | 0.1629 | 0.0356 |
| Mercury | -18849-01-12 14:09 J | -5163162.99 | -5163162.91 | -5163162.82 | 0.1892 | 0.1612 |
| Moon | -18845-04-08 01:11 J | -5161615.55 | -5161615.45 | -5161615.34 | 0.1721 | 0.1387 |
| Earth | -18845-04-08 06:14 J | -5161615.37 | -5161615.24 | -5161615.11 | 0.1721 | 0.1218 * |
| Mercury | -18843-08-25 01:55 J | -5160746.54 | -5160746.42 | -5160746.31 | 0.1628 | 0.0099 |
| Venus | -18835-12-26 17:16 J | -5157700.95 | -5157700.78 | -5157700.60 | 0.1891 | 0.0103 |
| Venus | -18834-12-02 05:45 J | -5157360.42 | -5157360.26 | -5157360.09 | 0.1628 | 0.0448 |
| Mercury | -18833-01-15 13:26 J | -5157316.05 | -5157315.94 | -5157315.83 | 0.1627 | 0.0519 |
| Venus | -18832-10-01 09:21 J | -5156691.21 | -5156691.11 | -5156691.00 | 0.1632 | 0.1271 |
| Mercury | -18832-12-20 15:21 J | -5156610.93 | -5156610.86 | -5156610.79 | 0.1632 | 0.1297 |
| Mercury | -18829-10-01 05:45 J | -5155595.37 | -5155595.26 | -5155595.14 | 0.1889 | 0.1376 |
| Mercury | -18824-06-07 01:11 J | -5153885.55 | -5153885.45 | -5153885.36 | 0.1627 | 0.0950 |
| Mercury | -18822-05-13 02:52 J | -5153180.48 | -5153180.38 | -5153180.28 | 0.1631 | 0.0855 |
| Mercury | -18819-02-20 23:02 J | -5152165.71 | -5152165.54 | -5152165.37 | 0.1891 | 0.0023 |
| Mercury | -18815-10-28 12:43 J | -5150455.03 | -5150454.97 | -5150454.91 | 0.1626 | 0.1376 |
| Mercury | -18813-10-02 14:23 J | -5149750.02 | -5149749.90 | -5149749.79 | 0.1630 | 0.0416 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -18810-07-13 15:07 J | -5148735.97 | -5148735.87 | -5148735.77 | 0.1892 | 0.1480 |
| Mercury | -18803-02-23 01:55 J | -5146319.54 | -5146319.42 | -5146319.31 | 0.1628 | 0.0051 |
| Venus | -18803-12-26 19:26 J | -5146012.72 | -5146012.69 | -5146012.65 | 0.1893 | 0.1838 |
| Venus | -18802-11-30 21:50 J | -5145673.70 | -5145673.59 | -5145673.48 | 0.1626 | 0.1256 |
| Venus | -18800-09-30 02:09 J | -5145004.58 | -5145004.41 | -5145004.25 | 0.1630 | 0.0444 |
| Mercury | -18794-07-16 13:26 J | -5142889.05 | -5142888.94 | -5142888.83 | 0.1627 | 0.0459 |
| Mercury | -18792-06-20 15:21 J | -5142183.92 | -5142183.86 | -5142183.80 | 0.1632 | 0.1359 |
| Mercury | -18789-04-01 06:57 J | -5141168.31 | -5141168.21 | -5141168.11 | 0.1889 | 0.1520 |
| Mercury | -18785-12-06 00:57 J | -5139458.55 | -5139458.46 | -5139458.36 | 0.1627 | 0.0893 |
| Mercury | -18783-11-11 02:38 J | -5138753.48 | -5138753.39 | -5138753.29 | 0.1631 | 0.0914 |
| Mercury | -18780-08-21 23:31 J | -5137738.69 | -5137738.52 | -5137738.35 | 0.1891 | 0.0090 |
| Mercury | -18775-04-28 12:43 J | -5136028.04 | -5136027.97 | -5136027.91 | 0.1626 | 0.1319 |
| Mercury | -18773-04-02 14:09 J | -5135323.02 | -5135322.91 | -5135322.80 | 0.1629 | 0.0471 |
| Mercury | -18770-01-11 15:50 J | -5134308.96 | -5134308.84 | -5134308.72 | 0.1893 | 0.1359 |
| Venus | -18769-10-22 18:57 J | -5133658.88 | -5133658.71 | -5133658.53 | 0.1890 | 0.0208 |
| Venus | -18768-09-28 18:28 J | -5133317.90 | -5133317.73 | -5133317.56 | 0.1628 | 0.0378 |
| Moon | -18766-04-11 10:19 J | -5132758.25 | -5132758.07 | -5132757.88 | 0.1717 | 0.0522 |
| Earth | -18766-04-11 16:33 J | -5132757.99 | -5132757.81 | -5132757.63 | 0.1717 | 0.0464 * |
| Venus | -18766-07-29 21:36 J | -5132648.69 | -5132648.60 | -5132648.50 | 0.1633 | 0.1347 |
| Mercury | -18764-08-24 01:40 J | -5131892.54 | -5131892.43 | -5131892.31 | 0.1628 | 0.0069 |
| Mercury | -18754-01-14 13:26 J | -5128462.05 | -5128461.94 | -5128461.83 | 0.1627 | 0.0404 |
| Mercury | -18753-12-19 15:21 J | -5127756.92 | -5127756.86 | -5127756.81 | 0.1632 | 0.1416 |
| Mercury | -18750-10-01 07:40 J | -5126741.26 | -5126741.18 | -5126741.09 | 0.1889 | 0.1645 |
| Mercury | -18745-06-06 00:57 J | -5125031.56 | -5125031.46 | -5125031.36 | 0.1627 | 0.0833 |
| Mercury | -18743-05-12 02:38 J | -5124326.48 | -5124326.39 | -5124326.29 | 0.1631 | 0.0973 |
| Mercury | -18740-02-20 00:28 J | -5123311.65 | -5123311.48 | -5123311.31 | 0.1891 | 0.0228 |
| Venus | -18737-10-22 21:36 J | -5121970.71 | -5121970.60 | -5121970.50 | 0.1893 | 0.1541 |
| Venus | -18736-09-27 10:33 J | -5121631.18 | -5121631.06 | -5121630.95 | 0.1627 | 0.1184 |
| Mercury | -18736-10-27 12:43 J | -5121601.04 | -5121600.97 | -5121600.90 | 0.1626 | 0.1263 |
| Venus | -18734-07-28 14:38 J | -5120962.05 | -5120961.89 | -5120961.72 | 0.1631 | 0.0515 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -18734-10-02 14:09 J | -5120896.02 | -5120895.91 | -5120895.80 | 0.1629 | 0.0532 |
| Mercury | -18731-07-12 16:48 J | -5119881.93 | -5119881.80 | -5119881.67 | 0.1892 | 0.1221 |
| Mercury | -18724-02-22 01:40 J | -5117465.54 | -5117465.43 | -5117465.31 | 0.1628 | 0.0093 |
| Mercury | -18715-07-15 13:11 J | -5114035.06 | -5114034.95 | -5114034.83 | 0.1627 | 0.0351 |
| Mercury | -18713-06-19 15:07 J | -5113329.91 | -5113329.87 | -5113329.82 | 0.1632 | 0.1474 |
| Mercury | -18710-04-01 08:23 J | -5112314.21 | -5112314.15 | -5112314.09 | 0.1889 | 0.1759 |
| Mercury | -18706-12-06 00:57 J | -5110604.56 | -5110604.46 | -5110604.36 | 0.1627 | 0.0776 |
| Mercury | -18704-11-10 02:38 J | -5109899.48 | -5109899.39 | -5109899.30 | 0.1631 | 0.1029 |
| Venus | -18703-08-19 21:50 J | -5109616.76 | -5109616.59 | -5109616.42 | 0.1889 | 0.0485 |
| Venus | -18702-07-27 06:57 J | -5109275.38 | -5109275.21 | -5109275.04 | 0.1629 | 0.0304 |
| Mercury | -18701-08-21 01:26 J | -5108884.60 | -5108884.44 | -5108884.27 | 0.1891 | 0.0363 |
| Venus | -18700-05-26 10:04 J | -5108606.16 | -5108606.08 | -5108605.99 | 0.1634 | 0.1421 |
| Mercury | -18696-04-27 12:28 J | -5107174.05 | -5107173.98 | -5107173.90 | 0.1626 | 0.1205 |
| Mercury | -18694-04-02 14:09 J | -5106469.02 | -5106468.91 | -5106468.80 | 0.1629 | 0.0588 |
| Mercury | -18691-01-10 17:45 J | -5105454.90 | -5105454.76 | -5105454.62 | 0.1892 | 0.1091 |
| Mercury | -18685-08-23 01:40 J | -5103038.54 | -5103038.43 | -5103038.31 | 0.1628 | 0.0149 |
| Mercury | -18675-01-13 13:11 J | -5099608.06 | -5099607.95 | -5099607.83 | 0.1627 | 0.0293 |
| Mercury | -18674-12-19 15:21 J | -5098902.90 | -5098902.86 | -5098902.83 | 0.1632 | 0.1534 |
| Venus | -18671-08-19 23:16 J | -5097928.66 | -5097928.53 | -5097928.39 | 0.1892 | 0.1239 |
| Venus | -18670-07-25 23:02 J | -5097588.66 | -5097588.54 | -5097588.41 | 0.1627 | 0.1115 |
| Venus | -18668-05-25 03:07 J | -5096919.53 | -5096919.37 | -5096919.21 | 0.1631 | 0.0590 |
| Mercury | -18666-06-06 00:57 J | -5096177.57 | -5096177.46 | -5096177.36 | 0.1627 | 0.0721 |
| Mercury | -18664-05-11 02:38 J | -5095472.47 | -5095472.39 | -5095472.30 | 0.1631 | 0.1088 |
| Mercury | -18661-02-20 02:09 J | -5094457.58 | -5094457.41 | -5094457.25 | 0.1891 | 0.0479 |
| Mercury | -18657-10-26 12:28 J | -5092747.06 | -5092746.98 | -5092746.90 | 0.1626 | 0.1149 |
| Mercury | -18655-10-01 14:09 J | -5092042.02 | -5092041.91 | -5092041.81 | 0.1629 | 0.0642 |
| Mercury | -18652-07-11 18:28 J | -5091027.88 | -5091027.73 | -5091027.59 | 0.1893 | 0.0973 |
| Mercury | -18647-03-19 00:14 J | -5089316.52 | -5089316.49 | -5089316.47 | 0.1626 | 0.1573 |
| Mercury | -18645-02-22 01:40 J | -5088611.55 | -5088611.43 | -5088611.32 | 0.1628 | 0.0206 |
| Venus | -18637-06-16 00:00 J | -5085574.66 | -5085574.50 | -5085574.34 | 0.1888 | 0.0773 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Venus | -18636-05-23 19:40 J | -5085232.85 | -5085232.68 | -5085232.51 | 0.1629 | 0.0235 |
| Mercury | -18636-07-14 13:11 J | -5085181.06 | -5085180.95 | -5085180.83 | 0.1627 | 0.0232 |
| Venus | -18634-03-23 22:33 J | -5084563.62 | -5084563.56 | -5084563.49 | 0.1635 | 0.1497 |
| Mercury | -18634-06-19 15:07 J | -5084475.89 | -5084475.87 | -5084475.84 | 0.1632 | 0.1594 |
| Mercury | -18627-12-05 00:57 J | -5081750.57 | -5081750.46 | -5081750.36 | 0.1627 | 0.0662 |
| Mercury | -18625-11-09 02:38 J | -5081045.47 | -5081045.39 | -5081045.31 | 0.1631 | 0.1145 |
| Mercury | -18622-08-21 02:52 J | -5080030.54 | -5080030.38 | -5080030.22 | 0.1891 | 0.0604 |
| Mercury | -18617-04-26 12:28 J | -5078320.06 | -5078319.98 | -5078319.90 | 0.1626 | 0.1091 |
| Mercury | -18615-04-01 14:09 J | -5077615.02 | -5077614.91 | -5077614.81 | 0.1629 | 0.0703 |
| Moon | -18615-10-06 11:31 J | -5077427.20 | -5077427.02 | -5077426.84 | 0.1797 | 0.0154 |
| Earth | -18615-10-06 12:28 J | -5077427.18 | -5077426.98 | -5077426.79 | 0.1797 | 0.0094 * |
| Mercury | -18612-01-09 19:26 J | -5076600.84 | -5076600.69 | -5076600.54 | 0.1892 | 0.0834 |
| Mercury | -18608-09-17 00:00 J | -5074889.53 | -5074889.50 | -5074889.46 | 0.1626 | 0.1520 |
| Mercury | -18606-08-23 01:40 J | -5074184.55 | -5074184.43 | -5074184.32 | 0.1628 | 0.0265 |
| Venus | -18605-06-16 01:11 J | -5073886.60 | -5073886.45 | -5073886.29 | 0.1892 | 0.0940 |
| Venus | -18604-05-22 12:00 J | -5073546.13 | -5073546.00 | -5073545.87 | 0.1627 | 0.1047 |
| Venus | -18602-03-22 15:50 J | -5072877.00 | -5072876.84 | -5072876.68 | 0.1632 | 0.0660 |
| Mercury | -18596-01-12 13:11 J | -5070754.07 | -5070753.95 | -5070753.84 | 0.1627 | 0.0173 |
| Mercury | -18587-06-05 00:43 J | -5067323.57 | -5067323.47 | -5067323.36 | 0.1627 | 0.0607 |
| Mercury | -18585-05-10 02:38 J | -5066618.47 | -5066618.39 | -5066618.31 | 0.1631 | 0.1203 |
| Mercury | -18582-02-19 04:04 J | -5065603.48 | -5065603.33 | -5065603.17 | 0.1891 | 0.0749 |
| Mercury | -18578-10-26 12:28 J | -5063893.07 | -5063892.98 | -5063892.89 | 0.1626 | 0.1034 |
| Mercury | -18576-09-30 14:09 J | -5063188.01 | -5063187.91 | -5063187.81 | 0.1629 | 0.0761 |
| Mercury | -18573-07-10 20:09 J | -5062173.81 | -5062173.66 | -5062173.50 | 0.1892 | 0.0706 |
| Venus | -18571-04-13 03:07 J | -5061532.51 | -5061532.37 | -5061532.22 | 0.1887 | 0.1045 |
| Venus | -18570-03-21 08:23 J | -5061190.32 | -5061190.15 | -5061189.98 | 0.1630 | 0.0164 |
| Venus | -18568-01-18 11:02 J | -5060521.09 | -5060521.04 | -5060521.00 | 0.1636 | 0.1572 |
| Mercury | -18568-03-18 00:14 J | -5060462.54 | -5060462.49 | -5060462.45 | 0.1626 | 0.1459 |
| Mercury | -18566-02-21 01:40 J | -5059757.55 | -5059757.43 | -5059757.32 | 0.1628 | 0.0325 |
| Earth | -18561-04-09 00:43 J | -5057883.61 | -5057883.47 | -5057883.32 | 0.1727 | 0.1062 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Moon | -18561-04-09 06:28 J | -5057883.37 | -5057883.23 | -5057883.09 | 0.1726 | 0.1071 * |
| Mercury | -18557-07-13 13:11 J | -5056327.07 | -5056326.95 | -5056326.83 | 0.1627 | 0.0115 |
| Mercury | -18548-12-04 00:43 J | -5052896.58 | -5052896.47 | -5052896.36 | 0.1626 | 0.0549 |
| Mercury | -18546-11-09 02:38 J | -5052191.46 | -5052191.39 | -5052191.32 | 0.1630 | 0.1261 |
| Mercury | -18543-08-20 04:33 J | -5051176.46 | -5051176.31 | -5051176.16 | 0.1891 | 0.0855 |
| Venus | -18539-04-13 03:50 J | -5049844.51 | -5049844.34 | -5049844.18 | 0.1890 | 0.0653 |
| Venus | -18538-03-20 00:43 J | -5049503.61 | -5049503.47 | -5049503.34 | 0.1628 | 0.0974 |
| Mercury | -18538-04-26 12:28 J | -5049466.07 | -5049465.98 | -5049465.89 | 0.1626 | 0.0977 |
| Venus | -18536-01-17 03:50 J | -5048834.49 | -5048834.34 | -5048834.18 | 0.1633 | 0.0738 |
| Mercury | -18536-03-31 13:55 J | -5048761.02 | -5048760.92 | -5048760.82 | 0.1629 | 0.0819 |
| Mercury | -18533-01-09 21:07 J | -5047746.79 | -5047746.62 | -5047746.46 | 0.1893 | 0.0582 |
| Mercury | -18529-09-16 00:00 J | -5046035.55 | -5046035.50 | -5046035.44 | 0.1626 | 0.1404 |
| Mercury | -18527-08-22 01:26 J | -5045330.55 | -5045330.44 | -5045330.32 | 0.1628 | 0.0385 |
| Mercury | -18517-01-12 13:11 J | -5041900.07 | -5041899.95 | -5041899.84 | 0.1627 | 0.0071 |
| Mercury | -18508-06-04 00:43 J | -5038469.58 | -5038469.47 | -5038469.36 | 0.1627 | 0.0489 |
| Mercury | -18506-05-10 02:38 J | -5037764.46 | -5037764.39 | -5037764.33 | 0.1631 | 0.1321 |
| Venus | -18505-02-08 05:16 J | -5037490.41 | -5037490.28 | -5037490.16 | 0.1885 | 0.1331 |
| Venus | -18504-01-15 20:38 J | -5037147.81 | -5037147.64 | -5037147.47 | 0.1630 | 0.0088 |
| Mercury | -18503-02-18 05:31 J | -5036749.41 | -5036749.27 | -5036749.13 | 0.1891 | 0.0993 |
| Mercury | -18499-10-25 12:14 J | -5035039.08 | -5035038.99 | -5035038.89 | 0.1626 | 0.0922 |
| Mercury | -18497-09-29 13:55 J | -5034334.01 | -5034333.92 | -5034333.82 | 0.1629 | 0.0879 |
| Mercury | -18494-07-10 21:50 J | -5033319.75 | -5033319.59 | -5033319.42 | 0.1892 | 0.0451 |
| Mercury | -18489-03-17 00:00 J | -5031608.56 | -5031608.50 | -5031608.44 | 0.1626 | 0.1348 |
| Mercury | -18487-02-20 01:26 J | -5030903.55 | -5030903.44 | -5030903.33 | 0.1628 | 0.0435 |
| Moon | -18482-04-12 09:07 J | -5029026.27 | -5029026.12 | -5029025.96 | 0.1723 | 0.0782 |
| Earth | -18482-04-12 11:02 J | -5029026.22 | -5029026.04 | -5029025.87 | 0.1723 | 0.0633 * |
| Mercury | -18478-07-13 13:11 J | -5027473.07 | -5027472.95 | -5027472.84 | 0.1627 | 0.0063 |
| Venus | -18473-02-08 05:31 J | -5025802.45 | -5025802.27 | -5025802.10 | 0.1889 | 0.0354 |
| Venus | -18472-01-14 13:11 J | -5025461.09 | -5025460.95 | -5025460.81 | 0.1628 | 0.0904 |
| Venus | -18471-11-14 16:33 J | -5024791.96 | -5024791.81 | -5024791.66 | 0.1634 | 0.0812 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -18469-12-03 00:43 J | -5024042.58 | -5024042.47 | -5024042.36 | 0.1627 | 0.0432 |
| Mercury | -18467-11-08 02:23 J | -5023337.45 | -5023337.40 | -5023337.33 | 0.1631 | 0.1379 |
| Mercury | -18464-08-19 06:28 J | -5022322.36 | -5022322.23 | -5022322.09 | 0.1891 | 0.1127 |
| Mercury | -18459-04-25 12:14 J | -5020612.08 | -5020611.99 | -5020611.89 | 0.1626 | 0.0863 |
| Mercury | -18457-03-30 13:55 J | -5019907.01 | -5019906.92 | -5019906.82 | 0.1629 | 0.0935 |
| Mercury | -18454-01-08 22:48 J | -5018892.72 | -5018892.55 | -5018892.38 | 0.1892 | 0.0322 |
| Mercury | -18450-09-16 00:00 J | -5017181.57 | -5017181.50 | -5017181.43 | 0.1626 | 0.1290 |
| Mercury | -18448-08-21 01:26 J | -5016476.55 | -5016476.44 | -5016476.33 | 0.1628 | 0.0495 |
| Mercury | -18445-05-30 14:52 J | -5015462.93 | -5015462.88 | -5015462.82 | 0.1894 | 0.1779 |
| Venus | -18440-12-05 07:55 J | -5013448.26 | -5013448.17 | -5013448.08 | 0.1884 | 0.1608 |
| Venus | -18439-11-13 09:21 J | -5013105.28 | -5013105.11 | -5013104.94 | 0.1631 | 0.0019 |
| Mercury | -18438-01-11 12:57 J | -5013046.07 | -5013045.96 | -5013045.84 | 0.1627 | 0.0086 |
| Mercury | -18429-06-03 00:43 J | -5009615.59 | -5009615.47 | -5009615.36 | 0.1626 | 0.0382 |
| Mercury | -18427-05-09 02:23 J | -5008910.45 | -5008910.40 | -5008910.34 | 0.1630 | 0.1436 |
| Mercury | -18424-02-17 06:57 J | -5007895.33 | -5007895.21 | -5007895.08 | 0.1891 | 0.1238 |
| Mercury | -18420-10-24 12:14 J | -5006185.09 | -5006184.99 | -5006184.89 | 0.1626 | 0.0807 |
| Mercury | -18418-09-29 13:55 J | -5005480.01 | -5005479.92 | -5005479.83 | 0.1629 | 0.0989 |
| Mercury | -18415-07-09 23:31 J | -5004465.69 | -5004465.52 | -5004465.35 | 0.1893 | 0.0196 |
| Mercury | -18410-03-17 00:00 J | -5002754.58 | -5002754.50 | -5002754.43 | 0.1626 | 0.1233 |
| Mercury | -18408-02-19 01:26 J | -5002049.55 | -5002049.44 | -5002049.33 | 0.1628 | 0.0552 |
| Venus | -18408-12-05 08:23 J | -5001760.33 | -5001760.15 | -5001759.98 | 0.1888 | 0.0087 |
| Venus | -18407-11-12 01:40 J | -5001418.57 | -5001418.43 | -5001418.28 | 0.1629 | 0.0831 |
| Mercury | -18406-11-29 15:50 J | -5001035.92 | -5001035.84 | -5001035.76 | 0.1893 | 0.1645 |
| Venus | -18405-09-11 04:33 J | -5000749.45 | -5000749.31 | -5000749.16 | 0.1635 | 0.0890 |
| Mercury | -18399-07-12 12:57 J | -4998619.07 | -4998618.96 | -4998618.84 | 0.1627 | 0.0121 |
| Mercury | -18390-12-03 00:43 J | -4995188.59 | -4995188.47 | -4995188.36 | 0.1626 | 0.0324 |
| Mercury | -18388-11-07 02:23 J | -4994483.44 | -4994483.40 | -4994483.35 | 0.1630 | 0.1493 |
| Mercury | -18385-08-18 07:55 J | -4993468.29 | -4993468.17 | -4993468.06 | 0.1891 | 0.1365 |
| Mercury | -18380-04-24 12:14 J | -4991758.09 | -4991757.99 | -4991757.89 | 0.1626 | 0.0749 |
| Mercury | -18378-03-30 13:55 J | -4991053.01 | -4991052.92 | -4991052.83 | 0.1629 | 0.1051 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Venus | -18376-12-05 09:50 J | -4990072.15 | -4990072.09 | -4990072.04 | 0.1891 | 0.1791 |
| Mercury | -18375-01-08 00:28 J | -4990038.65 | -4990038.48 | -4990038.31 | 0.1893 | 0.0064 |
| Venus | -18373-09-09 21:36 J | -4989062.77 | -4989062.60 | -4989062.43 | 0.1632 | 0.0063 |
| Mercury | -18371-09-14 23:45 J | -4988327.58 | -4988327.51 | -4988327.43 | 0.1626 | 0.1179 |
| Mercury | -18369-08-20 01:26 J | -4987622.55 | -4987622.44 | -4987622.34 | 0.1628 | 0.0610 |
| Mercury | -18366-05-30 16:33 J | -4986608.91 | -4986608.81 | -4986608.72 | 0.1894 | 0.1533 |
| Mercury | -18361-02-05 11:31 J | -4984897.03 | -4984897.02 | -4984897.00 | 0.1625 | 0.1602 |
| Mercury | -18359-01-10 12:57 J | -4984192.08 | -4984191.96 | -4984191.84 | 0.1627 | 0.0171 |
| Mercury | -18350-06-03 00:28 J | -4980761.59 | -4980761.48 | -4980761.36 | 0.1627 | 0.0263 |
| Mercury | -18348-05-08 02:23 J | -4980056.43 | -4980056.40 | -4980056.37 | 0.1630 | 0.1552 |
| Mercury | -18345-02-17 09:07 J | -4979041.22 | -4979041.12 | -4979041.02 | 0.1891 | 0.1510 |
| Venus | -18342-10-02 10:19 J | -4977718.25 | -4977718.07 | -4977717.90 | 0.1887 | 0.0223 |
| Venus | -18341-09-08 14:09 J | -4977376.06 | -4977375.91 | -4977375.75 | 0.1630 | 0.0761 |
| Mercury | -18341-10-23 12:14 J | -4977331.10 | -4977330.99 | -4977330.89 | 0.1626 | 0.0691 |
| Venus | -18339-07-09 17:02 J | -4976706.93 | -4976706.79 | -4976706.66 | 0.1636 | 0.0967 |
| Mercury | -18339-09-28 13:55 J | -4976626.01 | -4976625.92 | -4976625.84 | 0.1629 | 0.1108 |
| Mercury | -18336-07-09 01:11 J | -4975611.62 | -4975611.45 | -4975611.28 | 0.1893 | 0.0080 |
| Mercury | -18331-03-15 23:45 J | -4973900.59 | -4973900.51 | -4973900.42 | 0.1625 | 0.1120 |
| Earth | -18331-10-06 12:43 J | -4973696.16 | -4973695.97 | -4973695.78 | 0.1790 | 0.0420 |
| Moon | -18331-10-06 20:38 J | -4973695.84 | -4973695.64 | -4973695.44 | 0.1790 | 0.0027 * |
| Mercury | -18329-02-19 01:26 J | -4973195.55 | -4973195.44 | -4973195.34 | 0.1628 | 0.0668 |
| Mercury | -18327-11-28 17:16 J | -4972181.89 | -4972181.78 | -4972181.66 | 0.1894 | 0.1399 |
| Mercury | -18322-08-06 11:31 J | -4970470.05 | -4970470.02 | -4970469.99 | 0.1625 | 0.1547 |
| Mercury | -18320-07-11 12:57 J | -4969765.08 | -4969764.96 | -4969764.85 | 0.1627 | 0.0231 |
| Mercury | -18311-12-02 00:28 J | -4966334.59 | -4966334.48 | -4966334.37 | 0.1626 | 0.0206 |
| Venus | -18310-10-02 12:00 J | -4966030.10 | -4966030.00 | -4966029.89 | 0.1891 | 0.1500 |
| Venus | -18309-09-07 06:28 J | -4965689.28 | -4965689.23 | -4965689.19 | 0.1628 | 0.1562 |
| Mercury | -18309-11-06 02:23 J | -4965629.42 | -4965629.40 | -4965629.39 | 0.1630 | 0.1608 |
| Venus | -18307-07-08 10:19 J | -4965020.25 | -4965020.07 | -4965019.90 | 0.1633 | 0.0139 |
| Mercury | -18306-08-18 09:21 J | -4964614.19 | -4964614.11 | -4964614.02 | 0.1891 | 0.1612 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -18301-04-23 12:14 J | -4962904.10 | -4962903.99 | -4962903.89 | 0.1626 | 0.0637 |
| Mercury | -18299-03-29 13:40 J | -4962199.01 | -4962198.93 | -4962198.85 | 0.1629 | 0.1165 |
| Mercury | -18296-01-07 02:09 J | -4961184.58 | -4961184.41 | -4961184.24 | 0.1893 | 0.0192 |
| Mercury | -18292-09-13 23:45 J | -4959473.59 | -4959473.51 | -4959473.42 | 0.1626 | 0.1064 |
| Mercury | -18290-08-20 01:11 J | -4958768.55 | -4958768.45 | -4958768.34 | 0.1628 | 0.0727 |
| Mercury | -18287-05-29 18:28 J | -4957754.86 | -4957754.73 | -4957754.60 | 0.1894 | 0.1255 |
| Mercury | -18282-02-04 11:31 J | -4956043.07 | -4956043.02 | -4956042.98 | 0.1625 | 0.1488 |
| Mercury | -18280-01-09 12:57 J | -4955338.08 | -4955337.96 | -4955337.85 | 0.1627 | 0.0290 |
| Earth | -18277-04-09 18:00 J | -4954151.91 | -4954151.75 | -4954151.59 | 0.1733 | 0.0938 |
| Moon | -18277-04-09 19:11 J | -4954151.86 | -4954151.70 | -4954151.54 | 0.1733 | 0.1069 * |
| Venus | -18276-07-29 13:11 J | -4953676.12 | -4953675.95 | -4953675.78 | 0.1886 | 0.0495 |
| Venus | -18275-07-07 02:38 J | -4953333.55 | -4953333.39 | -4953333.23 | 0.1630 | 0.0685 |
| Venus | -18273-05-06 05:16 J | -4952664.41 | -4952664.28 | -4952664.14 | 0.1637 | 0.1040 |
| Mercury | -18271-06-02 00:28 J | -4951907.60 | -4951907.48 | -4951907.37 | 0.1626 | 0.0145 |
| Mercury | -18266-02-16 10:33 J | -4950187.13 | -4950187.06 | -4950187.00 | 0.1891 | 0.1749 |
| Mercury | -18262-10-23 12:00 J | -4948477.10 | -4948477.00 | -4948476.89 | 0.1626 | 0.0580 |
| Mercury | -18260-09-27 13:40 J | -4947772.00 | -4947771.93 | -4947771.85 | 0.1629 | 0.1224 |
| Mercury | -18257-07-08 02:52 J | -4946757.54 | -4946757.38 | -4946757.21 | 0.1893 | 0.0320 |
| Mercury | -18252-03-14 23:45 J | -4945046.60 | -4945046.51 | -4945046.42 | 0.1625 | 0.1008 |
| Mercury | -18250-02-18 01:11 J | -4944341.55 | -4944341.45 | -4944341.35 | 0.1628 | 0.0780 |
| Mercury | -18248-11-27 18:57 J | -4943327.85 | -4943327.71 | -4943327.58 | 0.1894 | 0.1152 |
| Venus | -18244-07-29 13:55 J | -4941988.06 | -4941987.92 | -4941987.78 | 0.1890 | 0.1200 |
| Venus | -18243-07-05 18:57 J | -4941646.77 | -4941646.71 | -4941646.64 | 0.1628 | 0.1491 |
| Mercury | -18243-08-05 11:31 J | -4941616.08 | -4941616.02 | -4941615.97 | 0.1625 | 0.1433 |
| Venus | -18241-05-04 22:33 J | -4940977.73 | -4940977.56 | -4940977.39 | 0.1634 | 0.0206 |
| Mercury | -18241-07-10 12:43 J | -4940911.08 | -4940910.97 | -4940910.85 | 0.1627 | 0.0352 |
| Mercury | -18232-12-01 00:28 J | -4937480.60 | -4937480.48 | -4937480.37 | 0.1626 | 0.0099 |
| Mercury | -18227-08-17 11:31 J | -4935760.04 | -4935760.02 | -4935760.01 | 0.1891 | 0.1881 |
| Mercury | -18222-04-23 12:00 J | -4934050.11 | -4934050.00 | -4934049.89 | 0.1626 | 0.0521 |
| Mercury | -18220-03-28 13:40 J | -4933345.00 | -4933344.93 | -4933344.86 | 0.1629 | 0.1281 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -18217-01-07 03:50 J | -4932330.51 | -4932330.34 | -4932330.18 | 0.1893 | 0.0446 |
| Mercury | -18213-09-12 23:45 J | -4930619.60 | -4930619.51 | -4930619.42 | 0.1625 | 0.0950 |
| Mercury | -18211-08-19 01:11 J | -4929914.55 | -4929914.45 | -4929914.35 | 0.1628 | 0.0842 |
| Venus | -18210-05-26 15:50 J | -4929634.00 | -4929633.84 | -4929633.68 | 0.1884 | 0.0776 |
| Venus | -18209-05-03 15:21 J | -4929291.02 | -4929290.86 | -4929290.70 | 0.1631 | 0.0617 |
| Mercury | -18208-05-28 20:09 J | -4928900.81 | -4928900.66 | -4928900.52 | 0.1894 | 0.1004 |
| Venus | -18207-03-03 17:31 J | -4928621.89 | -4928621.77 | -4928621.64 | 0.1638 | 0.1118 |
| Mercury | -18203-02-03 11:16 J | -4927189.09 | -4927189.03 | -4927188.97 | 0.1625 | 0.1377 |
| Mercury | -18201-01-09 12:43 J | -4926484.08 | -4926483.97 | -4926483.85 | 0.1627 | 0.0405 |
| Earth | -18198-04-13 04:33 J | -4925294.47 | -4925294.31 | -4925294.14 | 0.1729 | 0.0787 |
| Moon | -18198-04-13 11:45 J | -4925294.16 | -4925294.01 | -4925293.86 | 0.1729 | 0.1058 * |
| Mercury | -18192-06-01 00:14 J | -4923053.60 | -4923053.49 | -4923053.37 | 0.1626 | 0.0062 |
| Mercury | -18183-10-22 12:00 J | -4919623.11 | -4919623.00 | -4919622.89 | 0.1626 | 0.0465 |
| Mercury | -18181-09-26 13:40 J | -4918917.99 | -4918917.93 | -4918917.87 | 0.1629 | 0.1336 |
| Venus | -18178-05-26 16:04 J | -4917945.98 | -4917945.83 | -4917945.67 | 0.1889 | 0.0908 |
| Mercury | -18178-07-08 04:33 J | -4917903.47 | -4917903.31 | -4917903.14 | 0.1893 | 0.0576 |
| Venus | -18177-05-02 07:55 J | -4917604.25 | -4917604.17 | -4917604.09 | 0.1629 | 0.1425 |
| Venus | -18175-03-02 11:02 J | -4916935.21 | -4916935.04 | -4916934.87 | 0.1635 | 0.0279 |
| Mercury | -18173-03-13 23:45 J | -4916192.61 | -4916192.51 | -4916192.42 | 0.1625 | 0.0894 |
| Mercury | -18171-02-17 01:11 J | -4915487.55 | -4915487.45 | -4915487.35 | 0.1628 | 0.0897 |
| Mercury | -18169-11-26 20:52 J | -4914473.78 | -4914473.63 | -4914473.48 | 0.1894 | 0.0874 |
| Mercury | -18164-08-04 11:16 J | -4912762.09 | -4912762.03 | -4912761.96 | 0.1625 | 0.1319 |
| Mercury | -18162-07-10 12:43 J | -4912057.08 | -4912056.97 | -4912056.86 | 0.1627 | 0.0461 |
| Mercury | -18153-11-30 00:14 J | -4908626.60 | -4908626.49 | -4908626.37 | 0.1626 | 0.0051 |
| Venus | -18144-03-22 18:57 J | -4905591.86 | -4905591.71 | -4905591.56 | 0.1883 | 0.1040 |
| Venus | -18143-03-01 03:50 J | -4905248.50 | -4905248.34 | -4905248.18 | 0.1632 | 0.0543 |
| Mercury | -18143-04-22 12:00 J | -4905196.11 | -4905196.00 | -4905195.89 | 0.1626 | 0.0408 |
| Venus | -18142-12-30 05:45 J | -4904579.38 | -4904579.26 | -4904579.14 | 0.1639 | 0.1195 |
| Mercury | -18141-03-27 13:40 J | -4904490.99 | -4904490.93 | -4904490.87 | 0.1629 | 0.1396 |
| Mercury | -18138-01-06 05:31 J | -4903476.43 | -4903476.27 | -4903476.11 | 0.1893 | 0.0700 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -18134-09-12 23:31 J | -4901765.62 | -4901765.52 | -4901765.42 | 0.1625 | 0.0838 |
| Mercury | -18132-08-18 01:11 J | -4901060.55 | -4901060.45 | -4901060.36 | 0.1628 | 0.0953 |
| Mercury | -18129-05-27 21:36 J | -4900046.76 | -4900046.60 | -4900046.45 | 0.1894 | 0.0761 |
| Mercury | -18124-02-02 11:16 J | -4898335.10 | -4898335.03 | -4898334.96 | 0.1625 | 0.1264 |
| Mercury | -18122-01-08 12:43 J | -4897630.08 | -4897629.97 | -4897629.86 | 0.1627 | 0.0516 |
| Mercury | -18113-05-31 00:14 J | -4894199.60 | -4894199.49 | -4894199.37 | 0.1626 | 0.0088 |
| Venus | -18112-03-22 18:43 J | -4893903.89 | -4893903.72 | -4893903.55 | 0.1887 | 0.0623 |
| Venus | -18111-02-27 20:23 J | -4893561.75 | -4893561.65 | -4893561.56 | 0.1629 | 0.1352 |
| Venus | -18110-12-28 23:02 J | -4892892.71 | -4892892.54 | -4892892.37 | 0.1635 | 0.0358 |
| Mercury | -18104-10-21 12:00 J | -4890769.12 | -4890769.00 | -4890768.89 | 0.1626 | 0.0353 |
| Mercury | -18102-09-26 13:40 J | -4890063.98 | -4890063.93 | -4890063.88 | 0.1629 | 0.1453 |
| Mercury | -18099-07-07 06:14 J | -4889049.39 | -4889049.24 | -4889049.09 | 0.1893 | 0.0826 |
| Mercury | -18094-03-13 23:31 J | -4887338.62 | -4887338.52 | -4887338.42 | 0.1625 | 0.0780 |
| Mercury | -18092-02-16 01:11 J | -4886633.54 | -4886633.45 | -4886633.36 | 0.1628 | 0.1012 |
| Mercury | -18090-11-26 22:33 J | -4885619.72 | -4885619.56 | -4885619.40 | 0.1894 | 0.0627 |
| Mercury | -18085-08-03 11:02 J | -4883908.11 | -4883908.04 | -4883907.96 | 0.1625 | 0.1210 |
| Mercury | -18083-07-09 12:43 J | -4883203.08 | -4883202.97 | -4883202.86 | 0.1627 | 0.0574 |
| Venus | -18078-01-17 21:21 J | -4881549.73 | -4881549.61 | -4881549.48 | 0.1881 | 0.1317 |
| Venus | -18078-12-27 16:04 J | -4881205.99 | -4881205.83 | -4881205.66 | 0.1633 | 0.0470 |
| Venus | -18076-10-26 17:45 J | -4880536.86 | -4880536.76 | -4880536.65 | 0.1640 | 0.1277 |
| Mercury | -18074-11-30 00:14 J | -4879772.61 | -4879772.49 | -4879772.38 | 0.1626 | 0.0140 |
| Mercury | -18064-04-21 11:45 J | -4876342.12 | -4876342.01 | -4876341.89 | 0.1626 | 0.0300 |
| Mercury | -18062-03-27 13:26 J | -4875636.98 | -4875636.94 | -4875636.89 | 0.1629 | 0.1510 |
| Mercury | -18059-01-05 07:11 J | -4874622.35 | -4874622.20 | -4874622.06 | 0.1893 | 0.0954 |
| Mercury | -18055-09-11 23:31 J | -4872911.62 | -4872911.52 | -4872911.42 | 0.1625 | 0.0724 |
| Mercury | -18053-08-17 01:11 J | -4872206.54 | -4872206.45 | -4872206.37 | 0.1628 | 0.1071 |
| Mercury | -18050-05-27 23:31 J | -4871192.68 | -4871192.52 | -4871192.35 | 0.1894 | 0.0484 |
| Moon | -18047-10-06 08:38 J | -4869965.33 | -4869965.14 | -4869964.94 | 0.1782 | 0.0630 |
| Earth | -18047-10-06 14:38 J | -4869965.07 | -4869964.89 | -4869964.71 | 0.1782 | 0.0692 * |
| Venus | -18046-01-17 20:38 J | -4869861.81 | -4869861.64 | -4869861.46 | 0.1886 | 0.0334 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Venus | -18046-12-26 08:52 J | -4869519.23 | -4869519.13 | -4869519.02 | 0.1630 | 0.1283 |
| Mercury | -18045-02-02 11:16 J | -4869481.11 | -4869481.03 | -4869480.95 | 0.1625 | 0.1149 |
| Venus | -18044-10-25 11:31 J | -4868850.19 | -4868850.02 | -4868849.85 | 0.1637 | 0.0432 |
| Mercury | -18043-01-07 12:43 J | -4868776.08 | -4868775.97 | -4868775.87 | 0.1627 | 0.0634 |
| Mercury | -18036-06-24 22:48 J | -4866050.57 | -4866050.55 | -4866050.52 | 0.1625 | 0.1575 |
| Mercury | -18034-05-31 00:14 J | -4865345.61 | -4865345.49 | -4865345.38 | 0.1626 | 0.0198 |
| Mercury | -18025-10-20 11:45 J | -4861915.12 | -4861915.01 | -4861914.89 | 0.1626 | 0.0239 |
| Mercury | -18023-09-25 13:26 J | -4861209.96 | -4861209.94 | -4861209.91 | 0.1629 | 0.1568 |
| Mercury | -18020-07-06 07:55 J | -4860195.31 | -4860195.17 | -4860195.03 | 0.1893 | 0.1080 |
| Mercury | -18015-03-12 23:31 J | -4858484.63 | -4858484.52 | -4858484.42 | 0.1625 | 0.0668 |
| Mercury | -18013-02-16 00:57 J | -4857779.54 | -4857779.46 | -4857779.37 | 0.1628 | 0.1125 |
| Venus | -18013-11-14 00:00 J | -4857507.59 | -4857507.50 | -4857507.40 | 0.1879 | 0.1589 |
| Venus | -18012-10-24 04:33 J | -4857163.47 | -4857163.31 | -4857163.14 | 0.1633 | 0.0398 |
| Mercury | -18011-11-26 00:00 J | -4856765.67 | -4856765.50 | -4856765.33 | 0.1894 | 0.0379 |
| Venus | -18010-08-24 05:45 J | -4856494.35 | -4856494.26 | -4856494.16 | 0.1641 | 0.1357 |
| Mercury | -18006-08-03 11:02 J | -4855054.12 | -4855054.04 | -4855053.95 | 0.1625 | 0.1094 |
| Mercury | -18004-07-08 12:28 J | -4854349.08 | -4854348.98 | -4854348.87 | 0.1627 | 0.0691 |
| Mercury | -18001-04-16 16:33 J | -4853335.86 | -4853335.81 | -4853335.77 | 0.1895 | 0.1819 |

18TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 18th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|-------------|-------------|-------------|--------|--------|-------|---|
| Mercury | -17997-12-23 22:48 J | -4851623.59 | -4851623.55 | -4851623.51 | 0.1625 | 0.1518 | | |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -17995-11-29 00:14 J | -4850918.61 | -4850918.49 | -4850918.38 | 0.1626 | 0.0260 |
| Moon | -17993-04-10 02:23 J | -4850420.54 | -4850420.40 | -4850420.26 | 0.1740 | 0.1177 |
| Earth | -17993-04-10 09:50 J | -4850420.25 | -4850420.09 | -4850419.92 | 0.1739 | 0.0847 |
| Mercury | -17985-04-20 11:45 J | -4847488.12 | -4847488.01 | -4847487.89 | 0.1626 | 0.0180 |
| Mercury | -17983-03-26 13:26 J | -4846782.94 | -4846782.94 | -4846782.93 | 0.1629 | 0.1627 |
| Venus | -17981-11-13 23:31 J | -4845819.70 | -4845819.52 | -4845819.34 | 0.1884 | 0.0055 |
| Mercury | -17980-01-04 08:38 J | -4845768.27 | -4845768.14 | -4845768.01 | 0.1893 | 0.1207 |
| Venus | -17980-10-22 21:21 J | -4845476.73 | -4845476.61 | -4845476.50 | 0.1631 | 0.1208 |
| Venus | -17978-08-22 23:31 J | -4844807.69 | -4844807.52 | -4844807.36 | 0.1638 | 0.0514 |
| Mercury | -17976-09-10 23:16 J | -4844057.63 | -4844057.53 | -4844057.42 | 0.1625 | 0.0613 |
| Mercury | -17974-08-17 00:57 J | -4843352.53 | -4843352.46 | -4843352.38 | 0.1628 | 0.1186 |
| Mercury | -17971-05-27 01:11 J | -4842338.62 | -4842338.45 | -4842338.28 | 0.1894 | 0.0235 |
| Earth | -17968-10-09 11:16 J | -4841107.12 | -4841107.03 | -4841106.93 | 0.1787 | 0.1565 |
| Moon | -17968-10-09 16:19 J | -4841106.94 | -4841106.82 | -4841106.70 | 0.1788 | 0.1470 * |
| Mercury | -17966-02-01 11:02 J | -4840627.13 | -4840627.04 | -4840626.95 | 0.1625 | 0.1039 |
| Mercury | -17964-01-06 12:28 J | -4839922.08 | -4839921.98 | -4839921.88 | 0.1627 | 0.0745 |
| Mercury | -17962-10-16 16:48 J | -4838908.87 | -4838908.80 | -4838908.73 | 0.1894 | 0.1715 |
| Mercury | -17957-06-23 22:48 J | -4837196.60 | -4837196.55 | -4837196.50 | 0.1625 | 0.1463 |
| Mercury | -17955-05-30 00:00 J | -4836491.61 | -4836491.50 | -4836491.38 | 0.1626 | 0.0311 |
| Venus | -17949-11-14 00:14 J | -4834131.55 | -4834131.49 | -4834131.42 | 0.1889 | 0.1748 |
| Venus | -17947-09-11 03:07 J | -4833465.40 | -4833465.37 | -4833465.35 | 0.1877 | 0.1856 |
| Venus | -17946-08-21 16:48 J | -4833120.97 | -4833120.80 | -4833120.63 | 0.1634 | 0.0318 |
| Mercury | -17946-10-20 11:45 J | -4833061.13 | -4833061.01 | -4833060.90 | 0.1626 | 0.0123 |
| Venus | -17944-06-20 17:45 J | -4832451.84 | -4832451.76 | -4832451.68 | 0.1643 | 0.1439 |
| Mercury | -17941-07-05 09:36 J | -4831341.21 | -4831341.10 | -4831340.98 | 0.1893 | 0.1340 |
| Mercury | -17936-03-11 23:16 J | -4829630.64 | -4829630.53 | -4829630.42 | 0.1625 | 0.0554 |
| Mercury | -17934-02-15 00:57 J | -4828925.53 | -4828925.46 | -4828925.39 | 0.1628 | 0.1241 |
| Mercury | -17932-11-25 01:55 J | -4827911.59 | -4827911.42 | -4827911.25 | 0.1894 | 0.0108 |
| Mercury | -17927-08-02 11:02 J | -4826200.13 | -4826200.04 | -4826199.95 | 0.1625 | 0.0980 |
| Mercury | -17925-07-07 12:28 J | -4825495.08 | -4825494.98 | -4825494.88 | 0.1627 | 0.0803 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -17922-04-16 18:00 J | -4824481.84 | -4824481.75 | -4824481.66 | 0.1895 | 0.1571 |
| Mercury | -17918-12-23 22:48 J | -4822769.61 | -4822769.55 | -4822769.50 | 0.1625 | 0.1407 |
| Mercury | -17916-11-28 00:00 J | -4822064.61 | -4822064.50 | -4822064.38 | 0.1626 | 0.0371 |
| Venus | -17915-09-11 01:55 J | -4821777.59 | -4821777.42 | -4821777.24 | 0.1883 | 0.0232 |
| Moon | -17914-04-13 18:00 J | -4821562.91 | -4821562.75 | -4821562.60 | 0.1735 | 0.1100 |
| Earth | -17914-04-13 21:36 J | -4821562.76 | -4821562.60 | -4821562.44 | 0.1735 | 0.0927 * |
| Venus | -17914-08-20 09:50 J | -4821434.22 | -4821434.09 | -4821433.97 | 0.1632 | 0.1137 |
| Venus | -17912-06-19 11:45 J | -4820765.17 | -4820765.01 | -4820764.85 | 0.1639 | 0.0591 |
| Mercury | -17906-04-20 11:45 J | -4818634.13 | -4818634.01 | -4818633.90 | 0.1626 | 0.0083 |
| Mercury | -17901-01-04 10:19 J | -4816914.17 | -4816914.07 | -4816913.96 | 0.1893 | 0.1456 |
| Mercury | -17897-09-09 23:16 J | -4815203.64 | -4815203.53 | -4815203.42 | 0.1625 | 0.0498 |
| Mercury | -17895-08-16 00:57 J | -4814498.53 | -4814498.46 | -4814498.39 | 0.1628 | 0.1297 |
| Mercury | -17892-05-26 02:38 J | -4813484.56 | -4813484.39 | -4813484.22 | 0.1894 | 0.0019 |
| Mercury | -17887-01-31 11:02 J | -4811773.14 | -4811773.04 | -4811772.95 | 0.1625 | 0.0925 |
| Mercury | -17885-01-06 12:28 J | -4811068.08 | -4811067.98 | -4811067.88 | 0.1627 | 0.0860 |
| Venus | -17883-09-11 03:07 J | -4810089.48 | -4810089.37 | -4810089.26 | 0.1888 | 0.1464 |
| Mercury | -17883-10-15 18:57 J | -4810054.82 | -4810054.71 | -4810054.60 | 0.1895 | 0.1436 |
| Venus | -17880-06-18 05:16 J | -4809078.45 | -4809078.28 | -4809078.11 | 0.1635 | 0.0247 |
| Venus | -17878-04-18 06:00 J | -4808409.31 | -4808409.25 | -4808409.18 | 0.1644 | 0.1515 |
| Mercury | -17878-06-23 22:48 J | -4808342.62 | -4808342.55 | -4808342.49 | 0.1625 | 0.1350 |
| Mercury | -17876-05-29 00:00 J | -4807637.61 | -4807637.50 | -4807637.39 | 0.1626 | 0.0426 |
| Mercury | -17867-10-19 11:45 J | -4804207.13 | -4804207.01 | -4804206.90 | 0.1626 | 0.0060 |
| Mercury | -17862-07-05 11:16 J | -4802487.12 | -4802487.03 | -4802486.94 | 0.1893 | 0.1585 |
| Mercury | -17857-03-10 23:16 J | -4800776.64 | -4800776.53 | -4800776.42 | 0.1625 | 0.0440 |
| Mercury | -17855-02-14 00:57 J | -4800071.52 | -4800071.46 | -4800071.40 | 0.1628 | 0.1357 |
| Mercury | -17853-11-24 03:36 J | -4799057.52 | -4799057.35 | -4799057.18 | 0.1894 | 0.0146 |
| Venus | -17849-07-08 05:16 J | -4797735.45 | -4797735.28 | -4797735.11 | 0.1881 | 0.0495 |
| Venus | -17848-06-16 22:04 J | -4797391.71 | -4797391.58 | -4797391.45 | 0.1632 | 0.1063 |
| Mercury | -17848-08-01 10:48 J | -4797346.14 | -4797346.05 | -4797345.95 | 0.1625 | 0.0871 |
| Venus | -17846-04-17 00:00 J | -4796722.65 | -4796722.50 | -4796722.34 | 0.1640 | 0.0666 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -17846-07-07 12:28 J | -4796641.08 | -4796640.98 | -4796640.89 | 0.1627 | 0.0919 |
| Mercury | -17843-04-15 19:40 J | -4795627.80 | -4795627.68 | -4795627.56 | 0.1894 | 0.1317 |
| Mercury | -17839-12-22 22:33 J | -4793915.62 | -4793915.56 | -4793915.49 | 0.1625 | 0.1294 |
| Mercury | -17837-11-27 00:00 J | -4793210.61 | -4793210.50 | -4793210.39 | 0.1626 | 0.0481 |
| Mercury | -17827-04-19 11:31 J | -4789780.13 | -4789780.02 | -4789779.90 | 0.1626 | 0.0065 |
| Mercury | -17822-01-03 12:14 J | -4788060.06 | -4788059.99 | -4788059.92 | 0.1893 | 0.1716 |
| Mercury | -17818-09-09 23:16 J | -4786349.64 | -4786349.53 | -4786349.42 | 0.1625 | 0.0384 |
| Venus | -17817-07-08 05:02 J | -4786047.43 | -4786047.29 | -4786047.15 | 0.1886 | 0.1170 |
| Mercury | -17816-08-15 00:57 J | -4785644.52 | -4785644.46 | -4785644.41 | 0.1628 | 0.1415 |
| Venus | -17814-04-15 17:31 J | -4785035.94 | -4785035.77 | -4785035.59 | 0.1636 | 0.0173 |
| Mercury | -17813-05-25 04:33 J | -4784630.48 | -4784630.31 | -4784630.14 | 0.1894 | 0.0286 |
| Venus | -17812-02-12 17:45 J | -4784366.80 | -4784366.76 | -4784366.72 | 0.1645 | 0.1599 |
| Mercury | -17808-01-30 10:48 J | -4782919.15 | -4782919.05 | -4782918.95 | 0.1625 | 0.0812 |
| Mercury | -17806-01-05 12:28 J | -4782214.08 | -4782213.98 | -4782213.89 | 0.1627 | 0.0977 |
| Mercury | -17804-10-14 20:23 J | -4781200.78 | -4781200.65 | -4781200.52 | 0.1895 | 0.1190 |
| Mercury | -17799-06-22 22:33 J | -4779488.63 | -4779488.56 | -4779488.49 | 0.1625 | 0.1238 |
| Mercury | -17797-05-28 00:00 J | -4778783.61 | -4778783.50 | -4778783.39 | 0.1626 | 0.0540 |
| Mercury | -17788-10-18 11:31 J | -4775353.14 | -4775353.02 | -4775352.90 | 0.1625 | 0.0104 |
| Venus | -17783-05-05 08:09 J | -4773693.32 | -4773693.16 | -4773693.00 | 0.1879 | 0.0765 |
| Mercury | -17783-07-04 12:57 J | -4773633.00 | -4773632.96 | -4773632.92 | 0.1893 | 0.1837 |
| Venus | -17782-04-14 10:48 J | -4773349.19 | -4773349.05 | -4773348.92 | 0.1633 | 0.0993 |
| Venus | -17780-02-11 12:00 J | -4772680.15 | -4772680.00 | -4772679.85 | 0.1641 | 0.0746 |
| Mercury | -17778-03-10 23:02 J | -4771922.65 | -4771922.54 | -4771922.42 | 0.1625 | 0.0332 |
| Mercury | -17776-02-13 00:43 J | -4771217.51 | -4771217.47 | -4771217.42 | 0.1628 | 0.1469 |
| Mercury | -17774-11-24 05:02 J | -4770203.46 | -4770203.29 | -4770203.12 | 0.1894 | 0.0391 |
| Mercury | -17769-07-31 10:48 J | -4768492.15 | -4768492.05 | -4768491.95 | 0.1625 | 0.0755 |
| Mercury | -17767-07-06 12:14 J | -4767787.07 | -4767786.99 | -4767786.90 | 0.1627 | 0.1033 |
| Mercury | -17764-04-14 21:36 J | -4766773.74 | -4766773.60 | -4766773.46 | 0.1895 | 0.1043 |
| Moon | -17763-10-06 16:19 J | -4766233.97 | -4766233.82 | -4766233.66 | 0.1775 | 0.0879 |
| Earth | -17763-10-06 17:31 J | -4766233.93 | -4766233.77 | -4766233.60 | 0.1775 | 0.0916 * |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -17760-12-21 22:33 J | -4765061.64 | -4765061.56 | -4765061.48 | 0.1625 | 0.1180 |
| Mercury | -17758-11-27 00:00 J | -4764356.61 | -4764356.50 | -4764356.40 | 0.1626 | 0.0599 |
| Venus | -17751-05-05 07:40 J | -4762005.34 | -4762005.18 | -4762005.02 | 0.1885 | 0.0885 |
| Mercury | -17750-05-14 10:19 J | -4761631.09 | -4761631.07 | -4761631.06 | 0.1625 | 0.1604 |
| Venus | -17748-02-10 05:45 J | -4760993.43 | -4760993.26 | -4760993.08 | 0.1637 | 0.0106 |
| Mercury | -17748-04-18 11:31 J | -4760926.13 | -4760926.02 | -4760925.90 | 0.1625 | 0.0165 |
| Mercury | -17739-09-08 23:02 J | -4757495.65 | -4757495.54 | -4757495.42 | 0.1625 | 0.0272 |
| Mercury | -17737-08-14 00:43 J | -4756790.50 | -4756790.47 | -4756790.43 | 0.1628 | 0.1530 |
| Mercury | -17734-05-25 06:14 J | -4755776.40 | -4755776.24 | -4755776.08 | 0.1894 | 0.0535 |
| Mercury | -17729-01-30 10:48 J | -4754065.16 | -4754065.05 | -4754064.95 | 0.1625 | 0.0701 |
| Mercury | -17727-01-04 12:14 J | -4753360.07 | -4753359.99 | -4753359.90 | 0.1627 | 0.1088 |
| Mercury | -17725-10-13 22:04 J | -4752346.73 | -4752346.58 | -4752346.43 | 0.1895 | 0.0939 |
| Mercury | -17720-06-21 22:33 J | -4750634.64 | -4750634.56 | -4750634.48 | 0.1625 | 0.1124 |
| Mercury | -17718-05-27 23:45 J | -4749929.61 | -4749929.51 | -4749929.40 | 0.1626 | 0.0655 |
| Venus | -17717-03-01 11:31 J | -4749651.17 | -4749651.02 | -4749650.87 | 0.1878 | 0.1025 |
| Venus | -17716-02-08 23:02 J | -4749306.69 | -4749306.54 | -4749306.40 | 0.1634 | 0.0919 |
| Venus | -17715-12-10 00:14 J | -4748637.64 | -4748637.49 | -4748637.34 | 0.1642 | 0.0823 |
| Mercury | -17711-11-12 10:04 J | -4747204.11 | -4747204.08 | -4747204.05 | 0.1625 | 0.1549 |
| Earth | -17709-04-11 00:57 J | -4746688.63 | -4746688.46 | -4746688.29 | 0.1746 | 0.0773 |
| Moon | -17709-04-11 04:04 J | -4746688.48 | -4746688.33 | -4746688.18 | 0.1746 | 0.0944 * |
| Mercury | -17709-10-17 11:31 J | -4746499.14 | -4746499.02 | -4746498.91 | 0.1626 | 0.0222 |
| Mercury | -17699-03-09 23:02 J | -4743068.65 | -4743068.54 | -4743068.42 | 0.1625 | 0.0213 |
| Mercury | -17697-02-13 00:43 J | -4742363.49 | -4742363.47 | -4742363.45 | 0.1628 | 0.1585 |
| Mercury | -17695-11-23 06:57 J | -4741349.37 | -4741349.21 | -4741349.05 | 0.1894 | 0.0659 |
| Mercury | -17690-07-31 10:48 J | -4739638.16 | -4739638.05 | -4739637.95 | 0.1625 | 0.0640 |
| Mercury | -17688-07-05 12:14 J | -4738933.07 | -4738932.99 | -4738932.91 | 0.1627 | 0.1148 |
| Venus | -17685-03-01 10:19 J | -4737963.24 | -4737963.07 | -4737962.90 | 0.1883 | 0.0606 |
| Mercury | -17685-04-13 23:16 J | -4737919.69 | -4737919.53 | -4737919.38 | 0.1895 | 0.0793 |
| Moon | -17684-10-09 06:14 J | -4737376.39 | -4737376.24 | -4737376.09 | 0.1780 | 0.1128 |
| Earth | -17684-10-09 13:55 J | -4737376.05 | -4737375.92 | -4737375.78 | 0.1780 | 0.1289 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Venus | -17683-12-08 18:00 J | -4736950.92 | -4736950.75 | -4736950.58 | 0.1638 | 0.0019 |
| Mercury | -17681-12-20 22:19 J | -4736207.65 | -4736207.57 | -4736207.48 | 0.1625 | 0.1070 |
| Mercury | -17679-11-25 23:45 J | -4735502.61 | -4735502.51 | -4735502.40 | 0.1626 | 0.0712 |
| Mercury | -17671-05-13 10:04 J | -4732777.12 | -4732777.08 | -4732777.04 | 0.1625 | 0.1493 |
| Mercury | -17669-04-17 11:31 J | -4732072.14 | -4732072.02 | -4732071.91 | 0.1625 | 0.0283 |
| Mercury | -17660-09-07 23:02 J | -4728641.66 | -4728641.54 | -4728641.43 | 0.1625 | 0.0157 |
| Mercury | -17655-05-24 07:40 J | -4726922.33 | -4726922.18 | -4726922.02 | 0.1894 | 0.0783 |
| Venus | -17652-12-27 14:23 J | -4725609.02 | -4725608.90 | -4725608.77 | 0.1876 | 0.1292 |
| Venus | -17651-12-07 11:16 J | -4725264.17 | -4725264.03 | -4725263.88 | 0.1635 | 0.0846 |
| Mercury | -17650-01-29 10:48 J | -4725211.16 | -4725211.05 | -4725210.95 | 0.1625 | 0.0586 |
| Venus | -17649-10-06 12:14 J | -4724595.13 | -4724594.99 | -4724594.85 | 0.1644 | 0.0906 |
| Mercury | -17648-01-03 12:14 J | -4724506.07 | -4724505.99 | -4724505.91 | 0.1627 | 0.1204 |
| Mercury | -17646-10-14 00:14 J | -4723492.65 | -4723492.49 | -4723492.33 | 0.1895 | 0.0660 |
| Mercury | -17641-06-20 22:19 J | -4721780.66 | -4721780.57 | -4721780.48 | 0.1625 | 0.1011 |
| Mercury | -17639-05-26 23:45 J | -4721075.61 | -4721075.51 | -4721075.41 | 0.1626 | 0.0768 |
| Mercury | -17632-11-11 10:04 J | -4718350.13 | -4718350.08 | -4718350.03 | 0.1625 | 0.1436 |
| Moon | -17630-04-14 07:40 J | -4717831.30 | -4717831.18 | -4717831.05 | 0.1742 | 0.1210 |
| Earth | -17630-04-14 13:26 J | -4717831.09 | -4717830.94 | -4717830.79 | 0.1742 | 0.1043 * |
| Mercury | -17630-10-17 11:16 J | -4717645.14 | -4717645.03 | -4717644.91 | 0.1625 | 0.0338 |
| Mercury | -17620-03-08 23:02 J | -4714214.66 | -4714214.54 | -4714214.43 | 0.1625 | 0.0100 |
| Venus | -17620-12-27 12:43 J | -4713921.14 | -4713920.97 | -4713920.79 | 0.1882 | 0.0325 |
| Venus | -17617-10-05 06:14 J | -4712908.41 | -4712908.24 | -4712908.07 | 0.1640 | 0.0060 |
| Mercury | -17616-11-22 08:38 J | -4712495.29 | -4712495.14 | -4712494.99 | 0.1894 | 0.0914 |
| Mercury | -17611-07-30 10:33 J | -4710784.17 | -4710784.06 | -4710783.95 | 0.1625 | 0.0530 |
| Mercury | -17609-07-04 12:14 J | -4710079.06 | -4710078.99 | -4710078.92 | 0.1627 | 0.1261 |
| Mercury | -17606-04-14 00:43 J | -4709065.63 | -4709065.47 | -4709065.30 | 0.1895 | 0.0545 |
| Mercury | -17602-12-20 22:19 J | -4707353.66 | -4707353.57 | -4707353.48 | 0.1625 | 0.0955 |
| Mercury | -17600-11-24 23:45 J | -4706648.61 | -4706648.51 | -4706648.41 | 0.1626 | 0.0823 |
| Mercury | -17592-05-12 10:04 J | -4703923.14 | -4703923.08 | -4703923.02 | 0.1625 | 0.1380 |
| Mercury | -17590-04-17 11:16 J | -4703218.14 | -4703218.03 | -4703217.91 | 0.1625 | 0.0394 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Venus | -17586-10-24 17:31 J | -4701566.87 | -4701566.77 | -4701566.68 | 0.1874 | 0.1554 |
| Venus | -17585-10-03 23:45 J | -4701221.66 | -4701221.51 | -4701221.36 | 0.1636 | 0.0771 |
| Venus | -17583-08-04 00:14 J | -4700552.63 | -4700552.49 | -4700552.35 | 0.1645 | 0.0986 |
| Mercury | -17581-09-06 23:02 J | -4699787.66 | -4699787.54 | -4699787.43 | 0.1625 | 0.0072 |
| Mercury | -17576-05-23 09:36 J | -4698068.24 | -4698068.10 | -4698067.96 | 0.1894 | 0.1049 |
| Mercury | -17571-01-28 10:33 J | -4696357.17 | -4696357.06 | -4696356.95 | 0.1625 | 0.0472 |
| Mercury | -17569-01-03 12:14 J | -4695652.06 | -4695651.99 | -4695651.93 | 0.1627 | 0.1320 |
| Mercury | -17567-10-13 01:40 J | -4694638.60 | -4694638.43 | -4694638.26 | 0.1895 | 0.0413 |
| Mercury | -17562-06-20 22:19 J | -4692926.67 | -4692926.57 | -4692926.48 | 0.1625 | 0.0899 |
| Mercury | -17560-05-25 23:45 J | -4692221.61 | -4692221.51 | -4692221.41 | 0.1626 | 0.0883 |
| Mercury | -17557-03-03 17:45 J | -4691208.78 | -4691208.76 | -4691208.74 | 0.1895 | 0.1878 |
| Venus | -17554-10-24 15:50 J | -4689879.02 | -4689878.84 | -4689878.66 | 0.1880 | 0.0053 |
| Venus | -17553-10-02 16:48 J | -4689534.84 | -4689534.80 | -4689534.76 | 0.1633 | 0.1582 |
| Mercury | -17553-11-10 10:04 J | -4689496.15 | -4689496.08 | -4689496.02 | 0.1625 | 0.1325 |
| Venus | -17551-08-02 18:14 J | -4688865.92 | -4688865.74 | -4688865.57 | 0.1641 | 0.0142 |
| Mercury | -17551-10-16 11:16 J | -4688791.14 | -4688791.03 | -4688790.92 | 0.1625 | 0.0446 |
| Mercury | -17541-03-07 22:48 J | -4685360.66 | -4685360.55 | -4685360.43 | 0.1625 | 0.0058 |
| Mercury | -17537-11-21 10:04 J | -4683641.21 | -4683641.08 | -4683640.94 | 0.1895 | 0.1160 |
| Mercury | -17532-07-29 10:33 J | -4681930.17 | -4681930.06 | -4681929.95 | 0.1625 | 0.0414 |
| Mercury | -17530-07-04 12:00 J | -4681225.06 | -4681225.00 | -4681224.94 | 0.1627 | 0.1377 |
| Mercury | -17527-04-13 02:52 J | -4680211.55 | -4680211.38 | -4680211.21 | 0.1895 | 0.0265 |
| Mercury | -17523-12-19 22:19 J | -4678499.67 | -4678499.57 | -4678499.47 | 0.1625 | 0.0840 |
| Venus | -17522-10-24 15:36 J | -4678190.92 | -4678190.85 | -4678190.77 | 0.1885 | 0.1715 |
| Mercury | -17521-11-23 23:45 J | -4677794.61 | -4677794.51 | -4677794.42 | 0.1626 | 0.0941 |
| Venus | -17520-08-20 20:52 J | -4677524.67 | -4677524.63 | -4677524.59 | 0.1871 | 0.1808 |
| Venus | -17519-08-01 11:45 J | -4677179.16 | -4677179.01 | -4677178.85 | 0.1637 | 0.0695 |
| Mercury | -17518-09-02 18:28 J | -4676781.79 | -4676781.73 | -4676781.67 | 0.1895 | 0.1753 |
| Venus | -17517-05-31 12:00 J | -4676510.13 | -4676510.00 | -4676509.87 | 0.1646 | 0.1070 |
| Mercury | -17513-05-11 09:50 J | -4675069.16 | -4675069.09 | -4675069.02 | 0.1625 | 0.1267 |
| Mercury | -17511-04-16 11:16 J | -4674364.14 | -4674364.03 | -4674363.92 | 0.1625 | 0.0507 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -17502-09-06 22:48 J | -4670933.66 | -4670933.55 | -4670933.43 | 0.1625 | 0.0076 |
| Mercury | -17497-05-22 11:16 J | -4669214.15 | -4669214.03 | -4669213.91 | 0.1894 | 0.1302 |
| Mercury | -17492-01-27 10:33 J | -4667503.17 | -4667503.06 | -4667502.95 | 0.1625 | 0.0360 |
| Mercury | -17490-01-02 12:00 J | -4666798.05 | -4666798.00 | -4666797.94 | 0.1626 | 0.1433 |
| Venus | -17488-08-20 18:43 J | -4665836.90 | -4665836.72 | -4665836.55 | 0.1878 | 0.0221 |
| Mercury | -17488-10-12 03:07 J | -4665784.53 | -4665784.37 | -4665784.20 | 0.1895 | 0.0172 |
| Venus | -17487-07-31 05:02 J | -4665492.35 | -4665492.29 | -4665492.22 | 0.1634 | 0.1513 |
| Venus | -17485-05-30 06:14 J | -4664823.41 | -4664823.24 | -4664823.06 | 0.1642 | 0.0219 |
| Mercury | -17483-06-19 22:19 J | -4664072.67 | -4664072.57 | -4664072.47 | 0.1625 | 0.0787 |
| Mercury | -17481-05-24 23:31 J | -4663367.61 | -4663367.52 | -4663367.43 | 0.1626 | 0.0998 |
| Earth | -17479-10-06 23:31 J | -4662502.68 | -4662502.52 | -4662502.36 | 0.1768 | 0.1051 |
| Moon | -17479-10-07 07:40 J | -4662502.35 | -4662502.18 | -4662502.01 | 0.1768 | 0.0867 |
| Mercury | -17478-03-03 19:26 J | -4662354.77 | -4662354.69 | -4662354.60 | 0.1895 | 0.1614 |
| Mercury | -17474-11-10 09:50 J | -4660642.16 | -4660642.09 | -4660642.01 | 0.1625 | 0.1211 |
| Mercury | -17472-10-15 11:16 J | -4659937.14 | -4659937.03 | -4659936.92 | 0.1625 | 0.0563 |
| Mercury | -17462-03-07 22:48 J | -4656506.66 | -4656506.55 | -4656506.43 | 0.1625 | 0.0131 |
| Mercury | -17458-11-21 12:00 J | -4654787.11 | -4654787.00 | -4654786.89 | 0.1894 | 0.1425 |
| Venus | -17456-08-20 18:43 J | -4654148.83 | -4654148.72 | -4654148.60 | 0.1884 | 0.1441 |
| Venus | -17453-05-29 00:28 J | -4653136.64 | -4653136.48 | -4653136.32 | 0.1638 | 0.0623 |
| Mercury | -17453-07-28 10:33 J | -4653076.17 | -4653076.06 | -4653075.95 | 0.1625 | 0.0300 |
| Venus | -17451-03-29 00:00 J | -4652467.62 | -4652467.50 | -4652467.37 | 0.1648 | 0.1150 |
| Mercury | -17451-07-03 12:00 J | -4652371.04 | -4652371.00 | -4652370.95 | 0.1626 | 0.1492 |
| Mercury | -17448-04-12 04:19 J | -4651357.49 | -4651357.32 | -4651357.14 | 0.1895 | 0.0055 |
| Mercury | -17444-12-18 22:04 J | -4649645.68 | -4649645.58 | -4649645.48 | 0.1624 | 0.0730 |
| Mercury | -17442-11-23 23:31 J | -4648940.60 | -4648940.52 | -4648940.43 | 0.1626 | 0.1055 |
| Mercury | -17439-09-01 20:09 J | -4647927.76 | -4647927.66 | -4647927.56 | 0.1895 | 0.1496 |
| Mercury | -17434-05-11 09:50 J | -4646215.17 | -4646215.09 | -4646215.01 | 0.1625 | 0.1155 |
| Mercury | -17432-04-15 11:02 J | -4645510.14 | -4645510.04 | -4645509.93 | 0.1625 | 0.0620 |
| Earth | -17425-04-11 14:52 J | -4642957.06 | -4642956.88 | -4642956.71 | 0.1752 | 0.0728 |
| Moon | -17425-04-11 19:40 J | -4642956.85 | -4642956.68 | -4642956.51 | 0.1752 | 0.0906 * |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -17425-09-30 21:36 J | -4642784.62 | -4642784.60 | -4642784.58 | 0.1625 | 0.1578 |
| Mercury | -17423-09-05 22:48 J | -4642079.67 | -4642079.55 | -4642079.44 | 0.1625 | 0.0187 |
| Venus | -17422-06-17 22:19 J | -4641794.74 | -4641794.57 | -4641794.40 | 0.1876 | 0.0475 |
| Venus | -17421-05-27 17:31 J | -4641449.85 | -4641449.77 | -4641449.69 | 0.1635 | 0.1440 |
| Venus | -17419-03-27 18:28 J | -4640780.90 | -4640780.73 | -4640780.56 | 0.1643 | 0.0297 |
| Mercury | -17418-05-22 12:57 J | -4640360.06 | -4640359.96 | -4640359.87 | 0.1895 | 0.1552 |
| Mercury | -17413-01-27 10:33 J | -4638649.18 | -4638649.06 | -4638648.95 | 0.1625 | 0.0252 |
| Mercury | -17411-01-01 12:00 J | -4637944.03 | -4637944.00 | -4637943.97 | 0.1626 | 0.1548 |
| Mercury | -17409-10-11 05:16 J | -4636930.45 | -4636930.28 | -4636930.11 | 0.1895 | 0.0116 |
| Mercury | -17404-06-18 22:04 J | -4635218.68 | -4635218.58 | -4635218.47 | 0.1625 | 0.0671 |
| Mercury | -17402-05-24 23:31 J | -4634513.60 | -4634513.52 | -4634513.43 | 0.1626 | 0.1111 |
| Earth | -17400-10-09 18:00 J | -4633644.91 | -4633644.75 | -4633644.60 | 0.1773 | 0.1067 |
| Moon | -17400-10-09 21:07 J | -4633644.75 | -4633644.62 | -4633644.48 | 0.1773 | 0.1184 * |
| Mercury | -17399-03-02 21:07 J | -4633500.74 | -4633500.62 | -4633500.50 | 0.1895 | 0.1358 |
| Mercury | -17395-11-09 09:50 J | -4631788.18 | -4631788.09 | -4631788.01 | 0.1625 | 0.1097 |
| Mercury | -17393-10-14 11:02 J | -4631083.14 | -4631083.04 | -4631082.93 | 0.1625 | 0.0681 |
| Venus | -17390-06-17 21:21 J | -4630106.75 | -4630106.61 | -4630106.47 | 0.1882 | 0.1158 |
| Venus | -17387-03-26 12:28 J | -4629094.14 | -4629093.98 | -4629093.81 | 0.1639 | 0.0546 |
| Venus | -17385-01-24 11:45 J | -4628425.13 | -4628425.01 | -4628424.90 | 0.1649 | 0.1235 |
| Mercury | -17385-03-31 21:36 J | -4628357.64 | -4628357.60 | -4628357.57 | 0.1625 | 0.1523 |
| Mercury | -17383-03-06 22:48 J | -4627652.67 | -4627652.55 | -4627652.44 | 0.1625 | 0.0246 |
| Mercury | -17379-11-20 13:40 J | -4625933.00 | -4625932.93 | -4625932.85 | 0.1894 | 0.1678 |
| Mercury | -17374-07-28 10:19 J | -4624222.18 | -4624222.07 | -4624221.95 | 0.1625 | 0.0192 |
| Mercury | -17372-07-02 12:00 J | -4623517.02 | -4623517.00 | -4623516.99 | 0.1626 | 0.1604 |
| Mercury | -17369-04-11 06:00 J | -4622503.42 | -4622503.25 | -4622503.08 | 0.1895 | 0.0231 |
| Mercury | -17365-12-17 22:04 J | -4620791.69 | -4620791.58 | -4620791.47 | 0.1625 | 0.0615 |
| Mercury | -17363-11-22 23:31 J | -4620086.60 | -4620086.52 | -4620086.44 | 0.1626 | 0.1167 |
| Mercury | -17360-08-31 22:04 J | -4619073.71 | -4619073.58 | -4619073.45 | 0.1896 | 0.1228 |
| Venus | -17356-04-14 01:40 J | -4617752.59 | -4617752.43 | -4617752.27 | 0.1874 | 0.0736 |
| Venus | -17355-03-25 06:00 J | -4617407.34 | -4617407.25 | -4617407.16 | 0.1636 | 0.1369 |

Mercury -17355-05-10 09:50 J -4617361.18 -4617361.09 -4617361.01 0.1625 0.1040

Venus -17353-01-23 06:28 J -4616738.40 -4616738.23 -4616738.06 0.1645 0.0376

Mercury -17353-04-14 11:02 J -4616656.14 -4616656.04 -4616655.93 0.1625 0.0735

Earth -17346-04-15 04:48 J -4614099.44 -4614099.30 -4614099.15 0.1748 0.1153

Moon -17346-04-15 11:16 J -4614099.12 -4614099.03 -4614098.93 0.1748 0.1494

Mercury -17346-09-30 21:36 J -4613930.65 -4613930.60 -4613930.56 0.1625 0.1466

Mercury -17344-09-04 22:48 J -4613225.67 -4613225.55 -4613225.44 0.1625 0.0305

Mercury -17339-05-21 14:38 J -4611505.93 -4611505.89 -4611505.84 0.1894 0.1811

Mercury -17334-01-26 10:19 J -4609795.18 -4609795.07 -4609794.95 0.1624 0.0133

Mercury -17330-10-11 06:57 J -4608076.38 -4608076.21 -4608076.04 0.1895 0.0364

Mercury -17325-06-17 22:04 J -4606364.69 -4606364.58 -4606364.47 0.1624 0.0559

Venus -17324-04-14 00:14 J -4606064.65 -4606064.49 -4606064.34 0.1881 0.0880

Mercury -17323-05-23 23:31 J -4605659.59 -4605659.52 -4605659.45 0.1626 0.1227

Venus -17321-01-22 00:43 J -4605051.64 -4605051.47 -4605051.31 0.1641 0.0471

Mercury -17320-03-01 23:02 J -4604646.68 -4604646.54 -4604646.41 0.1895 0.1098

Venus -17320-11-20 23:31 J -4604382.62 -4604382.52 -4604382.42 0.1651 0.1319

Mercury -17316-11-08 09:36 J -4602934.19 -4602934.10 -4602934.01 0.1625 0.0987

Mercury -17314-10-14 11:02 J -4602229.14 -4602229.04 -4602228.94 0.1625 0.0788

Mercury -17306-03-31 21:21 J -4599503.66 -4599503.61 -4599503.55 0.1625 0.1410

Mercury -17304-03-05 22:33 J -4598798.67 -4598798.56 -4598798.44 0.1625 0.0362

Mercury -17295-07-27 10:19 J -4595368.18 -4595368.07 -4595367.95 0.1625 0.0073

Venus -17290-02-09 05:16 J -4593710.43 -4593710.28 -4593710.13 0.1872 0.0987

Mercury -17290-04-11 08:09 J -4593649.33 -4593649.16 -4593649.00 0.1895 0.0510

Venus -17289-01-20 18:14 J -4593364.85 -4593364.74 -4593364.64 0.1637 0.1294

Venus -17288-11-19 18:43 J -4592695.89 -4592695.72 -4592695.56 0.1646 0.0455

Mercury -17286-12-17 22:04 J -4591937.69 -4591937.58 -4591937.47 0.1624 0.0502

Mercury -17284-11-21 23:31 J -4591232.59 -4591232.52 -4591232.45 0.1626 0.1283

Mercury -17281-08-30 23:45 J -4590219.66 -4590219.51 -4590219.37 0.1895 0.0974

Mercury -17276-05-09 09:36 J -4588507.19 -4588507.10 -4588507.00 0.1625 0.0929

Mercury -17274-04-14 11:02 J -4587802.14 -4587802.04 -4587801.94 0.1625 0.0849

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -17267-09-29 21:21 J | -4585076.67 | -4585076.61 | -4585076.55 | 0.1625 | 0.1355 |
| Mercury | -17265-09-03 22:33 J | -4584371.67 | -4584371.56 | -4584371.45 | 0.1625 | 0.0415 |
| Venus | -17258-02-09 03:07 J | -4582022.54 | -4582022.37 | -4582022.20 | 0.1878 | 0.0609 |
| Venus | -17256-11-18 12:43 J | -4581009.14 | -4581008.97 | -4581008.80 | 0.1642 | 0.0392 |
| Mercury | -17255-01-25 10:19 J | -4580941.19 | -4580941.07 | -4580940.96 | 0.1624 | 0.0034 |
| Venus | -17254-09-18 11:16 J | -4580340.12 | -4580340.03 | -4580339.94 | 0.1653 | 0.1406 |
| Mercury | -17251-10-10 08:23 J | -4579222.31 | -4579222.15 | -4579221.99 | 0.1895 | 0.0610 |
| Mercury | -17246-06-17 21:50 J | -4577510.70 | -4577510.59 | -4577510.48 | 0.1625 | 0.0448 |
| Mercury | -17244-05-22 23:31 J | -4576805.59 | -4576805.52 | -4576805.46 | 0.1626 | 0.1340 |
| Mercury | -17241-03-01 00:43 J | -4575792.62 | -4575792.47 | -4575792.31 | 0.1896 | 0.0832 |
| Mercury | -17237-11-07 09:36 J | -4574080.20 | -4574080.10 | -4574080.00 | 0.1625 | 0.0872 |
| Mercury | -17235-10-13 11:02 J | -4573375.14 | -4573375.04 | -4573374.95 | 0.1625 | 0.0905 |
| Mercury | -17227-03-30 21:21 J | -4570649.68 | -4570649.61 | -4570649.54 | 0.1625 | 0.1294 |
| Mercury | -17225-03-04 22:33 J | -4569944.67 | -4569944.56 | -4569944.45 | 0.1625 | 0.0474 |
| Venus | -17225-12-06 08:38 J | -4569668.27 | -4569668.14 | -4569668.01 | 0.1870 | 0.1245 |
| Venus | -17224-11-17 06:28 J | -4569322.34 | -4569322.23 | -4569322.11 | 0.1638 | 0.1221 |
| Venus | -17222-09-17 06:14 J | -4568653.40 | -4568653.24 | -4568653.07 | 0.1648 | 0.0540 |
| Mercury | -17216-07-26 10:19 J | -4566514.19 | -4566514.07 | -4566513.96 | 0.1624 | 0.0052 |
| Mercury | -17211-04-10 09:36 J | -4564795.25 | -4564795.10 | -4564794.94 | 0.1895 | 0.0757 |
| Mercury | -17207-12-16 21:50 J | -4563083.70 | -4563083.59 | -4563083.48 | 0.1624 | 0.0390 |
| Mercury | -17205-11-20 23:16 J | -4562378.58 | -4562378.53 | -4562378.47 | 0.1626 | 0.1397 |
| Mercury | -17202-08-31 01:26 J | -4561365.60 | -4561365.44 | -4561365.28 | 0.1895 | 0.0716 |
| Mercury | -17197-05-08 09:36 J | -4559653.20 | -4559653.10 | -4559653.00 | 0.1625 | 0.0815 |
| Mercury | -17195-04-13 11:02 J | -4558948.14 | -4558948.04 | -4558947.95 | 0.1625 | 0.0963 |
| Moon | -17195-10-07 02:23 J | -4558771.53 | -4558771.40 | -4558771.26 | 0.1761 | 0.1316 |
| Earth | -17195-10-07 07:40 J | -4558771.33 | -4558771.18 | -4558771.03 | 0.1761 | 0.1115 * |
| Venus | -17193-12-06 06:00 J | -4557980.42 | -4557980.25 | -4557980.08 | 0.1877 | 0.0332 |
| Venus | -17190-09-16 00:57 J | -4556966.63 | -4556966.46 | -4556966.30 | 0.1643 | 0.0318 |
| Venus | -17188-07-15 22:48 J | -4556297.62 | -4556297.55 | -4556297.48 | 0.1654 | 0.1495 |
| Mercury | -17188-09-28 21:21 J | -4556222.68 | -4556222.61 | -4556222.54 | 0.1625 | 0.1241 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -17186-09-03 22:33 J | -4555517.67 | -4555517.56 | -4555517.45 | 0.1625 | 0.0529 |
| Mercury | -17176-01-24 10:19 J | -4552087.19 | -4552087.07 | -4552086.96 | 0.1624 | 0.0117 |
| Mercury | -17172-10-09 10:33 J | -4550368.21 | -4550368.06 | -4550367.91 | 0.1895 | 0.0886 |
| Mercury | -17167-06-16 21:50 J | -4548656.70 | -4548656.59 | -4548656.48 | 0.1624 | 0.0330 |
| Mercury | -17165-05-21 23:16 J | -4547951.57 | -4547951.53 | -4547951.48 | 0.1626 | 0.1456 |
| Mercury | -17162-03-01 02:23 J | -4546938.56 | -4546938.40 | -4546938.23 | 0.1895 | 0.0578 |
| Venus | -17159-10-03 12:14 J | -4545626.09 | -4545625.99 | -4545625.89 | 0.1867 | 0.1498 |
| Venus | -17158-09-14 18:43 J | -4545279.84 | -4545279.72 | -4545279.60 | 0.1639 | 0.1145 |
| Mercury | -17158-11-07 09:36 J | -4545226.20 | -4545226.10 | -4545226.00 | 0.1624 | 0.0758 |
| Venus | -17156-07-14 18:14 J | -4544610.90 | -4544610.74 | -4544610.58 | 0.1649 | 0.0619 |
| Mercury | -17156-10-12 10:48 J | -4544521.13 | -4544521.05 | -4544520.96 | 0.1625 | 0.1022 |
| Mercury | -17148-03-29 21:07 J | -4541795.69 | -4541795.62 | -4541795.54 | 0.1625 | 0.1187 |
| Mercury | -17146-03-04 22:33 J | -4541090.67 | -4541090.56 | -4541090.45 | 0.1625 | 0.0586 |
| Moon | -17141-04-11 20:38 J | -4539225.79 | -4539225.64 | -4539225.48 | 0.1760 | 0.1070 |
| Earth | -17141-04-12 03:50 J | -4539225.52 | -4539225.34 | -4539225.17 | 0.1759 | 0.0704 * |
| Mercury | -17139-08-20 08:52 J | -4538365.14 | -4538365.13 | -4538365.12 | 0.1625 | 0.1609 |
| Mercury | -17137-07-25 10:04 J | -4537660.19 | -4537660.08 | -4537659.96 | 0.1624 | 0.0156 |
| Mercury | -17132-04-09 11:02 J | -4535941.18 | -4535941.04 | -4535940.89 | 0.1895 | 0.1004 |
| Mercury | -17128-12-15 21:50 J | -4534229.70 | -4534229.59 | -4534229.48 | 0.1624 | 0.0274 |
| Venus | -17127-10-03 09:36 J | -4533938.28 | -4533938.10 | -4533937.93 | 0.1874 | 0.0086 |
| Mercury | -17126-11-20 23:16 J | -4533524.57 | -4533524.53 | -4533524.49 | 0.1626 | 0.1510 |
| Venus | -17124-07-13 12:43 J | -4532924.14 | -4532923.97 | -4532923.80 | 0.1644 | 0.0234 |
| Mercury | -17123-08-30 03:21 J | -4532511.52 | -4532511.36 | -4532511.19 | 0.1896 | 0.0445 |
| Venus | -17122-05-13 10:33 J | -4532255.10 | -4532255.06 | -4532255.01 | 0.1656 | 0.1579 |
| Mercury | -17118-05-08 09:36 J | -4530799.21 | -4530799.10 | -4530799.00 | 0.1625 | 0.0702 |
| Mercury | -17116-04-12 10:48 J | -4530094.13 | -4530094.05 | -4530093.96 | 0.1625 | 0.1078 |
| Earth | -17116-10-10 00:28 J | -4529913.65 | -4529913.48 | -4529913.32 | 0.1765 | 0.0921 |
| Moon | -17116-10-10 06:28 J | -4529913.39 | -4529913.23 | -4529913.07 | 0.1766 | 0.1092 * |
| Mercury | -17109-09-27 21:07 J | -4527368.70 | -4527368.62 | -4527368.53 | 0.1625 | 0.1129 |
| Mercury | -17107-09-02 22:33 J | -4526663.67 | -4526663.56 | -4526663.46 | 0.1625 | 0.0644 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -17099-02-18 08:52 J | -4523938.16 | -4523938.13 | -4523938.10 | 0.1625 | 0.1552 |
| Mercury | -17097-01-24 10:04 J | -4523233.19 | -4523233.08 | -4523232.96 | 0.1624 | 0.0216 |
| Venus | -17095-10-03 08:23 J | -4522250.22 | -4522250.15 | -4522250.08 | 0.1881 | 0.1700 |
| Venus | -17093-07-30 15:50 J | -4521583.90 | -4521583.84 | -4521583.78 | 0.1865 | 0.1743 |
| Mercury | -17093-10-08 12:14 J | -4521514.13 | -4521513.99 | -4521513.86 | 0.1895 | 0.1138 |
| Venus | -17092-07-12 06:43 J | -4521237.35 | -4521237.22 | -4521237.09 | 0.1640 | 0.1069 |
| Venus | -17090-05-12 06:00 J | -4520568.40 | -4520568.25 | -4520568.09 | 0.1651 | 0.0702 |
| Mercury | -17088-06-15 21:50 J | -4519802.71 | -4519802.59 | -4519802.48 | 0.1624 | 0.0225 |
| Mercury | -17086-05-21 23:16 J | -4519097.56 | -4519097.53 | -4519097.50 | 0.1625 | 0.1569 |
| Mercury | -17083-02-28 04:04 J | -4518084.49 | -4518084.33 | -4518084.16 | 0.1895 | 0.0325 |
| Mercury | -17079-11-06 09:21 J | -4516372.21 | -4516372.11 | -4516372.00 | 0.1624 | 0.0649 |
| Mercury | -17077-10-11 10:48 J | -4515667.13 | -4515667.05 | -4515666.97 | 0.1625 | 0.1130 |
| Mercury | -17074-07-20 19:40 J | -4514654.72 | -4514654.68 | -4514654.63 | 0.1896 | 0.1807 |
| Mercury | -17069-03-28 21:07 J | -4512941.70 | -4512941.62 | -4512941.53 | 0.1625 | 0.1071 |
| Mercury | -17067-03-03 22:33 J | -4512236.67 | -4512236.56 | -4512236.46 | 0.1625 | 0.0702 |
| Earth | -17062-04-15 19:26 J | -4510367.82 | -4510367.69 | -4510367.55 | 0.1755 | 0.1246 |
| Moon | -17062-04-15 20:09 J | -4510367.76 | -4510367.66 | -4510367.55 | 0.1755 | 0.1489 * |
| Venus | -17061-07-30 12:28 J | -4509896.15 | -4509895.98 | -4509895.80 | 0.1872 | 0.0194 |
| Mercury | -17060-08-19 08:52 J | -4509511.17 | -4509511.13 | -4509511.09 | 0.1625 | 0.1494 |
| Venus | -17058-05-11 00:57 J | -4508881.64 | -4508881.46 | -4508881.29 | 0.1646 | 0.0162 |
| Mercury | -17058-07-25 10:04 J | -4508806.19 | -4508806.08 | -4508805.97 | 0.1624 | 0.0269 |
| Mercury | -17053-04-08 13:11 J | -4507087.07 | -4507086.95 | -4507086.82 | 0.1895 | 0.1279 |
| Mercury | -17049-12-14 21:50 J | -4505375.71 | -4505375.59 | -4505375.48 | 0.1624 | 0.0168 |
| Mercury | -17047-11-19 23:16 J | -4504670.53 | -4504670.53 | -4504670.53 | 0.1626 | 0.1625 |
| Mercury | -17044-08-29 05:02 J | -4503657.46 | -4503657.29 | -4503657.12 | 0.1896 | 0.0196 |
| Mercury | -17039-05-07 09:21 J | -4501945.21 | -4501945.11 | -4501945.00 | 0.1624 | 0.0590 |
| Mercury | -17037-04-11 10:48 J | -4501240.13 | -4501240.05 | -4501239.97 | 0.1625 | 0.1191 |
| Mercury | -17034-01-18 20:52 J | -4500227.71 | -4500227.63 | -4500227.55 | 0.1895 | 0.1661 |
| Mercury | -17030-09-27 21:07 J | -4498514.71 | -4498514.62 | -4498514.53 | 0.1625 | 0.1016 |
| Venus | -17029-07-30 11:31 J | -4498208.13 | -4498208.02 | -4498207.91 | 0.1879 | 0.1432 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -17028-09-01 22:19 J | -4497809.67 | -4497809.57 | -4497809.46 | 0.1624 | 0.0758 |
| Venus | -17026-05-09 19:26 J | -4497194.83 | -4497194.69 | -4497194.56 | 0.1641 | 0.0999 |
| Venus | -17024-03-08 18:00 J | -4496525.91 | -4496525.75 | -4496525.60 | 0.1652 | 0.0785 |
| Mercury | -17020-02-17 08:52 J | -4495084.18 | -4495084.13 | -4495084.08 | 0.1625 | 0.1439 |
| Mercury | -17018-01-23 10:04 J | -4494379.20 | -4494379.08 | -4494378.97 | 0.1624 | 0.0326 |
| Mercury | -17014-10-08 13:40 J | -4492660.05 | -4492659.93 | -4492659.82 | 0.1895 | 0.1379 |
| Mercury | -17009-06-14 21:36 J | -4490948.71 | -4490948.60 | -4490948.48 | 0.1624 | 0.0115 |
| Mercury | -17004-02-27 06:14 J | -4489230.41 | -4489230.24 | -4489230.07 | 0.1896 | 0.0049 |

17TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 17th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|-------------|-------------|-------------|--------|--------|-------|---|
| Mercury | -17000-11-05 09:21 J | -4487518.22 | -4487518.11 | -4487518.00 | 0.1624 | 0.0532 | | |
| Mercury | -16998-10-11 10:48 J | -4486813.12 | -4486813.05 | -4486812.98 | 0.1625 | 0.1247 | | |
| Venus | -16995-05-27 16:48 J | -4485853.97 | -4485853.80 | -4485853.63 | 0.1870 | 0.0438 | | |
| Mercury | -16995-07-19 21:50 J | -4485800.69 | -4485800.59 | -4485800.49 | 0.1895 | 0.1531 | | |
| Venus | -16992-03-07 12:57 J | -4484839.14 | -4484838.96 | -4484838.79 | 0.1647 | 0.0086 | | |
| Mercury | -16990-03-28 21:07 J | -4484087.71 | -4484087.62 | -4484087.53 | 0.1625 | 0.0956 | | |
| Mercury | -16988-03-02 22:19 J | -4483382.67 | -4483382.57 | -4483382.47 | 0.1624 | 0.0816 | | |
| Mercury | -16981-08-18 08:38 J | -4480657.19 | -4480657.14 | -4480657.08 | 0.1625 | 0.1386 | | |
| Mercury | -16979-07-24 10:04 J | -4479952.19 | -4479952.08 | -4479951.97 | 0.1624 | 0.0384 | | |
| Mercury | -16974-04-08 14:52 J | -4478232.98 | -4478232.88 | -4478232.78 | 0.1896 | 0.1527 | | |
| Mercury | -16970-12-14 21:36 J | -4476521.71 | -4476521.60 | -4476521.48 | 0.1624 | 0.0049 | | |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -16965-08-28 06:43 J | -4474803.39 | -4474803.22 | -4474803.05 | 0.1896 | 0.0063 |
| Venus | -16963-05-27 14:38 J | -4474166.03 | -4474165.89 | -4474165.75 | 0.1877 | 0.1159 |
| Venus | -16960-03-06 07:11 J | -4473152.34 | -4473152.20 | -4473152.05 | 0.1643 | 0.0920 |
| Mercury | -16960-05-06 09:21 J | -4473091.22 | -4473091.11 | -4473091.00 | 0.1624 | 0.0475 |
| Venus | -16958-01-04 05:16 J | -4472483.42 | -4472483.28 | -4472483.13 | 0.1654 | 0.0873 |
| Mercury | -16958-04-11 10:48 J | -4472386.12 | -4472386.05 | -4472385.99 | 0.1625 | 0.1304 |
| Mercury | -16955-01-17 22:33 J | -4471373.67 | -4471373.56 | -4471373.45 | 0.1896 | 0.1410 |
| Mercury | -16951-09-26 21:07 J | -4469660.72 | -4469660.62 | -4469660.53 | 0.1625 | 0.0904 |
| Mercury | -16949-08-31 22:19 J | -4468955.67 | -4468955.57 | -4468955.47 | 0.1625 | 0.0870 |
| Mercury | -16941-02-17 08:38 J | -4466230.20 | -4466230.14 | -4466230.07 | 0.1625 | 0.1327 |
| Mercury | -16939-01-22 09:50 J | -4465525.20 | -4465525.09 | -4465524.97 | 0.1624 | 0.0443 |
| Mercury | -16935-10-07 15:36 J | -4463805.93 | -4463805.85 | -4463805.76 | 0.1895 | 0.1655 |
| Mercury | -16930-06-14 21:36 J | -4462094.71 | -4462094.60 | -4462094.48 | 0.1624 | 0.0030 |
| Venus | -16929-03-23 20:09 J | -4461811.82 | -4461811.66 | -4461811.49 | 0.1867 | 0.0693 |
| Venus | -16926-01-03 00:43 J | -4460796.65 | -4460796.47 | -4460796.30 | 0.1649 | 0.0037 |
| Mercury | -16925-02-27 07:40 J | -4460376.34 | -4460376.18 | -4460376.01 | 0.1896 | 0.0209 |
| Mercury | -16921-11-04 09:21 J | -4458664.22 | -4458664.11 | -4458664.00 | 0.1624 | 0.0421 |
| Mercury | -16919-10-10 10:48 J | -4457959.11 | -4457959.05 | -4457958.99 | 0.1625 | 0.1362 |
| Mercury | -16916-07-18 23:31 J | -4456946.64 | -4456946.52 | -4456946.39 | 0.1895 | 0.1273 |
| Mercury | -16911-03-27 20:52 J | -4455233.72 | -4455233.63 | -4455233.53 | 0.1625 | 0.0848 |
| Moon | -16911-10-07 12:28 J | -4455040.09 | -4455039.98 | -4455039.87 | 0.1754 | 0.1374 |
| Earth | -16911-10-07 16:33 J | -4455039.96 | -4455039.81 | -4455039.67 | 0.1754 | 0.1150 * |
| Mercury | -16909-03-01 22:19 J | -4454528.67 | -4454528.57 | -4454528.48 | 0.1624 | 0.0926 |
| Mercury | -16902-08-18 08:38 J | -4451803.21 | -4451803.14 | -4451803.07 | 0.1625 | 0.1271 |
| Mercury | -16900-07-23 09:50 J | -4451098.20 | -4451098.09 | -4451097.98 | 0.1624 | 0.0497 |
| Venus | -16897-03-23 17:45 J | -4450123.92 | -4450123.76 | -4450123.61 | 0.1875 | 0.0889 |
| Mercury | -16895-04-07 16:19 J | -4449378.87 | -4449378.82 | -4449378.76 | 0.1896 | 0.1772 |
| Venus | -16894-01-01 19:26 J | -4449109.84 | -4449109.69 | -4449109.54 | 0.1644 | 0.0845 |
| Venus | -16893-10-31 17:02 J | -4448440.93 | -4448440.79 | -4448440.65 | 0.1656 | 0.0960 |
| Mercury | -16891-12-13 21:36 J | -4447667.72 | -4447667.60 | -4447667.49 | 0.1624 | 0.0070 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -16886-08-28 08:38 J | -4445949.30 | -4445949.14 | -4445948.97 | 0.1896 | 0.0339 |
| Mercury | -16881-05-05 09:21 J | -4444237.23 | -4444237.11 | -4444237.00 | 0.1624 | 0.0364 |
| Mercury | -16879-04-10 10:33 J | -4443532.11 | -4443532.06 | -4443532.00 | 0.1625 | 0.1419 |
| Mercury | -16876-01-17 00:28 J | -4442519.62 | -4442519.48 | -4442519.34 | 0.1895 | 0.1142 |
| Mercury | -16872-09-25 20:52 J | -4440806.73 | -4440806.63 | -4440806.53 | 0.1625 | 0.0789 |
| Mercury | -16870-08-31 22:19 J | -4440101.66 | -4440101.57 | -4440101.48 | 0.1624 | 0.0985 |
| Venus | -16863-01-19 00:28 J | -4437769.63 | -4437769.48 | -4437769.33 | 0.1865 | 0.0931 |
| Mercury | -16862-02-16 08:38 J | -4437376.21 | -4437376.14 | -4437376.06 | 0.1625 | 0.1215 |
| Venus | -16861-10-30 12:43 J | -4436754.14 | -4436753.97 | -4436753.80 | 0.1650 | 0.0085 |
| Mercury | -16860-01-21 09:50 J | -4436671.20 | -4436671.09 | -4436670.98 | 0.1624 | 0.0553 |
| Earth | -16857-04-12 15:50 J | -4435494.02 | -4435493.84 | -4435493.67 | 0.1766 | 0.0707 |
| Moon | -16857-04-12 16:48 J | -4435493.95 | -4435493.80 | -4435493.64 | 0.1766 | 0.0907 * |
| Mercury | -16851-06-13 21:36 J | -4433240.72 | -4433240.60 | -4433240.49 | 0.1624 | 0.0134 |
| Mercury | -16846-02-26 09:21 J | -4431522.27 | -4431522.11 | -4431521.94 | 0.1896 | 0.0454 |
| Mercury | -16842-11-04 09:07 J | -4429810.23 | -4429810.12 | -4429810.00 | 0.1624 | 0.0310 |
| Mercury | -16840-10-09 10:33 J | -4429105.11 | -4429105.06 | -4429105.01 | 0.1625 | 0.1472 |
| Mercury | -16837-07-18 01:11 J | -4428092.59 | -4428092.45 | -4428092.31 | 0.1896 | 0.1021 |
| Mercury | -16832-03-26 20:52 J | -4426379.73 | -4426379.63 | -4426379.53 | 0.1625 | 0.0732 |
| Moon | -16832-10-10 00:43 J | -4426182.64 | -4426182.47 | -4426182.30 | 0.1758 | 0.0931 |
| Earth | -16832-10-10 08:38 J | -4426182.31 | -4426182.14 | -4426181.97 | 0.1758 | 0.0827 * |
| Venus | -16831-01-18 21:07 J | -4426081.79 | -4426081.62 | -4426081.45 | 0.1873 | 0.0627 |
| Mercury | -16830-03-01 22:19 J | -4425674.66 | -4425674.57 | -4425674.49 | 0.1624 | 0.1042 |
| Venus | -16829-10-29 07:11 J | -4425067.35 | -4425067.20 | -4425067.04 | 0.1645 | 0.0765 |
| Venus | -16827-08-29 04:33 J | -4424398.45 | -4424398.31 | -4424398.18 | 0.1658 | 0.1050 |
| Mercury | -16823-08-17 08:38 J | -4422949.22 | -4422949.14 | -4422949.06 | 0.1625 | 0.1157 |
| Mercury | -16821-07-22 09:50 J | -4422244.20 | -4422244.09 | -4422243.98 | 0.1624 | 0.0609 |
| Mercury | -16813-01-07 20:23 J | -4419518.67 | -4419518.65 | -4419518.63 | 0.1626 | 0.1583 |
| Mercury | -16812-12-12 21:36 J | -4418813.72 | -4418813.60 | -4418813.49 | 0.1624 | 0.0189 |
| Mercury | -16807-08-27 10:19 J | -4417095.23 | -4417095.07 | -4417094.91 | 0.1896 | 0.0582 |
| Mercury | -16802-05-05 09:07 J | -4415383.23 | -4415383.12 | -4415383.00 | 0.1624 | 0.0252 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -16800-04-09 10:33 J | -4414678.09 | -4414678.06 | -4414678.02 | 0.1625 | 0.1533 |
| Venus | -16798-11-16 03:50 J | -4413727.47 | -4413727.34 | -4413727.20 | 0.1863 | 0.1183 |
| Mercury | -16797-01-17 02:09 J | -4413665.56 | -4413665.41 | -4413665.25 | 0.1896 | 0.0882 |
| Venus | -16797-10-28 01:26 J | -4413380.48 | -4413380.44 | -4413380.40 | 0.1641 | 0.1593 |
| Venus | -16795-08-28 00:00 J | -4412711.67 | -4412711.50 | -4412711.32 | 0.1652 | 0.0178 |
| Mercury | -16793-09-24 20:52 J | -4411952.74 | -4411952.63 | -4411952.53 | 0.1624 | 0.0679 |
| Mercury | -16791-08-30 22:04 J | -4411247.66 | -4411247.58 | -4411247.49 | 0.1624 | 0.1098 |
| Mercury | -16783-02-15 08:38 J | -4408522.23 | -4408522.14 | -4408522.06 | 0.1625 | 0.1103 |
| Mercury | -16781-01-21 09:50 J | -4407817.20 | -4407817.09 | -4407816.99 | 0.1624 | 0.0665 |
| Moon | -16778-04-16 01:11 J | -4406636.56 | -4406636.45 | -4406636.33 | 0.1762 | 0.1391 |
| Earth | -16778-04-16 08:23 J | -4406636.28 | -4406636.15 | -4406636.02 | 0.1761 | 0.1290 |
| Mercury | -16774-07-08 20:09 J | -4405091.69 | -4405091.66 | -4405091.62 | 0.1626 | 0.1528 |
| Mercury | -16772-06-12 21:21 J | -4404386.72 | -4404386.61 | -4404386.49 | 0.1624 | 0.0241 |
| Mercury | -16767-02-25 11:31 J | -4402668.18 | -4402668.02 | -4402667.86 | 0.1896 | 0.0729 |
| Venus | -16766-11-16 00:00 J | -4402039.68 | -4402039.50 | -4402039.33 | 0.1870 | 0.0356 |
| Venus | -16763-08-26 18:57 J | -4401024.86 | -4401024.71 | -4401024.55 | 0.1647 | 0.0685 |
| Mercury | -16763-11-03 09:07 J | -4400956.23 | -4400956.12 | -4400956.00 | 0.1624 | 0.0192 |
| Venus | -16761-06-25 15:50 J | -4400355.96 | -4400355.84 | -4400355.71 | 0.1659 | 0.1141 |
| Mercury | -16761-10-08 10:33 J | -4400251.08 | -4400251.06 | -4400251.04 | 0.1625 | 0.1588 |
| Mercury | -16758-07-18 03:07 J | -4399238.53 | -4399238.37 | -4399238.21 | 0.1896 | 0.0753 |
| Mercury | -16753-03-25 20:52 J | -4397525.74 | -4397525.63 | -4397525.53 | 0.1624 | 0.0620 |
| Mercury | -16751-02-28 22:04 J | -4396820.66 | -4396820.58 | -4396820.50 | 0.1624 | 0.1156 |
| Mercury | -16744-08-16 08:23 J | -4394095.23 | -4394095.15 | -4394095.06 | 0.1625 | 0.1049 |
| Mercury | -16742-07-22 09:50 J | -4393390.20 | -4393390.09 | -4393389.99 | 0.1624 | 0.0724 |
| Mercury | -16734-01-06 20:09 J | -4390664.70 | -4390664.66 | -4390664.61 | 0.1626 | 0.1472 |
| Mercury | -16733-12-11 21:21 J | -4389959.72 | -4389959.61 | -4389959.50 | 0.1624 | 0.0292 |
| Venus | -16732-09-12 07:55 J | -4389685.28 | -4389685.17 | -4389685.06 | 0.1860 | 0.1427 |
| Venus | -16731-08-25 13:26 J | -4389338.00 | -4389337.94 | -4389337.88 | 0.1642 | 0.1516 |
| Venus | -16729-06-24 12:00 J | -4388669.17 | -4388669.00 | -4388668.83 | 0.1654 | 0.0256 |
| Mercury | -16728-08-26 12:00 J | -4388241.15 | -4388241.00 | -4388240.85 | 0.1896 | 0.0835 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -16723-05-04 09:07 J | -4386529.24 | -4386529.12 | -4386529.01 | 0.1624 | 0.0137 |
| Mercury | -16718-01-16 03:50 J | -4384811.50 | -4384811.34 | -4384811.18 | 0.1896 | 0.0631 |
| Mercury | -16714-09-24 20:38 J | -4383098.74 | -4383098.64 | -4383098.53 | 0.1625 | 0.0567 |
| Mercury | -16712-08-29 22:04 J | -4382393.65 | -4382393.58 | -4382393.50 | 0.1624 | 0.1210 |
| Mercury | -16704-02-14 08:23 J | -4379668.24 | -4379668.15 | -4379668.06 | 0.1625 | 0.0990 |
| Mercury | -16702-01-20 09:50 J | -4378963.20 | -4378963.09 | -4378962.99 | 0.1624 | 0.0782 |
| Venus | -16700-09-12 04:04 J | -4377997.51 | -4377997.33 | -4377997.16 | 0.1868 | 0.0111 |
| Venus | -16697-06-23 06:57 J | -4376982.37 | -4376982.21 | -4376982.05 | 0.1649 | 0.0602 |
| Venus | -16695-04-23 03:36 J | -4376313.46 | -4376313.35 | -4376313.23 | 0.1661 | 0.1226 |
| Mercury | -16695-07-07 20:09 J | -4376237.71 | -4376237.66 | -4376237.60 | 0.1625 | 0.1414 |
| Mercury | -16693-06-11 21:21 J | -4375532.72 | -4375532.61 | -4375532.50 | 0.1624 | 0.0351 |
| Mercury | -16688-02-24 12:57 J | -4373814.10 | -4373813.96 | -4373813.81 | 0.1896 | 0.0973 |
| Mercury | -16684-11-02 09:07 J | -4372102.24 | -4372102.12 | -4372102.01 | 0.1624 | 0.0095 |
| Mercury | -16679-07-17 04:48 J | -4370384.46 | -4370384.30 | -4370384.13 | 0.1896 | 0.0496 |
| Mercury | -16674-03-25 20:38 J | -4368671.75 | -4368671.64 | -4368671.53 | 0.1624 | 0.0509 |
| Mercury | -16672-02-27 22:04 J | -4367966.65 | -4367966.58 | -4367966.51 | 0.1624 | 0.1267 |
| Venus | -16668-09-12 01:40 J | -4366309.50 | -4366309.43 | -4366309.35 | 0.1875 | 0.1698 |
| Venus | -16666-07-10 12:00 J | -4365643.08 | -4365643.00 | -4365642.93 | 0.1857 | 0.1664 |
| Venus | -16665-06-22 01:26 J | -4365295.52 | -4365295.44 | -4365295.36 | 0.1644 | 0.1439 |
| Mercury | -16665-08-15 08:23 J | -4365241.24 | -4365241.15 | -4365241.06 | 0.1625 | 0.0934 |
| Venus | -16663-04-21 23:31 J | -4364626.69 | -4364626.52 | -4364626.35 | 0.1655 | 0.0343 |
| Mercury | -16663-07-21 09:36 J | -4364536.20 | -4364536.10 | -4364536.00 | 0.1624 | 0.0836 |
| Mercury | -16655-01-05 20:09 J | -4361810.72 | -4361810.66 | -4361810.60 | 0.1626 | 0.1358 |
| Mercury | -16654-12-11 21:21 J | -4361105.72 | -4361105.61 | -4361105.50 | 0.1624 | 0.0406 |
| Mercury | -16649-08-25 13:55 J | -4359387.05 | -4359386.92 | -4359386.78 | 0.1896 | 0.1107 |
| Mercury | -16644-05-03 09:07 J | -4357675.24 | -4357675.12 | -4357675.01 | 0.1624 | 0.0067 |
| Mercury | -16639-01-15 05:45 J | -4355957.43 | -4355957.26 | -4355957.09 | 0.1896 | 0.0366 |
| Mercury | -16635-09-23 20:38 J | -4354244.75 | -4354244.64 | -4354244.53 | 0.1624 | 0.0451 |
| Venus | -16634-07-10 07:26 J | -4353955.37 | -4353955.19 | -4353955.02 | 0.1865 | 0.0160 |
| Mercury | -16633-08-28 22:04 J | -4353539.65 | -4353539.58 | -4353539.52 | 0.1624 | 0.1325 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Venus | -16631-04-20 18:57 J | -4352939.88 | -4352939.71 | -4352939.55 | 0.1650 | 0.0524 |
| Mercury | -16630-06-06 21:21 J | -4352527.64 | -4352527.61 | -4352527.57 | 0.1895 | 0.1841 |
| Venus | -16629-02-18 14:52 J | -4352270.98 | -4352270.88 | -4352270.78 | 0.1663 | 0.1320 |
| Earth | -16627-10-08 02:52 J | -4351308.52 | -4351308.38 | -4351308.23 | 0.1747 | 0.1139 |
| Moon | -16627-10-08 10:04 J | -4351308.21 | -4351308.08 | -4351307.94 | 0.1747 | 0.1220 |
| Mercury | -16625-02-14 08:23 J | -4350814.25 | -4350814.15 | -4350814.06 | 0.1625 | 0.0879 |
| Mercury | -16623-01-19 09:36 J | -4350109.19 | -4350109.10 | -4350109.00 | 0.1624 | 0.0892 |
| Mercury | -16616-07-06 20:09 J | -4347383.73 | -4347383.66 | -4347383.60 | 0.1626 | 0.1304 |
| Mercury | -16614-06-11 21:21 J | -4346678.73 | -4346678.61 | -4346678.50 | 0.1624 | 0.0465 |
| Mercury | -16609-02-24 14:38 J | -4344960.02 | -4344959.89 | -4344959.76 | 0.1896 | 0.1222 |
| Mercury | -16605-11-01 08:52 J | -4343248.24 | -4343248.13 | -4343248.01 | 0.1624 | 0.0055 |
| Venus | -16602-07-10 05:16 J | -4342267.39 | -4342267.28 | -4342267.17 | 0.1873 | 0.1437 |
| Mercury | -16600-07-16 06:28 J | -4341530.40 | -4341530.23 | -4341530.06 | 0.1896 | 0.0241 |
| Venus | -16599-04-19 13:40 J | -4341253.02 | -4341252.93 | -4341252.83 | 0.1645 | 0.1368 |
| Venus | -16597-02-17 11:16 J | -4340584.20 | -4340584.03 | -4340583.87 | 0.1657 | 0.0428 |
| Mercury | -16595-03-24 20:38 J | -4339817.75 | -4339817.64 | -4339817.53 | 0.1624 | 0.0394 |
| Mercury | -16593-02-27 22:04 J | -4339112.64 | -4339112.58 | -4339112.52 | 0.1624 | 0.1381 |
| Mercury | -16591-12-05 22:19 J | -4338100.64 | -4338100.57 | -4338100.50 | 0.1895 | 0.1709 |
| Mercury | -16586-08-15 08:23 J | -4336387.25 | -4336387.15 | -4336387.05 | 0.1625 | 0.0821 |
| Mercury | -16584-07-20 09:36 J | -4335682.19 | -4335682.10 | -4335682.01 | 0.1624 | 0.0949 |
| Mercury | -16576-01-04 19:55 J | -4332956.74 | -4332956.67 | -4332956.59 | 0.1625 | 0.1249 |
| Mercury | -16575-12-10 21:21 J | -4332251.72 | -4332251.61 | -4332251.50 | 0.1624 | 0.0523 |
| Earth | -16573-04-13 01:40 J | -4331762.60 | -4331762.43 | -4331762.25 | 0.1773 | 0.0757 |
| Moon | -16573-04-13 09:21 J | -4331762.28 | -4331762.11 | -4331761.94 | 0.1773 | 0.0861 * |
| Mercury | -16570-08-25 15:36 J | -4330532.97 | -4330532.85 | -4330532.74 | 0.1896 | 0.1352 |
| Venus | -16568-05-06 12:00 J | -4329913.18 | -4329913.00 | -4329912.83 | 0.1863 | 0.0392 |
| Venus | -16565-02-16 06:28 J | -4328897.39 | -4328897.23 | -4328897.06 | 0.1652 | 0.0442 |
| Mercury | -16565-05-02 08:52 J | -4328821.24 | -4328821.13 | -4328821.01 | 0.1624 | 0.0090 |
| Venus | -16564-12-16 02:09 J | -4328228.49 | -4328228.41 | -4328228.31 | 0.1665 | 0.1410 |
| Mercury | -16560-01-14 07:26 J | -4327103.36 | -4327103.19 | -4327103.02 | 0.1896 | 0.0110 |

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| Mercury | -16556-09-22 20:38 J | -4325390.76 | -4325390.64 | -4325390.53 | 0.1624 | 0.0345 |
| Mercury | -16554-08-28 21:50 J | -4324685.64 | -4324685.59 | -4324685.53 | 0.1624 | 0.1436 |
| Mercury | -16551-06-05 23:02 J | -4323673.63 | -4323673.54 | -4323673.45 | 0.1895 | 0.1596 |
| Earth | -16548-10-10 17:02 J | -4322450.97 | -4322450.79 | -4322450.62 | 0.1751 | 0.0756 |
| Moon | -16548-10-10 17:16 J | -4322450.93 | -4322450.78 | -4322450.64 | 0.1751 | 0.0986 * |
| Mercury | -16546-02-13 08:23 J | -4321960.26 | -4321960.15 | -4321960.05 | 0.1625 | 0.0768 |
| Mercury | -16544-01-18 09:36 J | -4321255.19 | -4321255.10 | -4321255.01 | 0.1624 | 0.1005 |
| Mercury | -16537-07-05 19:55 J | -4318529.74 | -4318529.67 | -4318529.59 | 0.1625 | 0.1191 |
| Venus | -16536-05-06 08:38 J | -4318225.28 | -4318225.14 | -4318225.00 | 0.1871 | 0.1169 |
| Mercury | -16535-06-10 21:07 J | -4317824.72 | -4317824.62 | -4317824.51 | 0.1624 | 0.0578 |
| Venus | -16533-02-15 01:26 J | -4317210.55 | -4317210.44 | -4317210.33 | 0.1647 | 0.1286 |
| Venus | -16532-12-14 22:33 J | -4316541.73 | -4316541.56 | -4316541.40 | 0.1659 | 0.0516 |
| Mercury | -16530-02-23 16:48 J | -4316105.91 | -4316105.80 | -4316105.70 | 0.1896 | 0.1496 |
| Mercury | -16528-11-26 07:40 J | -4315099.19 | -4315099.18 | -4315099.17 | 0.1626 | 0.1614 |
| Mercury | -16526-11-01 08:52 J | -4314394.25 | -4314394.13 | -4314394.02 | 0.1624 | 0.0146 |
| Mercury | -16521-07-15 08:23 J | -4312676.33 | -4312676.15 | -4312675.98 | 0.1896 | 0.0053 |
| Mercury | -16516-03-23 20:38 J | -4310963.76 | -4310963.64 | -4310963.53 | 0.1624 | 0.0288 |
| Mercury | -16514-02-26 21:50 J | -4310258.63 | -4310258.59 | -4310258.54 | 0.1624 | 0.1494 |
| Mercury | -16512-12-05 00:00 J | -4309246.61 | -4309246.50 | -4309246.39 | 0.1895 | 0.1458 |
| Mercury | -16507-08-14 08:09 J | -4307533.26 | -4307533.16 | -4307533.05 | 0.1625 | 0.0711 |
| Mercury | -16505-07-19 09:36 J | -4306828.19 | -4306828.10 | -4306828.02 | 0.1624 | 0.1063 |
| Venus | -16502-03-03 15:36 J | -4305871.02 | -4305870.85 | -4305870.69 | 0.1860 | 0.0637 |
| Venus | -16500-12-13 18:14 J | -4304854.91 | -4304854.74 | -4304854.57 | 0.1653 | 0.0358 |
| Venus | -16498-10-13 13:26 J | -4304186.01 | -4304185.94 | -4304185.87 | 0.1667 | 0.1507 |
| Mercury | -16497-01-04 19:55 J | -4304102.75 | -4304102.67 | -4304102.59 | 0.1625 | 0.1135 |
| Mercury | -16496-12-09 21:07 J | -4303397.73 | -4303397.62 | -4303397.51 | 0.1624 | 0.0629 |
| Earth | -16494-04-16 19:11 J | -4302904.83 | -4302904.70 | -4302904.57 | 0.1768 | 0.1283 |
| Moon | -16494-04-17 00:28 J | -4302904.57 | -4302904.48 | -4302904.39 | 0.1768 | 0.1520 * |
| Mercury | -16491-08-24 17:02 J | -4301678.88 | -4301678.79 | -4301678.70 | 0.1896 | 0.1597 |
| Mercury | -16488-05-27 07:40 J | -4300672.21 | -4300672.18 | -4300672.15 | 0.1626 | 0.1560 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -16486-05-02 08:52 J | -4299967.25 | -4299967.13 | -4299967.02 | 0.1624 | 0.0204 |
| Mercury | -16481-01-14 09:07 J | -4298249.29 | -4298249.12 | -4298248.95 | 0.1896 | 0.0146 |
| Mercury | -16477-09-21 20:23 J | -4296536.76 | -4296536.65 | -4296536.53 | 0.1624 | 0.0229 |
| Mercury | -16475-08-27 21:50 J | -4295831.62 | -4295831.59 | -4295831.56 | 0.1624 | 0.1550 |
| Mercury | -16472-06-05 01:11 J | -4294819.57 | -4294819.45 | -4294819.33 | 0.1895 | 0.1315 |
| Venus | -16470-03-03 11:45 J | -4294183.16 | -4294183.01 | -4294182.85 | 0.1869 | 0.0907 |
| Venus | -16468-12-12 13:40 J | -4293168.05 | -4293167.93 | -4293167.82 | 0.1648 | 0.1212 |
| Mercury | -16467-02-12 08:09 J | -4293106.26 | -4293106.16 | -4293106.05 | 0.1625 | 0.0653 |
| Venus | -16466-10-12 10:04 J | -4292499.24 | -4292499.08 | -4292498.92 | 0.1661 | 0.0604 |
| Mercury | -16465-01-18 09:21 J | -4292401.19 | -4292401.11 | -4292401.02 | 0.1624 | 0.1119 |
| Mercury | -16458-07-05 19:55 J | -4289675.76 | -4289675.67 | -4289675.59 | 0.1625 | 0.1079 |
| Mercury | -16456-06-09 21:07 J | -4288970.72 | -4288970.62 | -4288970.51 | 0.1624 | 0.0689 |
| Mercury | -16451-02-22 18:14 J | -4287251.81 | -4287251.74 | -4287251.68 | 0.1896 | 0.1736 |
| Mercury | -16449-11-25 07:40 J | -4286245.22 | -4286245.18 | -4286245.14 | 0.1626 | 0.1506 |
| Mercury | -16447-10-31 08:38 J | -4285540.25 | -4285540.14 | -4285540.02 | 0.1624 | 0.0261 |
| Mercury | -16442-07-15 10:04 J | -4283822.25 | -4283822.08 | -4283821.91 | 0.1896 | 0.0277 |
| Mercury | -16437-03-22 20:23 J | -4282109.76 | -4282109.65 | -4282109.53 | 0.1624 | 0.0172 |
| Venus | -16437-12-28 20:09 J | -4281828.81 | -4281828.66 | -4281828.50 | 0.1858 | 0.0870 |
| Mercury | -16435-02-25 21:50 J | -4281404.61 | -4281404.59 | -4281404.58 | 0.1624 | 0.1605 |
| Venus | -16434-10-11 06:14 J | -4280812.41 | -4280812.24 | -4280812.07 | 0.1655 | 0.0277 |
| Mercury | -16433-12-04 01:26 J | -4280392.57 | -4280392.44 | -4280392.31 | 0.1895 | 0.1213 |
| Venus | -16432-08-10 00:28 J | -4280143.53 | -4280143.48 | -4280143.44 | 0.1669 | 0.1604 |
| Mercury | -16428-08-13 08:09 J | -4278679.27 | -4278679.16 | -4278679.05 | 0.1625 | 0.0598 |
| Mercury | -16426-07-19 09:21 J | -4277974.19 | -4277974.11 | -4277974.03 | 0.1624 | 0.1174 |
| Mercury | -16418-01-03 19:55 J | -4275248.76 | -4275248.67 | -4275248.58 | 0.1625 | 0.1024 |
| Mercury | -16417-12-08 21:07 J | -4274543.73 | -4274543.62 | -4274543.52 | 0.1624 | 0.0744 |
| Mercury | -16412-08-23 19:11 J | -4272824.72 | -4272824.70 | -4272824.68 | 0.1896 | 0.1871 |
| Mercury | -16409-05-26 07:40 J | -4271818.23 | -4271818.18 | -4271818.13 | 0.1626 | 0.1447 |
| Mercury | -16407-05-01 08:38 J | -4271113.25 | -4271113.14 | -4271113.02 | 0.1624 | 0.0322 |
| Venus | -16405-12-28 15:36 J | -4270141.01 | -4270140.85 | -4270140.68 | 0.1866 | 0.0653 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -16402-01-13 10:48 J | -4269395.21 | -4269395.05 | -4269394.88 | 0.1896 | 0.0408 |
| Venus | -16402-10-10 01:11 J | -4269125.57 | -4269125.45 | -4269125.32 | 0.1650 | 0.1129 |
| Venus | -16400-08-08 21:07 J | -4268456.78 | -4268456.62 | -4268456.46 | 0.1663 | 0.0699 |
| Mercury | -16398-09-21 20:23 J | -4267682.77 | -4267682.65 | -4267682.54 | 0.1624 | 0.0114 |
| Mercury | -16393-06-04 02:38 J | -4265965.53 | -4265965.39 | -4265965.24 | 0.1896 | 0.1066 |
| Mercury | -16388-02-11 08:09 J | -4264252.27 | -4264252.16 | -4264252.06 | 0.1625 | 0.0545 |
| Mercury | -16386-01-17 09:21 J | -4263547.18 | -4263547.11 | -4263547.04 | 0.1624 | 0.1229 |
| Mercury | -16379-07-04 19:40 J | -4260821.77 | -4260821.68 | -4260821.58 | 0.1625 | 0.0969 |
| Mercury | -16377-06-08 21:07 J | -4260116.72 | -4260116.62 | -4260116.52 | 0.1624 | 0.0801 |
| Venus | -16371-10-26 00:00 J | -4257786.64 | -4257786.50 | -4257786.36 | 0.1855 | 0.1113 |
| Mercury | -16370-11-25 07:26 J | -4257391.24 | -4257391.19 | -4257391.13 | 0.1626 | 0.1393 |
| Venus | -16368-08-07 17:16 J | -4256769.95 | -4256769.78 | -4256769.61 | 0.1657 | 0.0186 |
| Mercury | -16368-10-30 08:38 J | -4256686.25 | -4256686.14 | -4256686.03 | 0.1624 | 0.0370 |
| Mercury | -16363-07-14 11:45 J | -4254968.17 | -4254968.01 | -4254967.85 | 0.1896 | 0.0533 |
| Mercury | -16358-03-22 20:23 J | -4253255.77 | -4253255.65 | -4253255.54 | 0.1624 | 0.0067 |
| Mercury | -16354-12-04 03:36 J | -4251538.50 | -4251538.35 | -4251538.20 | 0.1895 | 0.0937 |
| Mercury | -16349-08-12 08:09 J | -4249825.27 | -4249825.16 | -4249825.05 | 0.1625 | 0.0487 |
| Mercury | -16347-07-18 09:21 J | -4249120.18 | -4249120.11 | -4249120.04 | 0.1624 | 0.1287 |
| Moon | -16343-10-08 11:45 J | -4247577.13 | -4247577.01 | -4247576.89 | 0.1740 | 0.1376 |
| Earth | -16343-10-08 14:23 J | -4247577.05 | -4247576.90 | -4247576.76 | 0.1740 | 0.1102 * |
| Mercury | -16339-01-02 19:40 J | -4246394.77 | -4246394.68 | -4246394.58 | 0.1625 | 0.0912 |
| Venus | -16339-10-25 18:43 J | -4246098.89 | -4246098.72 | -4246098.55 | 0.1864 | 0.0387 |
| Mercury | -16338-12-08 21:07 J | -4245689.72 | -4245689.62 | -4245689.53 | 0.1624 | 0.0860 |
| Venus | -16336-08-06 12:43 J | -4245083.10 | -4245082.97 | -4245082.83 | 0.1652 | 0.1049 |
| Venus | -16334-06-06 08:23 J | -4244414.30 | -4244414.15 | -4244414.00 | 0.1665 | 0.0793 |
| Mercury | -16330-05-26 07:26 J | -4242964.25 | -4242964.19 | -4242964.13 | 0.1626 | 0.1338 |
| Mercury | -16328-04-30 08:38 J | -4242259.25 | -4242259.14 | -4242259.03 | 0.1624 | 0.0426 |
| Mercury | -16323-01-12 12:43 J | -4240541.13 | -4240540.97 | -4240540.81 | 0.1896 | 0.0660 |
| Mercury | -16319-09-20 20:09 J | -4238828.77 | -4238828.66 | -4238828.54 | 0.1624 | 0.0058 |
| Mercury | -16314-06-04 04:19 J | -4237111.48 | -4237111.32 | -4237111.17 | 0.1896 | 0.0821 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -16309-02-11 07:55 J | -4235398.28 | -4235398.17 | -4235398.05 | 0.1625 | 0.0433 |
| Mercury | -16307-01-16 09:21 J | -4234693.18 | -4234693.11 | -4234693.05 | 0.1624 | 0.1343 |
| Venus | -16305-08-22 04:19 J | -4233744.44 | -4233744.32 | -4233744.20 | 0.1853 | 0.1344 |
| Venus | -16302-06-05 05:02 J | -4232727.46 | -4232727.29 | -4232727.12 | 0.1659 | 0.0103 |
| Mercury | -16300-07-03 19:40 J | -4231967.78 | -4231967.68 | -4231967.58 | 0.1625 | 0.0855 |
| Mercury | -16298-06-08 20:52 J | -4231262.72 | -4231262.63 | -4231262.53 | 0.1624 | 0.0913 |
| Mercury | -16291-11-24 07:26 J | -4228537.26 | -4228537.19 | -4228537.12 | 0.1626 | 0.1280 |
| Moon | -16289-04-13 04:04 J | -4228031.49 | -4228031.33 | -4228031.17 | 0.1781 | 0.1041 |
| Earth | -16289-04-13 10:33 J | -4228031.23 | -4228031.06 | -4228030.89 | 0.1781 | 0.0848 * |
| Mercury | -16289-10-29 08:38 J | -4227832.25 | -4227832.14 | -4227832.03 | 0.1624 | 0.0484 |
| Mercury | -16284-07-13 13:26 J | -4226114.09 | -4226113.94 | -4226113.78 | 0.1896 | 0.0787 |
| Mercury | -16279-03-21 20:09 J | -4224401.77 | -4224401.66 | -4224401.54 | 0.1624 | 0.0079 |
| Mercury | -16275-12-03 05:16 J | -4222684.44 | -4222684.28 | -4222684.12 | 0.1896 | 0.0683 |
| Venus | -16273-08-21 23:02 J | -4222056.71 | -4222056.54 | -4222056.36 | 0.1861 | 0.0149 |
| Venus | -16270-06-04 00:28 J | -4221040.62 | -4221040.48 | -4221040.34 | 0.1653 | 0.0966 |
| Mercury | -16270-08-12 07:55 J | -4220971.28 | -4220971.17 | -4220971.06 | 0.1624 | 0.0375 |
| Venus | -16268-04-02 19:55 J | -4220371.82 | -4220371.67 | -4220371.52 | 0.1667 | 0.0883 |
| Mercury | -16268-07-17 09:07 J | -4220266.17 | -4220266.12 | -4220266.06 | 0.1624 | 0.1400 |
| Earth | -16264-10-11 03:07 J | -4218719.54 | -4218719.37 | -4218719.19 | 0.1744 | 0.0732 |
| Moon | -16264-10-11 09:36 J | -4218719.26 | -4218719.10 | -4218718.95 | 0.1745 | 0.1071 * |
| Mercury | -16260-01-01 19:40 J | -4217540.78 | -4217540.68 | -4217540.58 | 0.1625 | 0.0800 |
| Mercury | -16259-12-07 20:52 J | -4216835.72 | -4216835.63 | -4216835.54 | 0.1624 | 0.0966 |
| Mercury | -16251-05-25 07:26 J | -4214110.27 | -4214110.19 | -4214110.12 | 0.1626 | 0.1226 |
| Mercury | -16249-04-29 08:23 J | -4213405.25 | -4213405.15 | -4213405.04 | 0.1624 | 0.0543 |
| Mercury | -16244-01-11 14:23 J | -4211687.05 | -4211686.90 | -4211686.75 | 0.1897 | 0.0917 |
| Venus | -16241-08-21 19:40 J | -4210368.75 | -4210368.68 | -4210368.61 | 0.1869 | 0.1701 |
| Mercury | -16240-09-19 20:09 J | -4209974.77 | -4209974.66 | -4209974.54 | 0.1624 | 0.0113 |
| Venus | -16239-06-19 08:38 J | -4209702.23 | -4209702.14 | -4209702.05 | 0.1849 | 0.1573 |
| Venus | -16236-04-01 16:33 J | -4208684.99 | -4208684.81 | -4208684.64 | 0.1660 | 0.0044 |
| Mercury | -16235-06-03 06:14 J | -4208257.40 | -4208257.24 | -4208257.07 | 0.1896 | 0.0546 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -16230-02-10 07:55 J | -4206544.28 | -4206544.17 | -4206544.06 | 0.1624 | 0.0316 |
| Mercury | -16228-01-15 09:07 J | -4205839.16 | -4205839.12 | -4205839.07 | 0.1624 | 0.1456 |
| Mercury | -16221-07-02 19:40 J | -4203113.79 | -4203113.68 | -4203113.58 | 0.1625 | 0.0747 |
| Mercury | -16219-06-07 20:52 J | -4202408.72 | -4202408.63 | -4202408.54 | 0.1624 | 0.1025 |
| Mercury | -16212-11-23 07:11 J | -4199683.27 | -4199683.20 | -4199683.12 | 0.1626 | 0.1172 |
| Earth | -16210-04-17 04:19 J | -4199173.46 | -4199173.32 | -4199173.18 | 0.1776 | 0.1234 |
| Moon | -16210-04-17 08:38 J | -4199173.26 | -4199173.14 | -4199173.02 | 0.1775 | 0.1425 * |
| Mercury | -16210-10-29 08:23 J | -4198978.25 | -4198978.15 | -4198978.04 | 0.1624 | 0.0594 |
| Venus | -16207-06-19 02:52 J | -4198014.55 | -4198014.38 | -4198014.20 | 0.1858 | 0.0102 |
| Mercury | -16205-07-12 15:07 J | -4197260.01 | -4197259.87 | -4197259.72 | 0.1896 | 0.1044 |
| Venus | -16204-03-31 12:14 J | -4196998.13 | -4196997.99 | -4196997.84 | 0.1655 | 0.0883 |
| Venus | -16202-01-29 06:43 J | -4196329.36 | -4196329.22 | -4196329.08 | 0.1669 | 0.0981 |
| Mercury | -16202-04-15 18:57 J | -4196252.73 | -4196252.71 | -4196252.69 | 0.1627 | 0.1595 |
| Mercury | -16200-03-20 20:09 J | -4195547.78 | -4195547.66 | -4195547.55 | 0.1624 | 0.0166 |
| Mercury | -16196-12-02 06:43 J | -4193830.39 | -4193830.22 | -4193830.05 | 0.1896 | 0.0442 |
| Mercury | -16191-08-11 07:55 J | -4192117.29 | -4192117.17 | -4192117.06 | 0.1625 | 0.0265 |
| Mercury | -16189-07-16 09:07 J | -4191412.16 | -4191412.12 | -4191412.08 | 0.1624 | 0.1510 |
| Mercury | -16186-04-23 22:48 J | -4190400.55 | -4190400.55 | -4190400.54 | 0.1895 | 0.1890 |
| Mercury | -16181-01-01 19:26 J | -4188686.79 | -4188686.69 | -4188686.58 | 0.1625 | 0.0690 |
| Mercury | -16180-12-06 20:52 J | -4187981.72 | -4187981.63 | -4187981.55 | 0.1624 | 0.1081 |
| Venus | -16175-06-18 23:31 J | -4186326.63 | -4186326.52 | -4186326.41 | 0.1867 | 0.1449 |
| Venus | -16173-04-15 13:11 J | -4185659.98 | -4185659.95 | -4185659.91 | 0.1847 | 0.1800 |
| Mercury | -16172-05-24 07:11 J | -4185256.28 | -4185256.20 | -4185256.11 | 0.1626 | 0.1114 |
| Venus | -16170-01-28 03:50 J | -4184642.52 | -4184642.34 | -4184642.17 | 0.1663 | 0.0082 |
| Mercury | -16170-04-29 08:24 J | -4184551.25 | -4184551.15 | -4184551.04 | 0.1624 | 0.0653 |
| Mercury | -16165-01-11 16:04 J | -4182832.97 | -4182832.83 | -4182832.70 | 0.1896 | 0.1168 |
| Mercury | -16163-10-14 18:57 J | -4181825.74 | -4181825.71 | -4181825.68 | 0.1627 | 0.1541 |
| Mercury | -16161-09-18 20:09 J | -4181120.78 | -4181120.66 | -4181120.55 | 0.1624 | 0.0223 |
| Mercury | -16156-06-02 07:55 J | -4179403.34 | -4179403.17 | -4179403.00 | 0.1896 | 0.0295 |
| Mercury | -16151-02-09 07:40 J | -4177690.29 | -4177690.18 | -4177690.06 | 0.1624 | 0.0213 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -16149-01-15 09:07 J | -4176985.15 | -4176985.12 | -4176985.09 | 0.1623 | 0.1566 |
| Mercury | -16147-10-22 23:16 J | -4175973.58 | -4175973.53 | -4175973.47 | 0.1895 | 0.1783 |
| Mercury | -16142-07-02 19:26 J | -4174259.79 | -4174259.69 | -4174259.58 | 0.1625 | 0.0633 |
| Venus | -16141-04-15 07:40 J | -4173972.35 | -4173972.18 | -4173972.00 | 0.1856 | 0.0333 |
| Mercury | -16140-06-06 20:38 J | -4173554.72 | -4173554.64 | -4173554.55 | 0.1623 | 0.1136 |
| Venus | -16138-01-26 23:45 J | -4172955.66 | -4172955.51 | -4172955.36 | 0.1656 | 0.0798 |
| Venus | -16137-11-25 18:14 J | -4172286.88 | -4172286.74 | -4172286.61 | 0.1671 | 0.1073 |
| Mercury | -16133-11-22 07:11 J | -4170829.29 | -4170829.20 | -4170829.11 | 0.1626 | 0.1058 |
| Mercury | -16131-10-28 08:24 J | -4170124.25 | -4170124.15 | -4170124.05 | 0.1624 | 0.0706 |
| Mercury | -16126-07-12 17:02 J | -4168405.91 | -4168405.79 | -4168405.67 | 0.1897 | 0.1301 |
| Mercury | -16123-04-14 18:57 J | -4167398.75 | -4167398.71 | -4167398.67 | 0.1627 | 0.1482 |
| Mercury | -16121-03-19 20:09 J | -4166693.78 | -4166693.66 | -4166693.55 | 0.1624 | 0.0284 |
| Mercury | -16117-12-01 08:52 J | -4164976.30 | -4164976.13 | -4164975.96 | 0.1896 | 0.0167 |
| Mercury | -16112-08-10 07:40 J | -4163263.29 | -4163263.18 | -4163263.06 | 0.1624 | 0.0162 |
| Venus | -16109-04-15 03:07 J | -4162284.50 | -4162284.37 | -4162284.23 | 0.1864 | 0.1190 |
| Mercury | -16107-04-23 00:28 J | -4161546.56 | -4161546.48 | -4161546.40 | 0.1895 | 0.1640 |
| Venus | -16106-01-25 18:57 J | -4161268.71 | -4161268.71 | -4161268.70 | 0.1651 | 0.1648 |
| Venus | -16105-11-24 14:52 J | -4160600.05 | -4160599.88 | -4160599.70 | 0.1664 | 0.0173 |
| Mercury | -16103-12-31 19:26 J | -4159832.80 | -4159832.69 | -4159832.58 | 0.1625 | 0.0577 |
| Mercury | -16101-12-05 20:38 J | -4159127.71 | -4159127.64 | -4159127.56 | 0.1623 | 0.1194 |
| Mercury | -16093-05-23 07:11 J | -4156402.29 | -4156402.20 | -4156402.11 | 0.1626 | 0.1004 |
| Mercury | -16091-04-28 08:24 J | -4155697.26 | -4155697.15 | -4155697.05 | 0.1624 | 0.0763 |
| Mercury | -16086-01-10 17:45 J | -4153978.87 | -4153978.76 | -4153978.65 | 0.1896 | 0.1420 |
| Mercury | -16084-10-13 18:57 J | -4152971.77 | -4152971.71 | -4152971.66 | 0.1627 | 0.1429 |
| Mercury | -16082-09-18 19:55 J | -4152266.78 | -4152266.67 | -4152266.55 | 0.1624 | 0.0336 |
| Mercury | -16077-06-01 09:35 J | -4150549.27 | -4150549.10 | -4150548.93 | 0.1896 | 0.0060 |
| Venus | -16075-02-10 11:45 J | -4149930.17 | -4149930.01 | -4149929.84 | 0.1853 | 0.0569 |
| Venus | -16073-11-23 11:16 J | -4148913.19 | -4148913.03 | -4148912.87 | 0.1658 | 0.0713 |
| Mercury | -16072-02-08 07:40 J | -4148836.29 | -4148836.18 | -4148836.06 | 0.1624 | 0.0095 |
| Venus | -16071-09-23 04:48 J | -4148244.42 | -4148244.30 | -4148244.17 | 0.1673 | 0.1174 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -16068-10-22 01:26 J | -4147119.54 | -4147119.44 | -4147119.34 | 0.1895 | 0.1508 |
| Mercury | -16063-07-01 19:26 J | -4145405.80 | -4145405.69 | -4145405.58 | 0.1625 | 0.0521 |
| Mercury | -16061-06-05 20:38 J | -4144700.71 | -4144700.64 | -4144700.57 | 0.1624 | 0.1248 |
| Moon | -16059-10-08 19:55 J | -4143845.78 | -4143845.67 | -4143845.56 | 0.1733 | 0.1382 |
| Earth | -16059-10-09 01:55 J | -4143845.57 | -4143845.42 | -4143845.27 | 0.1733 | 0.1051 * |
| Mercury | -16054-11-22 07:11 J | -4141975.30 | -4141975.20 | -4141975.11 | 0.1626 | 0.0947 |
| Mercury | -16052-10-27 08:24 J | -4141270.25 | -4141270.15 | -4141270.06 | 0.1624 | 0.0821 |
| Mercury | -16047-07-11 18:43 J | -4139551.82 | -4139551.72 | -4139551.63 | 0.1897 | 0.1552 |
| Mercury | -16044-04-13 18:43 J | -4138544.77 | -4138544.72 | -4138544.66 | 0.1627 | 0.1374 |
| Venus | -16043-02-10 06:57 J | -4138242.36 | -4138242.21 | -4138242.06 | 0.1862 | 0.0936 |
| Mercury | -16042-03-19 19:55 J | -4137839.78 | -4137839.67 | -4137839.56 | 0.1624 | 0.0393 |
| Venus | -16041-11-22 07:11 J | -4137226.25 | -4137226.20 | -4137226.15 | 0.1653 | 0.1571 |
| Venus | -16039-09-22 02:09 J | -4136557.58 | -4136557.41 | -4136557.24 | 0.1667 | 0.0261 |
| Mercury | -16038-12-01 10:33 J | -4136122.23 | -4136122.06 | -4136121.89 | 0.1896 | 0.0089 |
| Mercury | -16033-08-09 07:40 J | -4134409.30 | -4134409.18 | -4134409.07 | 0.1624 | 0.0052 |
| Mercury | -16028-04-22 02:09 J | -4132692.53 | -4132692.41 | -4132692.30 | 0.1895 | 0.1392 |
| Mercury | -16024-12-30 19:26 J | -4130978.80 | -4130978.69 | -4130978.58 | 0.1625 | 0.0468 |
| Mercury | -16022-12-05 20:38 J | -4130273.71 | -4130273.64 | -4130273.58 | 0.1623 | 0.1302 |
| Mercury | -16014-05-23 06:57 J | -4127548.30 | -4127548.21 | -4127548.11 | 0.1626 | 0.0893 |
| Mercury | -16012-04-27 08:09 J | -4126843.25 | -4126843.16 | -4126843.06 | 0.1624 | 0.0878 |
| Venus | -16010-12-08 16:48 J | -4125887.96 | -4125887.80 | -4125887.64 | 0.1850 | 0.0794 |
| Mercury | -16007-01-09 19:40 J | -4125124.76 | -4125124.68 | -4125124.61 | 0.1897 | 0.1683 |
| Venus | -16007-09-20 22:48 J | -4124870.71 | -4124870.55 | -4124870.39 | 0.1660 | 0.0628 |
| Moon | -16005-04-13 16:19 J | -4124299.96 | -4124299.82 | -4124299.67 | 0.1788 | 0.1054 |
| Earth | -16005-04-13 18:00 J | -4124299.91 | -4124299.75 | -4124299.58 | 0.1788 | 0.0970 * |
| Venus | -16005-07-20 15:50 J | -4124201.95 | -4124201.84 | -4124201.73 | 0.1675 | 0.1273 |
| Mercury | -16005-10-12 18:43 J | -4124117.78 | -4124117.72 | -4124117.65 | 0.1627 | 0.1316 |
| Mercury | -16003-09-17 19:55 J | -4123412.78 | -4123412.67 | -4123412.56 | 0.1624 | 0.0446 |

16TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 16th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|---|-------------|-------------|-------------|--------|--------|---|
| Mercury | -15998-06-01 11:31 J | | -4121695.19 | -4121695.02 | -4121694.85 | 0.1896 | 0.0223 | |
| Mercury | -15993-02-08 07:40 J | | -4119982.30 | -4119982.18 | -4119982.07 | 0.1624 | 0.0032 | |
| Mercury | -15989-10-21 02:52 J | | -4118265.50 | -4118265.38 | -4118265.25 | 0.1895 | 0.1263 | |
| Mercury | -15984-06-30 19:11 J | | -4116551.81 | -4116551.70 | -4116551.59 | 0.1625 | 0.0412 | |
| Mercury | -15982-06-05 20:38 J | | -4115846.70 | -4115846.64 | -4115846.58 | 0.1623 | 0.1361 | |
| Moon | -15980-10-11 08:38 J | | -4114988.31 | -4114988.14 | -4114987.97 | 0.1737 | 0.0913 | |
| Earth | -15980-10-11 14:52 J | | -4114988.05 | -4114987.88 | -4114987.70 | 0.1737 | 0.0755 | * |
| Venus | -15978-12-08 11:02 J | | -4114200.20 | -4114200.04 | -4114199.88 | 0.1859 | 0.0687 | |
| Venus | -15975-09-19 18:28 J | | -4113183.80 | -4113183.73 | -4113183.66 | 0.1654 | 0.1486 | |
| Mercury | -15975-11-21 06:57 J | | -4113121.31 | -4113121.21 | -4113121.11 | 0.1626 | 0.0837 | |
| Venus | -15973-07-19 13:11 J | | -4112515.12 | -4112514.95 | -4112514.78 | 0.1669 | 0.0356 | |
| Mercury | -15973-10-26 08:09 J | | -4112416.25 | -4112416.16 | -4112416.07 | 0.1623 | 0.0929 | |
| Mercury | -15968-07-10 20:24 J | | -4110697.70 | -4110697.65 | -4110697.60 | 0.1897 | 0.1802 | |
| Mercury | -15965-04-12 18:43 J | | -4109690.79 | -4109690.72 | -4109690.65 | 0.1627 | 0.1261 | |
| Mercury | -15963-03-18 19:55 J | | -4108985.78 | -4108985.67 | -4108985.56 | 0.1624 | 0.0502 | |
| Mercury | -15959-11-30 12:00 J | | -4107268.17 | -4107268.00 | -4107267.83 | 0.1896 | 0.0330 | |
| Mercury | -15954-08-09 07:26 J | | -4105555.30 | -4105555.19 | -4105555.07 | 0.1624 | 0.0094 | |
| Mercury | -15949-04-21 04:19 J | | -4103838.46 | -4103838.32 | -4103838.19 | 0.1895 | 0.1113 | |
| Mercury | -15945-12-29 19:11 J | | -4102124.81 | -4102124.70 | -4102124.58 | 0.1625 | 0.0354 | |
| Venus | -15944-10-04 21:07 J | | -4101845.77 | -4101845.62 | -4101845.48 | 0.1847 | 0.1031 | |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -15943-12-04 20:24 J | -4101419.70 | -4101419.65 | -4101419.59 | 0.1623 | 0.1417 |
| Venus | -15941-07-18 10:04 J | -4100828.25 | -4100828.08 | -4100827.92 | 0.1662 | 0.0538 |
| Venus | -15939-05-18 02:38 J | -4100159.49 | -4100159.39 | -4100159.30 | 0.1678 | 0.1375 |
| Mercury | -15935-05-22 06:57 J | -4098694.31 | -4098694.21 | -4098694.11 | 0.1626 | 0.0779 |
| Mercury | -15933-04-26 08:09 J | -4097989.25 | -4097989.16 | -4097989.07 | 0.1623 | 0.0988 |
| Moon | -15926-04-17 04:33 J | -4095442.47 | -4095442.31 | -4095442.15 | 0.1783 | 0.0982 |
| Earth | -15926-04-17 12:14 J | -4095442.13 | -4095441.99 | -4095441.84 | 0.1783 | 0.1153 |
| Mercury | -15926-10-12 18:43 J | -4095263.80 | -4095263.72 | -4095263.65 | 0.1627 | 0.1208 |
| Mercury | -15924-09-16 19:55 J | -4094558.78 | -4094558.67 | -4094558.57 | 0.1624 | 0.0560 |
| Mercury | -15919-05-31 13:11 J | -4092841.11 | -4092840.95 | -4092840.78 | 0.1896 | 0.0479 |
| Mercury | -15914-02-07 07:26 J | -4091128.30 | -4091128.19 | -4091128.07 | 0.1624 | 0.0132 |
| Venus | -15912-10-04 14:38 J | -4090158.06 | -4090157.89 | -4090157.72 | 0.1856 | 0.0432 |
| Mercury | -15910-10-21 04:33 J | -4089411.45 | -4089411.31 | -4089411.16 | 0.1895 | 0.1012 |
| Venus | -15909-07-17 06:00 J | -4089141.34 | -4089141.25 | -4089141.16 | 0.1656 | 0.1405 |
| Venus | -15907-05-17 00:14 J | -4088472.65 | -4088472.49 | -4088472.32 | 0.1671 | 0.0452 |
| Mercury | -15905-06-29 19:11 J | -4087697.81 | -4087697.70 | -4087697.59 | 0.1625 | 0.0297 |
| Mercury | -15903-06-04 20:24 J | -4086992.69 | -4086992.65 | -4086992.60 | 0.1623 | 0.1471 |
| Mercury | -15896-11-20 06:57 J | -4084267.31 | -4084267.21 | -4084267.11 | 0.1626 | 0.0724 |
| Mercury | -15894-10-26 08:09 J | -4083562.25 | -4083562.16 | -4083562.08 | 0.1624 | 0.1042 |
| Mercury | -15886-04-12 18:43 J | -4080836.80 | -4080836.72 | -4080836.64 | 0.1627 | 0.1149 |
| Mercury | -15884-03-17 19:40 J | -4080131.78 | -4080131.68 | -4080131.57 | 0.1624 | 0.0618 |
| Mercury | -15880-11-29 13:55 J | -4078414.08 | -4078413.92 | -4078413.75 | 0.1896 | 0.0604 |
| Venus | -15878-08-02 01:40 J | -4077803.55 | -4077803.43 | -4077803.30 | 0.1844 | 0.1252 |
| Mercury | -15877-09-02 06:14 J | -4077406.26 | -4077406.24 | -4077406.21 | 0.1628 | 0.1577 |
| Venus | -15875-05-15 21:35 J | -4076785.76 | -4076785.60 | -4076785.43 | 0.1664 | 0.0455 |
| Mercury | -15875-08-08 07:26 J | -4076701.30 | -4076701.19 | -4076701.07 | 0.1624 | 0.0189 |
| Venus | -15873-03-14 13:11 J | -4076117.03 | -4076116.95 | -4076116.86 | 0.1680 | 0.1477 |
| Mercury | -15870-04-21 05:45 J | -4074984.41 | -4074984.26 | -4074984.11 | 0.1895 | 0.0867 |
| Mercury | -15866-12-29 19:11 J | -4073270.82 | -4073270.70 | -4073270.59 | 0.1625 | 0.0245 |
| Mercury | -15864-12-03 20:24 J | -4072565.68 | -4072565.65 | -4072565.61 | 0.1623 | 0.1528 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -15856-05-21 06:57 J | -4069840.32 | -4069840.21 | -4069840.11 | 0.1626 | 0.0671 |
| Mercury | -15854-04-26 07:55 J | -4069135.25 | -4069135.17 | -4069135.08 | 0.1623 | 0.1099 |
| Mercury | -15847-10-11 18:28 J | -4066409.81 | -4066409.73 | -4066409.64 | 0.1627 | 0.1096 |
| Venus | -15846-08-01 19:11 J | -4066115.87 | -4066115.70 | -4066115.53 | 0.1853 | 0.0199 |
| Mercury | -15845-09-15 19:40 J | -4065704.78 | -4065704.68 | -4065704.57 | 0.1624 | 0.0670 |
| Venus | -15843-05-14 17:45 J | -4065098.87 | -4065098.76 | -4065098.66 | 0.1658 | 0.1324 |
| Venus | -15841-03-13 11:31 J | -4064430.18 | -4064430.02 | -4064429.86 | 0.1673 | 0.0544 |
| Mercury | -15840-05-30 14:52 J | -4063987.04 | -4063986.88 | -4063986.73 | 0.1896 | 0.0725 |
| Mercury | -15837-03-03 06:14 J | -4062979.28 | -4062979.24 | -4062979.20 | 0.1628 | 0.1519 |
| Mercury | -15835-02-06 07:26 J | -4062274.31 | -4062274.19 | -4062274.08 | 0.1624 | 0.0242 |
| Mercury | -15831-10-20 06:43 J | -4060557.38 | -4060557.22 | -4060557.06 | 0.1895 | 0.0734 |
| Mercury | -15826-06-29 19:11 J | -4058843.82 | -4058843.70 | -4058843.59 | 0.1625 | 0.0191 |
| Mercury | -15824-06-03 20:24 J | -4058138.67 | -4058138.65 | -4058138.63 | 0.1623 | 0.1583 |
| Mercury | -15817-11-19 06:57 J | -4055413.32 | -4055413.21 | -4055413.11 | 0.1626 | 0.0614 |
| Mercury | -15815-10-25 08:09 J | -4054708.24 | -4054708.16 | -4054708.08 | 0.1623 | 0.1157 |
| Venus | -15814-08-01 14:24 J | -4054427.96 | -4054427.90 | -4054427.83 | 0.1862 | 0.1717 |
| Venus | -15812-05-29 06:43 J | -4053761.32 | -4053761.22 | -4053761.12 | 0.1841 | 0.1468 |
| Venus | -15809-03-12 08:38 J | -4052743.30 | -4052743.14 | -4052742.97 | 0.1666 | 0.0364 |
| Venus | -15807-01-09 23:45 J | -4052074.56 | -4052074.51 | -4052074.45 | 0.1682 | 0.1583 |
| Mercury | -15807-04-11 18:28 J | -4051982.82 | -4051982.73 | -4051982.64 | 0.1627 | 0.1039 |
| Mercury | -15805-03-16 19:40 J | -4051277.78 | -4051277.68 | -4051277.58 | 0.1624 | 0.0726 |
| Mercury | -15801-11-28 15:50 J | -4049560.00 | -4049559.84 | -4049559.69 | 0.1896 | 0.0856 |
| Mercury | -15798-09-02 06:14 J | -4048552.29 | -4048552.24 | -4048552.19 | 0.1628 | 0.1466 |
| Mercury | -15796-08-07 07:26 J | -4047847.31 | -4047847.19 | -4047847.08 | 0.1624 | 0.0302 |
| Mercury | -15791-04-20 07:26 J | -4046130.35 | -4046130.19 | -4046130.03 | 0.1895 | 0.0619 |
| Mercury | -15787-12-28 18:57 J | -4044416.82 | -4044416.71 | -4044416.59 | 0.1625 | 0.0143 |
| Venus | -15780-05-28 23:45 J | -4042073.69 | -4042073.51 | -4042073.34 | 0.1850 | 0.0062 |
| Venus | -15777-03-11 05:16 J | -4041056.40 | -4041056.28 | -4041056.17 | 0.1660 | 0.1240 |
| Mercury | -15777-05-20 06:43 J | -4040986.32 | -4040986.22 | -4040986.11 | 0.1626 | 0.0557 |
| Venus | -15775-01-08 22:19 J | -4040387.73 | -4040387.57 | -4040387.41 | 0.1675 | 0.0645 |

Mercury -15775-04-25 07:55 J -4040281.24 -4040281.17 -4040281.09 0.1623 0.1211
 Earth -15775-10-09 15:07 J -4040114.03 -4040113.87 -4040113.71 0.1727 0.0959
 Moon -15775-10-09 21:50 J -4040113.73 -4040113.59 -4040113.45 0.1727 0.1103 *
 Mercury -15768-10-10 18:28 J -4037555.82 -4037555.73 -4037555.64 0.1627 0.0982
 Mercury -15766-09-15 19:40 J -4036850.78 -4036850.68 -4036850.58 0.1624 0.0781
 Mercury -15761-05-29 16:48 J -4035132.95 -4035132.80 -4035132.66 0.1896 0.0990
 Mercury -15758-03-03 06:14 J -4034125.30 -4034125.24 -4034125.19 0.1628 0.1409
 Mercury -15756-02-05 07:26 J -4033420.31 -4033420.19 -4033420.08 0.1624 0.0360
 Mercury -15752-10-19 08:24 J -4031703.32 -4031703.15 -4031702.99 0.1895 0.0487
 Venus -15748-05-28 19:11 J -4030385.81 -4030385.70 -4030385.60 0.1860 0.1476
 Mercury -15747-06-28 18:57 J -4029989.82 -4029989.71 -4029989.59 0.1625 0.0081
 Venus -15746-03-26 11:45 J -4029719.08 -4029719.01 -4029718.95 0.1838 0.1686
 Venus -15743-01-07 19:55 J -4028700.84 -4028700.67 -4028700.50 0.1668 0.0272
 Mercury -15738-11-19 06:43 J -4026559.33 -4026559.22 -4026559.11 0.1626 0.0501
 Mercury -15736-10-24 07:55 J -4025854.24 -4025854.17 -4025854.10 0.1623 0.1264
 Mercury -15728-04-10 18:28 J -4023128.83 -4023128.73 -4023128.64 0.1627 0.0927
 Mercury -15726-03-16 19:40 J -4022423.78 -4022423.68 -4022423.59 0.1624 0.0838
 Mercury -15722-11-28 17:16 J -4020705.92 -4020705.78 -4020705.64 0.1897 0.1102
 Earth -15721-04-14 00:00 J -4020568.65 -4020568.50 -4020568.35 0.1795 0.1136
 Moon -15721-04-14 07:55 J -4020568.34 -4020568.17 -4020568.01 0.1795 0.1006
 Mercury -15719-09-01 06:14 J -4019698.31 -4019698.24 -4019698.18 0.1628 0.1353
 Mercury -15717-08-06 07:11 J -4018993.31 -4018993.20 -4018993.09 0.1624 0.0413
 Venus -15714-03-26 04:48 J -4018031.47 -4018031.30 -4018031.13 0.1847 0.0258
 Mercury -15712-04-19 09:35 J -4017276.27 -4017276.10 -4017275.93 0.1895 0.0338
 Venus -15711-01-06 16:33 J -4017013.93 -4017013.81 -4017013.69 0.1662 0.1153
 Venus -15710-11-06 09:35 J -4016345.26 -4016345.10 -4016344.95 0.1677 0.0739
 Mercury -15708-12-27 18:57 J -4015562.82 -4015562.71 -4015562.59 0.1625 0.0023
 Mercury -15703-09-09 00:43 J -4013846.51 -4013846.47 -4013846.43 0.1894 0.1834
 Mercury -15698-05-20 06:43 J -4012132.33 -4012132.22 -4012132.11 0.1625 0.0444
 Mercury -15696-04-24 07:55 J -4011427.23 -4011427.17 -4011427.10 0.1623 0.1323

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Moon | -15696-10-12 01:11 J | -4011256.59 | -4011256.45 | -4011256.30 | 0.1731 | 0.0983 |
| Earth | -15696-10-12 03:07 J | -4011256.54 | -4011256.37 | -4011256.20 | 0.1731 | 0.0800 * |
| Mercury | -15689-10-09 18:14 J | -4008701.83 | -4008701.74 | -4008701.64 | 0.1626 | 0.0874 |
| Mercury | -15687-09-14 19:40 J | -4007996.78 | -4007996.68 | -4007996.59 | 0.1624 | 0.0895 |
| Venus | -15682-03-25 23:02 J | -4006343.67 | -4006343.54 | -4006343.41 | 0.1857 | 0.1225 |
| Mercury | -15682-05-29 18:28 J | -4006278.86 | -4006278.73 | -4006278.60 | 0.1896 | 0.1248 |
| Mercury | -15679-03-02 06:00 J | -4005271.31 | -4005271.25 | -4005271.18 | 0.1628 | 0.1299 |
| Venus | -15678-11-05 06:57 J | -4004658.38 | -4004658.21 | -4004658.03 | 0.1670 | 0.0182 |
| Mercury | -15677-02-05 07:11 J | -4004566.31 | -4004566.20 | -4004566.09 | 0.1624 | 0.0464 |
| Mercury | -15673-10-18 09:50 J | -4002849.26 | -4002849.09 | -4002848.92 | 0.1895 | 0.0241 |
| Mercury | -15668-06-27 18:57 J | -4001135.83 | -4001135.71 | -4001135.60 | 0.1625 | 0.0041 |
| Mercury | -15663-03-10 01:55 J | -3999419.49 | -3999419.42 | -3999419.35 | 0.1894 | 0.1695 |
| Mercury | -15659-11-18 06:43 J | -3997705.34 | -3997705.22 | -3997705.11 | 0.1626 | 0.0392 |
| Mercury | -15657-10-23 07:55 J | -3997000.23 | -3997000.17 | -3997000.11 | 0.1623 | 0.1378 |
| Mercury | -15649-04-09 18:28 J | -3994274.83 | -3994274.73 | -3994274.64 | 0.1626 | 0.0815 |
| Venus | -15648-01-20 09:21 J | -3993989.28 | -3993989.11 | -3993988.94 | 0.1844 | 0.0485 |
| Mercury | -15647-03-15 19:26 J | -3993569.78 | -3993569.69 | -3993569.59 | 0.1624 | 0.0952 |
| Venus | -15646-11-04 04:04 J | -3992971.47 | -3992971.33 | -3992971.20 | 0.1664 | 0.1067 |
| Venus | -15644-09-02 19:55 J | -3992302.82 | -3992302.67 | -3992302.52 | 0.1680 | 0.0845 |
| Mercury | -15643-11-27 19:11 J | -3991851.82 | -3991851.70 | -3991851.58 | 0.1896 | 0.1367 |
| Earth | -15642-04-17 19:26 J | -3991710.85 | -3991710.69 | -3991710.53 | 0.1790 | 0.1046 |
| Moon | -15642-04-17 22:04 J | -3991710.73 | -3991710.58 | -3991710.43 | 0.1790 | 0.1032 * |
| Mercury | -15640-08-31 06:00 J | -3990844.32 | -3990844.25 | -3990844.18 | 0.1628 | 0.1243 |
| Mercury | -15638-08-06 07:11 J | -3990139.31 | -3990139.20 | -3990139.09 | 0.1624 | 0.0522 |
| Mercury | -15633-04-18 11:02 J | -3988422.21 | -3988422.04 | -3988421.87 | 0.1896 | 0.0098 |
| Mercury | -15629-12-26 18:57 J | -3986708.83 | -3986708.71 | -3986708.60 | 0.1624 | 0.0108 |
| Mercury | -15624-09-08 02:38 J | -3984992.48 | -3984992.39 | -3984992.30 | 0.1894 | 0.1572 |
| Mercury | -15619-05-19 06:43 J | -3983278.34 | -3983278.22 | -3983278.11 | 0.1625 | 0.0339 |
| Mercury | -15617-04-23 07:55 J | -3982573.23 | -3982573.17 | -3982573.12 | 0.1623 | 0.1434 |
| Venus | -15616-01-20 03:21 J | -3982301.51 | -3982301.36 | -3982301.22 | 0.1854 | 0.0983 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Venus | -15612-09-01 18:00 J | -3980615.93 | -3980615.75 | -3980615.58 | 0.1673 | 0.0092 |
| Mercury | -15610-10-09 18:14 J | -3979847.84 | -3979847.74 | -3979847.64 | 0.1627 | 0.0760 |
| Mercury | -15608-09-13 19:26 J | -3979142.78 | -3979142.69 | -3979142.60 | 0.1624 | 0.1005 |
| Mercury | -15603-05-28 20:09 J | -3977424.77 | -3977424.66 | -3977424.56 | 0.1897 | 0.1493 |
| Mercury | -15600-03-01 06:00 J | -3976417.33 | -3976417.25 | -3976417.17 | 0.1628 | 0.1185 |
| Mercury | -15598-02-04 07:11 J | -3975712.31 | -3975712.20 | -3975712.10 | 0.1624 | 0.0578 |
| Mercury | -15594-10-18 12:00 J | -3973995.17 | -3973995.00 | -3973994.82 | 0.1895 | 0.0060 |
| Mercury | -15591-07-22 17:45 J | -3972986.77 | -3972986.76 | -3972986.75 | 0.1629 | 0.1611 |
| Mercury | -15589-06-26 18:57 J | -3972281.83 | -3972281.71 | -3972281.60 | 0.1625 | 0.0160 |
| Mercury | -15584-03-09 03:35 J | -3970565.46 | -3970565.35 | -3970565.24 | 0.1894 | 0.1438 |
| Venus | -15583-11-17 14:38 J | -3969947.05 | -3969946.89 | -3969946.73 | 0.1842 | 0.0701 |
| Venus | -15580-08-31 15:07 J | -3968929.01 | -3968928.87 | -3968928.73 | 0.1666 | 0.0979 |
| Mercury | -15580-11-17 06:28 J | -3968851.34 | -3968851.23 | -3968851.11 | 0.1625 | 0.0279 |
| Venus | -15578-07-01 06:43 J | -3968260.36 | -3968260.22 | -3968260.08 | 0.1682 | 0.0946 |
| Mercury | -15578-10-23 07:55 J | -3968146.22 | -3968146.17 | -3968146.13 | 0.1623 | 0.1492 |
| Mercury | -15570-04-09 18:14 J | -3965420.84 | -3965420.74 | -3965420.64 | 0.1626 | 0.0705 |
| Mercury | -15568-03-14 19:26 J | -3964715.78 | -3964715.69 | -3964715.60 | 0.1623 | 0.1060 |
| Mercury | -15564-11-26 20:52 J | -3962997.71 | -3962997.63 | -3962997.54 | 0.1897 | 0.1623 |
| Mercury | -15561-08-30 06:00 J | -3961990.33 | -3961990.25 | -3961990.17 | 0.1628 | 0.1132 |
| Mercury | -15559-08-05 06:57 J | -3961285.31 | -3961285.21 | -3961285.10 | 0.1624 | 0.0634 |
| Mercury | -15554-04-18 12:43 J | -3959568.14 | -3959567.97 | -3959567.80 | 0.1896 | 0.0155 |
| Mercury | -15551-01-20 17:45 J | -3958559.79 | -3958559.76 | -3958559.73 | 0.1629 | 0.1557 |
| Venus | -15551-11-17 07:26 J | -3958259.35 | -3958259.19 | -3958259.02 | 0.1851 | 0.0744 |
| Mercury | -15550-12-26 18:43 J | -3957854.83 | -3957854.72 | -3957854.60 | 0.1625 | 0.0215 |
| Venus | -15546-06-30 04:48 J | -3956573.47 | -3956573.30 | -3956573.13 | 0.1675 | 0.0017 |
| Mercury | -15545-09-07 04:33 J | -3956138.43 | -3956138.31 | -3956138.19 | 0.1894 | 0.1310 |
| Mercury | -15540-05-18 06:28 J | -3954424.34 | -3954424.23 | -3954424.11 | 0.1625 | 0.0221 |
| Mercury | -15538-04-23 07:40 J | -3953719.21 | -3953719.18 | -3953719.14 | 0.1623 | 0.1546 |
| Mercury | -15531-10-08 18:14 J | -3950993.85 | -3950993.74 | -3950993.64 | 0.1626 | 0.0647 |
| Mercury | -15529-09-12 19:26 J | -3950288.77 | -3950288.69 | -3950288.61 | 0.1623 | 0.1117 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -15524-05-27 22:04 J | -3948570.65 | -3948570.58 | -3948570.52 | 0.1897 | 0.1756 |
| Mercury | -15521-02-29 06:00 J | -3947563.34 | -3947563.25 | -3947563.17 | 0.1627 | 0.1075 |
| Mercury | -15519-02-03 07:11 J | -3946858.31 | -3946858.20 | -3946858.10 | 0.1624 | 0.0693 |
| Venus | -15517-09-13 19:26 J | -3945904.84 | -3945904.69 | -3945904.54 | 0.1838 | 0.0926 |
| Mercury | -15515-10-17 13:40 J | -3945141.10 | -3945140.93 | -3945140.76 | 0.1896 | 0.0289 |
| Venus | -15514-06-29 02:24 J | -3944886.55 | -3944886.40 | -3944886.26 | 0.1668 | 0.0887 |
| Venus | -15512-04-27 17:16 J | -3944217.91 | -3944217.78 | -3944217.64 | 0.1684 | 0.1049 |
| Mercury | -15512-07-21 17:31 J | -3944132.81 | -3944132.77 | -3944132.73 | 0.1629 | 0.1502 |
| Mercury | -15510-06-26 18:43 J | -3943427.83 | -3943427.72 | -3943427.61 | 0.1624 | 0.0262 |
| Mercury | -15505-03-08 05:31 J | -3941711.41 | -3941711.27 | -3941711.14 | 0.1894 | 0.1180 |
| Mercury | -15501-11-16 06:28 J | -3939997.35 | -3939997.23 | -3939997.12 | 0.1625 | 0.0167 |
| Mercury | -15499-10-22 07:40 J | -3939292.20 | -3939292.18 | -3939292.16 | 0.1623 | 0.1598 |
| Mercury | -15491-04-08 18:14 J | -3936566.85 | -3936566.74 | -3936566.64 | 0.1626 | 0.0593 |
| Earth | -15491-10-10 06:14 J | -3936382.41 | -3936382.24 | -3936382.07 | 0.1720 | 0.0825 |
| Moon | -15491-10-10 07:55 J | -3936382.33 | -3936382.17 | -3936382.00 | 0.1720 | 0.1019 * |
| Mercury | -15489-03-13 19:26 J | -3935861.77 | -3935861.69 | -3935861.61 | 0.1623 | 0.1174 |
| Venus | -15485-09-13 11:45 J | -3934217.18 | -3934217.01 | -3934216.84 | 0.1848 | 0.0497 |
| Mercury | -15485-11-25 22:33 J | -3934143.58 | -3934143.56 | -3934143.53 | 0.1897 | 0.1872 |
| Mercury | -15482-08-30 06:00 J | -3933136.34 | -3933136.25 | -3933136.17 | 0.1628 | 0.1019 |
| Venus | -15480-04-26 15:50 J | -3932531.01 | -3932530.84 | -3932530.66 | 0.1677 | 0.0112 |
| Mercury | -15480-08-04 06:57 J | -3932431.31 | -3932431.21 | -3932431.11 | 0.1624 | 0.0746 |
| Mercury | -15475-04-17 14:52 J | -3930714.05 | -3930713.88 | -3930713.71 | 0.1896 | 0.0434 |
| Mercury | -15472-01-19 17:31 J | -3929705.82 | -3929705.77 | -3929705.72 | 0.1629 | 0.1445 |
| Mercury | -15471-12-25 18:43 J | -3929000.83 | -3929000.72 | -3929000.61 | 0.1624 | 0.0320 |
| Mercury | -15466-09-07 06:14 J | -3927284.38 | -3927284.24 | -3927284.10 | 0.1894 | 0.1058 |
| Mercury | -15461-05-17 06:28 J | -3925570.35 | -3925570.23 | -3925570.12 | 0.1625 | 0.0114 |
| Mercury | -15452-10-07 18:00 J | -3922139.85 | -3922139.75 | -3922139.64 | 0.1626 | 0.0539 |
| Venus | -15451-07-12 00:43 J | -3921862.61 | -3921862.47 | -3921862.34 | 0.1836 | 0.1137 |
| Mercury | -15450-09-12 19:11 J | -3921434.77 | -3921434.70 | -3921434.62 | 0.1623 | 0.1230 |
| Venus | -15448-04-25 13:55 J | -3920844.07 | -3920843.92 | -3920843.77 | 0.1670 | 0.0803 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Venus | -15446-02-23 03:50 J | -3920175.46 | -3920175.34 | -3920175.21 | 0.1687 | 0.1154 |
| Mercury | -15442-02-28 05:45 J | -3918709.35 | -3918709.26 | -3918709.17 | 0.1627 | 0.0964 |
| Mercury | -15440-02-02 06:57 J | -3918004.31 | -3918004.21 | -3918004.11 | 0.1624 | 0.0799 |
| Moon | -15437-04-13 23:02 J | -3916837.68 | -3916837.54 | -3916837.39 | 0.1803 | 0.1261 |
| Earth | -15437-04-14 05:02 J | -3916837.41 | -3916837.29 | -3916837.16 | 0.1803 | 0.1337 * |
| Mercury | -15436-10-16 15:07 J | -3916287.03 | -3916286.87 | -3916286.70 | 0.1896 | 0.0534 |
| Mercury | -15433-07-20 17:31 J | -3915278.83 | -3915278.77 | -3915278.71 | 0.1629 | 0.1390 |
| Mercury | -15431-06-25 18:43 J | -3914573.83 | -3914573.72 | -3914573.61 | 0.1625 | 0.0375 |
| Mercury | -15426-03-08 07:26 J | -3912857.34 | -3912857.19 | -3912857.04 | 0.1895 | 0.0913 |
| Mercury | -15422-11-16 06:28 J | -3911143.35 | -3911143.23 | -3911143.12 | 0.1625 | 0.0075 |
| Venus | -15419-07-11 16:48 J | -3910174.97 | -3910174.80 | -3910174.63 | 0.1845 | 0.0276 |
| Venus | -15414-02-22 02:52 J | -3908488.56 | -3908488.38 | -3908488.21 | 0.1679 | 0.0211 |
| Mercury | -15412-04-07 18:00 J | -3907712.86 | -3907712.75 | -3907712.64 | 0.1626 | 0.0481 |
| Earth | -15412-10-12 17:31 J | -3907524.93 | -3907524.77 | -3907524.61 | 0.1724 | 0.0895 |
| Moon | -15412-10-13 00:57 J | -3907524.60 | -3907524.46 | -3907524.32 | 0.1725 | 0.1197 |
| Mercury | -15410-03-13 19:11 J | -3907007.77 | -3907007.70 | -3907007.63 | 0.1623 | 0.1286 |
| Mercury | -15403-08-29 05:45 J | -3904282.35 | -3904282.26 | -3904282.16 | 0.1627 | 0.0908 |
| Mercury | -15401-08-03 06:57 J | -3903577.31 | -3903577.21 | -3903577.11 | 0.1624 | 0.0857 |
| Mercury | -15396-04-16 16:33 J | -3901859.97 | -3901859.81 | -3901859.65 | 0.1896 | 0.0683 |
| Mercury | -15393-01-19 17:31 J | -3900851.84 | -3900851.77 | -3900851.71 | 0.1629 | 0.1335 |
| Mercury | -15392-12-24 18:43 J | -3900146.83 | -3900146.72 | -3900146.61 | 0.1624 | 0.0433 |
| Venus | -15387-07-11 10:48 J | -3898487.10 | -3898487.05 | -3898487.00 | 0.1854 | 0.1755 |
| Mercury | -15387-09-06 08:09 J | -3898430.32 | -3898430.16 | -3898430.01 | 0.1894 | 0.0798 |
| Venus | -15385-05-08 06:14 J | -3897820.36 | -3897820.24 | -3897820.12 | 0.1832 | 0.1345 |
| Venus | -15382-02-21 00:43 J | -3896801.63 | -3896801.47 | -3896801.31 | 0.1672 | 0.0709 |
| Mercury | -15382-05-17 06:14 J | -3896716.35 | -3896716.24 | -3896716.12 | 0.1625 | 0.0044 |
| Venus | -15381-12-20 14:09 J | -3896133.02 | -3896132.91 | -3896132.79 | 0.1689 | 0.1262 |
| Mercury | -15373-10-06 18:00 J | -3893285.86 | -3893285.75 | -3893285.64 | 0.1626 | 0.0425 |
| Mercury | -15371-09-11 19:11 J | -3892580.76 | -3892580.70 | -3892580.64 | 0.1623 | 0.1339 |
| Mercury | -15363-02-27 05:45 J | -3889855.36 | -3889855.26 | -3889855.16 | 0.1627 | 0.0850 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -15361-02-02 06:57 J | -3889150.31 | -3889150.21 | -3889150.12 | 0.1624 | 0.0914 |
| Earth | -15358-04-18 01:11 J | -3887979.62 | -3887979.45 | -3887979.28 | 0.1798 | 0.0904 |
| Moon | -15358-04-18 06:28 J | -3887979.41 | -3887979.23 | -3887979.05 | 0.1797 | 0.0859 * |
| Mercury | -15357-10-15 17:31 J | -3887432.93 | -3887432.77 | -3887432.62 | 0.1896 | 0.0814 |
| Mercury | -15354-07-20 17:31 J | -3886424.84 | -3886424.77 | -3886424.70 | 0.1629 | 0.1277 |
| Venus | -15353-05-07 21:35 J | -3886132.77 | -3886132.60 | -3886132.42 | 0.1842 | 0.0067 |
| Mercury | -15352-06-24 18:43 J | -3885719.83 | -3885719.72 | -3885719.61 | 0.1624 | 0.0490 |
| Venus | -15350-02-19 21:50 J | -3885114.64 | -3885114.59 | -3885114.55 | 0.1665 | 0.1594 |
| Venus | -15349-12-19 13:26 J | -3884446.11 | -3884445.94 | -3884445.77 | 0.1681 | 0.0309 |
| Mercury | -15347-03-07 09:07 J | -3884003.28 | -3884003.12 | -3884002.96 | 0.1894 | 0.0663 |
| Mercury | -15343-11-15 06:14 J | -3882289.35 | -3882289.24 | -3882289.12 | 0.1625 | 0.0061 |
| Mercury | -15333-04-06 18:00 J | -3878858.86 | -3878858.75 | -3878858.64 | 0.1626 | 0.0370 |
| Mercury | -15331-03-12 19:11 J | -3878153.76 | -3878153.70 | -3878153.64 | 0.1623 | 0.1395 |
| Mercury | -15324-08-28 05:45 J | -3875428.36 | -3875428.26 | -3875428.16 | 0.1627 | 0.0796 |
| Mercury | -15322-08-03 06:57 J | -3874723.31 | -3874723.21 | -3874723.12 | 0.1624 | 0.0970 |
| Venus | -15321-05-07 15:50 J | -3874444.94 | -3874444.84 | -3874444.74 | 0.1852 | 0.1522 |
| Venus | -15319-03-05 11:16 J | -3873778.12 | -3873778.03 | -3873777.94 | 0.1829 | 0.1555 |
| Mercury | -15317-04-15 18:00 J | -3873005.90 | -3873005.75 | -3873005.60 | 0.1896 | 0.0928 |
| Venus | -15317-12-18 11:45 J | -3872759.17 | -3872759.01 | -3872758.85 | 0.1674 | 0.0619 |
| Venus | -15315-10-18 00:43 J | -3872090.57 | -3872090.47 | -3872090.37 | 0.1692 | 0.1372 |
| Mercury | -15314-01-18 17:16 J | -3871997.85 | -3871997.78 | -3871997.70 | 0.1629 | 0.1223 |
| Mercury | -15313-12-23 18:28 J | -3871292.84 | -3871292.73 | -3871292.62 | 0.1624 | 0.0543 |
| Mercury | -15308-09-05 10:04 J | -3869576.25 | -3869576.08 | -3869575.92 | 0.1895 | 0.0533 |
| Mercury | -15303-05-16 06:14 J | -3867862.35 | -3867862.24 | -3867862.13 | 0.1625 | 0.0115 |
| Mercury | -15294-10-06 18:00 J | -3864431.86 | -3864431.75 | -3864431.64 | 0.1626 | 0.0312 |
| Mercury | -15292-09-10 19:11 J | -3863726.75 | -3863726.70 | -3863726.65 | 0.1623 | 0.1453 |
| Venus | -15287-03-05 03:07 J | -3862090.54 | -3862090.37 | -3862090.19 | 0.1839 | 0.0165 |
| Venus | -15285-12-17 09:07 J | -3861072.19 | -3861072.12 | -3861072.05 | 0.1667 | 0.1507 |
| Mercury | -15284-02-26 05:45 J | -3861001.37 | -3861001.26 | -3861001.16 | 0.1627 | 0.0742 |
| Venus | -15283-10-17 00:28 J | -3860403.65 | -3860403.48 | -3860403.31 | 0.1684 | 0.0407 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -15282-02-01 06:43 J | -3860296.30 | -3860296.22 | -3860296.13 | 0.1623 | 0.1027 |
| Mercury | -15278-10-15 18:57 J | -3858578.85 | -3858578.71 | -3858578.56 | 0.1896 | 0.1062 |
| Mercury | -15275-07-19 17:16 J | -3857570.86 | -3857570.78 | -3857570.70 | 0.1629 | 0.1168 |
| Mercury | -15273-06-23 18:28 J | -3856865.84 | -3856865.73 | -3856865.62 | 0.1624 | 0.0596 |
| Mercury | -15268-03-06 10:48 J | -3855149.22 | -3855149.05 | -3855148.88 | 0.1894 | 0.0405 |
| Mercury | -15266-12-10 05:02 J | -3854140.31 | -3854140.29 | -3854140.27 | 0.1630 | 0.1594 |
| Mercury | -15264-11-14 06:14 J | -3853435.36 | -3853435.24 | -3853435.13 | 0.1625 | 0.0174 |
| Mercury | -15259-07-27 02:09 J | -3851719.42 | -3851719.41 | -3851719.40 | 0.1893 | 0.1888 |
| Venus | -15255-03-04 20:09 J | -3850402.79 | -3850402.66 | -3850402.54 | 0.1849 | 0.1280 |
| Mercury | -15254-04-06 18:00 J | -3850004.87 | -3850004.75 | -3850004.64 | 0.1626 | 0.0261 |
| Venus | -15254-12-31 17:31 J | -3849735.82 | -3849735.77 | -3849735.72 | 0.1826 | 0.1746 |
| Mercury | -15252-03-11 19:11 J | -3849299.74 | -3849299.70 | -3849299.66 | 0.1623 | 0.1509 |
| Venus | -15251-10-15 22:48 J | -3848716.72 | -3848716.55 | -3848716.39 | 0.1676 | 0.0522 |
| Venus | -15249-08-14 10:48 J | -3848048.13 | -3848048.05 | -3848047.97 | 0.1694 | 0.1486 |
| Mercury | -15245-08-27 05:31 J | -3846574.37 | -3846574.27 | -3846574.16 | 0.1627 | 0.0685 |
| Mercury | -15243-08-02 06:43 J | -3845869.30 | -3845869.22 | -3845869.13 | 0.1624 | 0.1081 |
| Mercury | -15238-04-15 20:09 J | -3844151.79 | -3844151.66 | -3844151.52 | 0.1896 | 0.1205 |
| Mercury | -15235-01-17 17:16 J | -3843143.86 | -3843143.78 | -3843143.70 | 0.1628 | 0.1110 |
| Mercury | -15234-12-23 18:28 J | -3842438.83 | -3842438.73 | -3842438.62 | 0.1624 | 0.0655 |
| Mercury | -15229-09-04 11:45 J | -3840722.18 | -3840722.01 | -3840721.85 | 0.1895 | 0.0284 |
| Mercury | -15226-06-10 05:02 J | -3839713.33 | -3839713.29 | -3839713.26 | 0.1630 | 0.1538 |
| Mercury | -15224-05-15 06:14 J | -3839008.36 | -3839008.24 | -3839008.13 | 0.1625 | 0.0231 |
| Venus | -15222-12-31 08:24 J | -3838048.32 | -3838048.15 | -3838047.98 | 0.1836 | 0.0381 |
| Mercury | -15219-01-25 03:21 J | -3837292.42 | -3837292.36 | -3837292.29 | 0.1893 | 0.1743 |
| Venus | -15219-10-14 20:24 J | -3837029.74 | -3837029.65 | -3837029.56 | 0.1669 | 0.1419 |
| Venus | -15217-08-13 10:33 J | -3836361.22 | -3836361.06 | -3836360.89 | 0.1686 | 0.0517 |
| Mercury | -15215-10-05 17:45 J | -3835577.87 | -3835577.76 | -3835577.64 | 0.1626 | 0.0204 |
| Mercury | -15213-09-09 18:57 J | -3834872.73 | -3834872.71 | -3834872.68 | 0.1623 | 0.1563 |
| Moon | -15207-10-10 15:35 J | -3832651.01 | -3832650.85 | -3832650.69 | 0.1714 | 0.0920 |
| Earth | -15207-10-10 22:19 J | -3832650.75 | -3832650.57 | -3832650.40 | 0.1714 | 0.0663 * |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -15205-02-26 05:31 J | -3832147.37 | -3832147.27 | -3832147.16 | 0.1627 | 0.0629 |
| Mercury | -15203-01-31 06:43 J | -3831442.30 | -3831442.22 | -3831442.14 | 0.1623 | 0.1134 |
| Mercury | -15199-10-14 20:38 J | -3829724.76 | -3829724.64 | -3829724.52 | 0.1896 | 0.1305 |
| Mercury | -15196-07-18 17:16 J | -3828716.87 | -3828716.78 | -3828716.70 | 0.1629 | 0.1055 |
| Mercury | -15194-06-23 18:28 J | -3828011.83 | -3828011.73 | -3828011.63 | 0.1624 | 0.0710 |
| Venus | -15190-12-31 00:57 J | -3826360.60 | -3826360.46 | -3826360.31 | 0.1846 | 0.1049 |
| Mercury | -15189-03-05 12:57 J | -3826295.13 | -3826294.96 | -3826294.79 | 0.1895 | 0.0139 |
| Mercury | -15187-12-09 05:02 J | -3825286.34 | -3825286.29 | -3825286.25 | 0.1630 | 0.1479 |
| Venus | -15185-08-12 09:21 J | -3824674.28 | -3824674.11 | -3824673.94 | 0.1679 | 0.0423 |
| Mercury | -15185-11-13 06:00 J | -3824581.36 | -3824581.25 | -3824581.13 | 0.1625 | 0.0288 |
| Venus | -15183-06-11 20:52 J | -3824005.68 | -3824005.63 | -3824005.58 | 0.1697 | 0.1602 |
| Mercury | -15180-07-26 04:19 J | -3822865.41 | -3822865.32 | -3822865.24 | 0.1893 | 0.1615 |
| Mercury | -15175-04-05 17:45 J | -3821150.87 | -3821150.76 | -3821150.64 | 0.1626 | 0.0151 |
| Mercury | -15173-03-10 18:57 J | -3820445.71 | -3820445.71 | -3820445.70 | 0.1623 | 0.1620 |
| Mercury | -15166-08-27 05:31 J | -3817720.38 | -3817720.27 | -3817720.16 | 0.1627 | 0.0573 |
| Mercury | -15164-08-01 06:43 J | -3817015.30 | -3817015.22 | -3817015.14 | 0.1623 | 0.1192 |
| Mercury | -15159-04-14 21:50 J | -3815297.69 | -3815297.59 | -3815297.48 | 0.1896 | 0.1456 |
| Mercury | -15156-01-16 17:16 J | -3814289.87 | -3814289.78 | -3814289.69 | 0.1628 | 0.1000 |
| Venus | -15156-10-27 13:55 J | -3814006.09 | -3814005.92 | -3814005.75 | 0.1833 | 0.0589 |
| Mercury | -15155-12-22 18:28 J | -3813584.84 | -3813584.73 | -3813584.63 | 0.1624 | 0.0767 |
| Moon | -15153-04-14 04:48 J | -3813106.40 | -3813106.30 | -3813106.20 | 0.1810 | 0.1475 |
| Earth | -15153-04-14 08:52 J | -3813106.23 | -3813106.13 | -3813106.04 | 0.1810 | 0.1584 * |
| Venus | -15153-08-11 07:26 J | -3812987.30 | -3812987.19 | -3812987.09 | 0.1671 | 0.1329 |
| Venus | -15151-06-10 21:07 J | -3812318.78 | -3812318.62 | -3812318.45 | 0.1689 | 0.0622 |
| Mercury | -15150-09-04 13:26 J | -3811868.11 | -3811867.94 | -3811867.77 | 0.1895 | 0.0023 |
| Mercury | -15147-06-09 04:48 J | -3810859.35 | -3810859.30 | -3810859.24 | 0.1630 | 0.1428 |
| Mercury | -15145-05-14 06:00 J | -3810154.36 | -3810154.25 | -3810154.14 | 0.1625 | 0.0339 |
| Mercury | -15140-01-24 05:02 J | -3808438.40 | -3808438.29 | -3808438.19 | 0.1893 | 0.1499 |
| Mercury | -15136-10-04 17:45 J | -3806723.88 | -3806723.76 | -3806723.65 | 0.1626 | 0.0090 |
| Moon | -15128-10-13 06:14 J | -3803793.39 | -3803793.24 | -3803793.08 | 0.1718 | 0.1125 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Earth | -15128-10-13 09:21 J | -3803793.26 | -3803793.11 | -3803792.96 | 0.1718 | 0.1029 * |
| Mercury | -15126-02-25 05:31 J | -3803293.38 | -3803293.27 | -3803293.16 | 0.1627 | 0.0514 |
| Mercury | -15124-01-30 06:43 J | -3802588.29 | -3802588.22 | -3802588.15 | 0.1623 | 0.1248 |
| Venus | -15124-10-27 05:31 J | -3802318.43 | -3802318.27 | -3802318.11 | 0.1843 | 0.0816 |
| Mercury | -15120-10-13 22:48 J | -3800870.64 | -3800870.55 | -3800870.46 | 0.1896 | 0.1583 |
| Venus | -15119-06-09 20:09 J | -3800631.83 | -3800631.66 | -3800631.49 | 0.1681 | 0.0324 |
| Mercury | -15117-07-17 17:02 J | -3799862.88 | -3799862.79 | -3799862.69 | 0.1628 | 0.0945 |
| Mercury | -15115-06-22 18:28 J | -3799157.83 | -3799157.73 | -3799157.64 | 0.1624 | 0.0825 |
| Mercury | -15110-03-05 14:24 J | -3797441.07 | -3797440.90 | -3797440.73 | 0.1895 | 0.0114 |
| Mercury | -15108-12-08 04:48 J | -3796432.36 | -3796432.30 | -3796432.24 | 0.1630 | 0.1372 |
| Mercury | -15106-11-13 06:00 J | -3795727.36 | -3795727.25 | -3795727.14 | 0.1625 | 0.0393 |
| Mercury | -15101-07-25 06:00 J | -3794011.36 | -3794011.25 | -3794011.13 | 0.1893 | 0.1358 |
| Mercury | -15096-04-04 17:45 J | -3792296.88 | -3792296.76 | -3792296.65 | 0.1626 | 0.0041 |
| Venus | -15090-08-24 19:11 J | -3789963.86 | -3789963.70 | -3789963.54 | 0.1830 | 0.0803 |
| Venus | -15087-06-08 18:14 J | -3788944.85 | -3788944.74 | -3788944.62 | 0.1674 | 0.1236 |
| Mercury | -15087-08-26 05:31 J | -3788866.38 | -3788866.27 | -3788866.16 | 0.1627 | 0.0463 |
| Venus | -15085-04-07 07:40 J | -3788276.34 | -3788276.18 | -3788276.03 | 0.1691 | 0.0728 |
| Mercury | -15085-07-31 06:43 J | -3788161.29 | -3788161.22 | -3788161.16 | 0.1623 | 0.1304 |
| Mercury | -15080-04-13 23:31 J | -3786443.60 | -3786443.52 | -3786443.45 | 0.1896 | 0.1696 |
| Mercury | -15077-01-16 17:02 J | -3785435.88 | -3785435.79 | -3785435.69 | 0.1628 | 0.0889 |
| Mercury | -15076-12-21 18:14 J | -3784730.83 | -3784730.74 | -3784730.64 | 0.1624 | 0.0877 |
| Moon | -15074-04-17 21:21 J | -3784248.81 | -3784248.61 | -3784248.42 | 0.1806 | 0.0305 |
| Earth | -15074-04-18 05:45 J | -3784248.44 | -3784248.26 | -3784248.08 | 0.1805 | 0.0724 * |
| Mercury | -15071-09-03 15:21 J | -3783014.03 | -3783013.86 | -3783013.69 | 0.1895 | 0.0251 |
| Mercury | -15068-06-08 04:48 J | -3782005.36 | -3782005.30 | -3782005.23 | 0.1630 | 0.1314 |
| Mercury | -15066-05-14 06:00 J | -3781300.36 | -3781300.25 | -3781300.14 | 0.1625 | 0.0451 |
| Mercury | -15061-01-24 06:57 J | -3779584.34 | -3779584.21 | -3779584.08 | 0.1893 | 0.1226 |
| Venus | -15058-08-24 10:04 J | -3778276.24 | -3778276.08 | -3778275.91 | 0.1840 | 0.0584 |
| Mercury | -15057-10-03 17:45 J | -3777869.88 | -3777869.76 | -3777869.65 | 0.1626 | 0.0036 |
| Venus | -15053-04-06 06:57 J | -3776589.38 | -3776589.21 | -3776589.04 | 0.1684 | 0.0224 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -15047-02-24 05:16 J | -3774439.39 | -3774439.28 | -3774439.17 | 0.1627 | 0.0408 |
| Mercury | -15045-01-30 06:28 J | -3773734.29 | -3773734.23 | -3773734.16 | 0.1623 | 0.1360 |
| Mercury | -15041-10-13 00:28 J | -3772016.52 | -3772016.48 | -3772016.44 | 0.1896 | 0.1830 |
| Mercury | -15038-07-17 17:02 J | -3771008.89 | -3771008.79 | -3771008.69 | 0.1628 | 0.0833 |
| Mercury | -15036-06-21 18:14 J | -3770303.83 | -3770303.74 | -3770303.65 | 0.1624 | 0.0931 |
| Mercury | -15031-03-04 16:19 J | -3768586.99 | -3768586.82 | -3768586.66 | 0.1895 | 0.0371 |
| Mercury | -15029-12-07 04:48 J | -3767578.37 | -3767578.30 | -3767578.23 | 0.1630 | 0.1259 |
| Mercury | -15027-11-12 06:00 J | -3766873.36 | -3766873.25 | -3766873.14 | 0.1625 | 0.0507 |
| Venus | -15024-06-21 00:57 J | -3765921.61 | -3765921.46 | -3765921.32 | 0.1827 | 0.1005 |
| Mercury | -15022-07-25 07:40 J | -3765157.32 | -3765157.18 | -3765157.04 | 0.1893 | 0.1109 |
| Venus | -15021-04-05 05:45 J | -3764902.39 | -3764902.26 | -3764902.14 | 0.1676 | 0.1149 |
| Venus | -15019-02-02 17:45 J | -3764233.91 | -3764233.76 | -3764233.61 | 0.1694 | 0.0837 |
| Mercury | -15017-04-03 17:31 J | -3763442.88 | -3763442.77 | -3763442.65 | 0.1626 | 0.0103 |
| Mercury | -15008-08-25 05:16 J | -3760012.39 | -3760012.28 | -3760012.16 | 0.1627 | 0.0351 |
| Mercury | -15006-07-31 06:28 J | -3759307.28 | -3759307.23 | -3759307.17 | 0.1623 | 0.1415 |

15TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 15th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|-------------|-------------|-------------|--------|--------|-------|---|
| Mercury | -14998-01-15 17:02 J | -3756581.89 | -3756581.79 | -3756581.69 | 0.1628 | 0.0776 | | |
| Mercury | -14997-12-20 18:14 J | -3755876.83 | -3755876.74 | -3755876.65 | 0.1624 | 0.0990 | | |
| Venus | -14992-06-20 15:50 J | -3754234.01 | -3754233.84 | -3754233.67 | 0.1836 | 0.0371 | | |
| Mercury | -14992-09-02 17:02 J | -3754159.95 | -3754159.79 | -3754159.62 | 0.1895 | 0.0496 | | |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -14989-06-07 04:48 J | -3753151.38 | -3753151.30 | -3753151.23 | 0.1630 | 0.1205 |
| Venus | -14987-02-01 17:31 J | -3752546.94 | -3752546.77 | -3752546.60 | 0.1686 | 0.0124 |
| Mercury | -14987-05-13 05:45 J | -3752446.36 | -3752446.26 | -3752446.15 | 0.1625 | 0.0565 |
| Mercury | -14982-01-23 08:52 J | -3750730.28 | -3750730.13 | -3750729.99 | 0.1893 | 0.0971 |
| Mercury | -14978-10-03 17:31 J | -3749015.88 | -3749015.77 | -3749015.65 | 0.1626 | 0.0135 |
| Mercury | -14968-02-23 05:16 J | -3745585.39 | -3745585.28 | -3745585.17 | 0.1627 | 0.0293 |
| Mercury | -14966-01-29 06:28 J | -3744880.28 | -3744880.23 | -3744880.18 | 0.1623 | 0.1469 |
| Venus | -14960-06-20 08:24 J | -3742546.18 | -3742546.15 | -3742546.12 | 0.1846 | 0.1811 |
| Mercury | -14959-07-16 17:02 J | -3742154.89 | -3742154.79 | -3742154.69 | 0.1628 | 0.0720 |
| Venus | -14958-04-18 06:43 J | -3741879.34 | -3741879.22 | -3741879.08 | 0.1823 | 0.1206 |
| Mercury | -14957-06-20 18:14 J | -3741449.83 | -3741449.74 | -3741449.66 | 0.1624 | 0.1045 |
| Venus | -14955-01-31 16:04 J | -3740859.96 | -3740859.83 | -3740859.69 | 0.1678 | 0.1052 |
| Venus | -14954-12-01 04:04 J | -3740191.47 | -3740191.33 | -3740191.19 | 0.1697 | 0.0949 |
| Mercury | -14952-03-03 18:14 J | -3739732.90 | -3739732.74 | -3739732.58 | 0.1895 | 0.0641 |
| Mercury | -14950-12-07 04:48 J | -3738724.38 | -3738724.30 | -3738724.22 | 0.1630 | 0.1147 |
| Mercury | -14948-11-11 05:45 J | -3738019.36 | -3738019.26 | -3738019.15 | 0.1625 | 0.0619 |
| Mercury | -14943-07-24 09:35 J | -3736303.25 | -3736303.10 | -3736302.94 | 0.1893 | 0.0843 |
| Mercury | -14940-04-28 16:19 J | -3735293.84 | -3735293.82 | -3735293.79 | 0.1631 | 0.1577 |
| Mercury | -14938-04-03 17:31 J | -3734588.88 | -3734588.77 | -3734588.65 | 0.1626 | 0.0194 |
| Mercury | -14929-08-24 05:16 J | -3731158.40 | -3731158.28 | -3731158.17 | 0.1627 | 0.0239 |
| Mercury | -14927-07-30 06:28 J | -3730453.27 | -3730453.23 | -3730453.19 | 0.1623 | 0.1526 |
| Venus | -14926-04-17 20:52 J | -3730191.80 | -3730191.63 | -3730191.45 | 0.1833 | 0.0158 |
| Earth | -14923-10-11 15:35 J | -3728919.04 | -3728918.85 | -3728918.67 | 0.1708 | 0.0473 |
| Moon | -14923-10-11 19:26 J | -3728918.86 | -3728918.69 | -3728918.52 | 0.1708 | 0.0565 * |
| Venus | -14922-11-30 04:04 J | -3728504.51 | -3728504.33 | -3728504.16 | 0.1688 | 0.0030 |
| Mercury | -14919-01-14 17:02 J | -3727727.90 | -3727727.79 | -3727727.69 | 0.1628 | 0.0668 |
| Mercury | -14918-12-20 18:00 J | -3727022.83 | -3727022.75 | -3727022.66 | 0.1624 | 0.1099 |
| Mercury | -14913-09-01 18:43 J | -3725305.87 | -3725305.72 | -3725305.56 | 0.1895 | 0.0747 |
| Mercury | -14910-06-07 04:33 J | -3724297.39 | -3724297.31 | -3724297.22 | 0.1630 | 0.1094 |
| Mercury | -14908-05-12 05:45 J | -3723592.36 | -3723592.26 | -3723592.15 | 0.1625 | 0.0673 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -14903-01-22 10:33 J | -3721876.22 | -3721876.06 | -3721875.91 | 0.1894 | 0.0721 |
| Mercury | -14901-10-27 16:19 J | -3720866.86 | -3720866.82 | -3720866.78 | 0.1631 | 0.1520 |
| Mercury | -14899-10-02 17:31 J | -3720161.88 | -3720161.77 | -3720161.66 | 0.1626 | 0.0246 |
| Venus | -14894-04-17 13:40 J | -3718504.01 | -3718503.93 | -3718503.84 | 0.1843 | 0.1587 |
| Venus | -14892-02-12 12:14 J | -3717837.09 | -3717836.99 | -3717836.88 | 0.1820 | 0.1408 |
| Venus | -14890-11-29 03:07 J | -3716817.51 | -3716817.37 | -3716817.22 | 0.1681 | 0.0959 |
| Mercury | -14889-02-23 05:16 J | -3716731.40 | -3716731.28 | -3716731.17 | 0.1627 | 0.0182 |
| Venus | -14888-09-27 14:09 J | -3716149.05 | -3716148.91 | -3716148.78 | 0.1699 | 0.1063 |
| Mercury | -14887-01-28 06:28 J | -3716026.25 | -3716026.23 | -3716026.21 | 0.1623 | 0.1581 |
| Mercury | -14880-07-15 16:48 J | -3713300.90 | -3713300.80 | -3713300.69 | 0.1628 | 0.0612 |
| Mercury | -14878-06-20 18:00 J | -3712595.82 | -3712595.75 | -3712595.67 | 0.1624 | 0.1157 |
| Mercury | -14873-03-02 19:55 J | -3710878.82 | -3710878.67 | -3710878.52 | 0.1895 | 0.0886 |
| Mercury | -14871-12-06 04:33 J | -3709870.40 | -3709870.31 | -3709870.22 | 0.1630 | 0.1038 |
| Moon | -14869-04-14 17:45 J | -3709374.87 | -3709374.76 | -3709374.65 | 0.1817 | 0.1487 |
| Mercury | -14869-11-10 05:45 J | -3709165.36 | -3709165.26 | -3709165.16 | 0.1625 | 0.0727 |
| Mercury | -14864-07-23 11:31 J | -3707449.18 | -3707449.02 | -3707448.86 | 0.1893 | 0.0583 |
| Mercury | -14861-04-27 16:19 J | -3706439.87 | -3706439.82 | -3706439.77 | 0.1631 | 0.1465 |
| Venus | -14860-02-12 02:52 J | -3706149.56 | -3706149.38 | -3706149.21 | 0.1830 | 0.0070 |
| Mercury | -14859-04-02 17:31 J | -3705734.89 | -3705734.77 | -3705734.66 | 0.1626 | 0.0302 |
| Venus | -14856-09-26 14:52 J | -3704462.06 | -3704461.88 | -3704461.71 | 0.1691 | 0.0093 |
| Mercury | -14850-08-24 05:02 J | -3702304.40 | -3702304.29 | -3702304.17 | 0.1627 | 0.0140 |
| Moon | -14844-10-13 21:07 J | -3700061.75 | -3700061.62 | -3700061.49 | 0.1712 | 0.1181 |
| Earth | -14844-10-14 01:11 J | -3700061.59 | -3700061.45 | -3700061.31 | 0.1712 | 0.1167 * |
| Mercury | -14840-01-13 16:48 J | -3698873.91 | -3698873.80 | -3698873.69 | 0.1628 | 0.0554 |
| Mercury | -14839-12-19 18:00 J | -3698168.82 | -3698168.75 | -3698168.67 | 0.1624 | 0.1210 |
| Mercury | -14834-09-01 20:52 J | -3696451.77 | -3696451.63 | -3696451.49 | 0.1895 | 0.1021 |
| Mercury | -14831-06-06 04:33 J | -3695443.40 | -3695443.31 | -3695443.22 | 0.1630 | 0.0979 |
| Mercury | -14829-05-11 05:45 J | -3694738.36 | -3694738.26 | -3694738.16 | 0.1625 | 0.0785 |
| Venus | -14828-02-11 18:28 J | -3694461.85 | -3694461.73 | -3694461.61 | 0.1840 | 0.1353 |
| Venus | -14827-12-10 18:57 J | -3693794.79 | -3693794.71 | -3693794.63 | 0.1816 | 0.1592 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -14824-01-21 12:28 J | -3693022.15 | -3693021.98 | -3693021.82 | 0.1893 | 0.0455 |
| Venus | -14824-09-25 13:40 J | -3692775.07 | -3692774.93 | -3692774.78 | 0.1683 | 0.0860 |
| Venus | -14822-07-26 00:00 J | -3692106.62 | -3692106.50 | -3692106.38 | 0.1702 | 0.1181 |
| Mercury | -14822-10-27 16:04 J | -3692012.88 | -3692012.83 | -3692012.77 | 0.1631 | 0.1413 |
| Mercury | -14820-10-01 17:31 J | -3691307.89 | -3691307.77 | -3691307.66 | 0.1626 | 0.0360 |
| Mercury | -14810-02-22 05:02 J | -3687877.40 | -3687877.29 | -3687877.17 | 0.1627 | 0.0077 |
| Mercury | -14801-07-14 16:48 J | -3684446.91 | -3684446.80 | -3684446.69 | 0.1628 | 0.0498 |
| Mercury | -14799-06-19 18:00 J | -3683741.82 | -3683741.75 | -3683741.68 | 0.1624 | 0.1264 |
| Venus | -14795-12-10 08:24 J | -3682107.32 | -3682107.15 | -3682106.98 | 0.1827 | 0.0264 |
| Mercury | -14794-03-02 21:35 J | -3682024.74 | -3682024.60 | -3682024.47 | 0.1895 | 0.1136 |
| Mercury | -14792-12-05 04:33 J | -3681016.41 | -3681016.31 | -3681016.22 | 0.1630 | 0.0926 |
| Earth | -14790-04-18 08:38 J | -3680517.33 | -3680517.14 | -3680516.95 | 0.1812 | 0.0488 |
| Moon | -14790-04-18 09:50 J | -3680517.27 | -3680517.09 | -3680516.91 | 0.1812 | 0.0261 * |
| Venus | -14790-07-25 00:43 J | -3680419.65 | -3680419.47 | -3680419.30 | 0.1693 | 0.0197 |
| Mercury | -14790-11-10 05:45 J | -3680311.36 | -3680311.26 | -3680311.17 | 0.1625 | 0.0840 |
| Mercury | -14785-07-22 13:11 J | -3678595.12 | -3678594.95 | -3678594.78 | 0.1894 | 0.0335 |
| Mercury | -14782-04-27 16:19 J | -3677585.89 | -3677585.82 | -3677585.76 | 0.1631 | 0.1354 |
| Mercury | -14780-04-01 17:16 J | -3676880.89 | -3676880.78 | -3676880.66 | 0.1626 | 0.0417 |
| Mercury | -14776-12-12 05:02 J | -3675165.35 | -3675165.29 | -3675165.24 | 0.1891 | 0.1791 |
| Mercury | -14771-08-23 05:02 J | -3673450.40 | -3673450.29 | -3673450.17 | 0.1627 | 0.0024 |
| Venus | -14763-12-09 23:31 J | -3670419.65 | -3670419.52 | -3670419.38 | 0.1837 | 0.1128 |
| Mercury | -14761-01-13 16:48 J | -3670019.91 | -3670019.80 | -3670019.69 | 0.1628 | 0.0442 |
| Venus | -14761-10-07 00:28 J | -3669752.50 | -3669752.48 | -3669752.45 | 0.1813 | 0.1788 |
| Mercury | -14760-12-18 18:00 J | -3669314.82 | -3669314.75 | -3669314.69 | 0.1624 | 0.1322 |
| Venus | -14758-07-24 00:14 J | -3668732.65 | -3668732.49 | -3668732.34 | 0.1686 | 0.0758 |
| Venus | -14756-05-22 09:50 J | -3668064.20 | -3668064.09 | -3668063.98 | 0.1705 | 0.1300 |
| Mercury | -14755-08-31 22:19 J | -3667597.69 | -3667597.57 | -3667597.44 | 0.1895 | 0.1264 |
| Mercury | -14752-06-05 04:33 J | -3666589.41 | -3666589.31 | -3666589.22 | 0.1630 | 0.0874 |
| Mercury | -14750-05-11 05:31 J | -3665884.36 | -3665884.27 | -3665884.17 | 0.1625 | 0.0896 |
| Mercury | -14745-01-21 14:09 J | -3664168.08 | -3664167.91 | -3664167.74 | 0.1894 | 0.0200 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -14743-10-26 16:04 J | -3663158.89 | -3663158.83 | -3663158.76 | 0.1631 | 0.1300 |
| Mercury | -14741-09-30 17:16 J | -3662453.89 | -3662453.78 | -3662453.67 | 0.1626 | 0.0466 |
| Mercury | -14736-06-12 05:31 J | -3660738.34 | -3660738.27 | -3660738.19 | 0.1891 | 0.1677 |
| Mercury | -14731-02-21 05:02 J | -3659023.41 | -3659023.29 | -3659023.18 | 0.1627 | 0.0041 |
| Venus | -14729-10-06 14:24 J | -3658065.07 | -3658064.90 | -3658064.74 | 0.1824 | 0.0469 |
| Venus | -14726-07-22 22:48 J | -3657045.56 | -3657045.55 | -3657045.54 | 0.1678 | 0.1673 |
| Venus | -14724-05-21 11:02 J | -3656377.21 | -3656377.04 | -3656376.86 | 0.1696 | 0.0302 |
| Mercury | -14722-07-14 16:48 J | -3655592.92 | -3655592.80 | -3655592.69 | 0.1628 | 0.0390 |
| Mercury | -14720-06-18 18:00 J | -3654887.81 | -3654887.75 | -3654887.70 | 0.1624 | 0.1377 |
| Mercury | -14715-03-01 23:31 J | -3653170.63 | -3653170.52 | -3653170.40 | 0.1896 | 0.1408 |
| Mercury | -14713-12-04 04:33 J | -3652162.41 | -3652162.31 | -3652162.22 | 0.1629 | 0.0815 |
| Mercury | -14711-11-09 05:31 J | -3651457.36 | -3651457.27 | -3651457.17 | 0.1625 | 0.0951 |
| Mercury | -14706-07-22 15:07 J | -3649741.04 | -3649740.87 | -3649740.70 | 0.1894 | 0.0074 |
| Mercury | -14703-04-26 16:04 J | -3648731.90 | -3648731.83 | -3648731.76 | 0.1631 | 0.1243 |
| Mercury | -14701-03-31 17:16 J | -3648026.89 | -3648026.78 | -3648026.67 | 0.1625 | 0.0525 |
| Venus | -14697-10-06 04:33 J | -3646377.46 | -3646377.31 | -3646377.16 | 0.1834 | 0.0901 |
| Mercury | -14697-12-11 06:28 J | -3646311.32 | -3646311.23 | -3646311.13 | 0.1891 | 0.1544 |
| Venus | -14692-05-20 10:48 J | -3644690.21 | -3644690.05 | -3644689.89 | 0.1688 | 0.0657 |
| Mercury | -14692-08-22 05:02 J | -3644596.41 | -3644596.29 | -3644596.18 | 0.1627 | 0.0115 |
| Venus | -14690-03-19 19:55 J | -3644021.76 | -3644021.67 | -3644021.57 | 0.1707 | 0.1416 |
| Mercury | -14682-01-12 16:33 J | -3641165.92 | -3641165.81 | -3641165.69 | 0.1628 | 0.0337 |
| Mercury | -14681-12-17 17:45 J | -3640460.81 | -3640460.76 | -3640460.71 | 0.1624 | 0.1429 |
| Mercury | -14676-08-31 00:00 J | -3638743.60 | -3638743.50 | -3638743.39 | 0.1895 | 0.1511 |
| Mercury | -14673-06-04 04:19 J | -3637735.42 | -3637735.32 | -3637735.22 | 0.1630 | 0.0760 |
| Mercury | -14671-05-10 05:31 J | -3637030.36 | -3637030.27 | -3637030.18 | 0.1625 | 0.1006 |
| Mercury | -14666-01-20 15:50 J | -3635314.01 | -3635313.84 | -3635313.67 | 0.1894 | 0.0061 |
| Mercury | -14664-10-25 16:04 J | -3634304.91 | -3634304.83 | -3634304.75 | 0.1631 | 0.1187 |
| Venus | -14663-08-03 19:55 J | -3634022.83 | -3634022.67 | -3634022.51 | 0.1820 | 0.0672 |
| Mercury | -14662-09-30 17:16 J | -3633599.89 | -3633599.78 | -3633599.67 | 0.1626 | 0.0579 |
| Venus | -14660-05-19 09:35 J | -3633003.15 | -3633003.10 | -3633003.04 | 0.1680 | 0.1580 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Venus | -14658-03-18 21:07 J | -3632334.79 | -3632334.62 | -3632334.45 | 0.1699 | 0.0414 |
| Mercury | -14657-06-11 07:40 J | -3631884.29 | -3631884.18 | -3631884.06 | 0.1891 | 0.1402 |
| Mercury | -14654-03-18 03:50 J | -3630874.36 | -3630874.34 | -3630874.33 | 0.1633 | 0.1618 |
| Mercury | -14652-02-20 05:02 J | -3630169.41 | -3630169.29 | -3630169.18 | 0.1627 | 0.0163 |
| Mercury | -14643-07-13 16:33 J | -3626738.92 | -3626738.81 | -3626738.69 | 0.1628 | 0.0278 |
| Mercury | -14641-06-17 17:45 J | -3626033.80 | -3626033.76 | -3626033.71 | 0.1624 | 0.1488 |
| Earth | -14639-10-12 09:35 J | -3625187.29 | -3625187.10 | -3625186.91 | 0.1702 | 0.0264 |
| Moon | -14639-10-12 14:38 J | -3625187.09 | -3625186.89 | -3625186.69 | 0.1703 | 0.0320 * |
| Mercury | -14636-03-01 01:11 J | -3624316.53 | -3624316.45 | -3624316.37 | 0.1896 | 0.1651 |
| Mercury | -14634-12-04 04:19 J | -3623308.42 | -3623308.32 | -3623308.22 | 0.1629 | 0.0704 |
| Mercury | -14632-11-08 05:31 J | -3622603.36 | -3622603.27 | -3622603.18 | 0.1624 | 0.1059 |
| Venus | -14631-08-03 09:35 J | -3622335.26 | -3622335.10 | -3622334.94 | 0.1831 | 0.0677 |
| Mercury | -14627-07-21 16:48 J | -3620886.97 | -3620886.80 | -3620886.63 | 0.1894 | 0.0187 |
| Venus | -14626-03-17 21:07 J | -3620647.78 | -3620647.62 | -3620647.45 | 0.1691 | 0.0553 |
| Venus | -14624-01-14 05:16 J | -3619979.35 | -3619979.28 | -3619979.20 | 0.1710 | 0.1543 |
| Mercury | -14624-04-25 16:04 J | -3619877.91 | -3619877.83 | -3619877.75 | 0.1631 | 0.1134 |
| Mercury | -14622-03-31 17:16 J | -3619172.89 | -3619172.78 | -3619172.68 | 0.1625 | 0.0636 |
| Mercury | -14618-12-11 08:09 J | -3617457.29 | -3617457.16 | -3617457.04 | 0.1892 | 0.1301 |
| Mercury | -14615-09-16 03:35 J | -3616447.38 | -3616447.35 | -3616447.32 | 0.1633 | 0.1564 |
| Mercury | -14613-08-21 04:48 J | -3615742.41 | -3615742.30 | -3615742.18 | 0.1627 | 0.0209 |
| Mercury | -14603-01-11 16:33 J | -3612311.92 | -3612311.81 | -3612311.69 | 0.1628 | 0.0220 |
| Mercury | -14602-12-17 17:45 J | -3611606.79 | -3611606.76 | -3611606.73 | 0.1624 | 0.1541 |
| Venus | -14597-05-31 02:09 J | -3609980.56 | -3609980.41 | -3609980.26 | 0.1817 | 0.0864 |
| Mercury | -14597-08-30 02:09 J | -3609889.46 | -3609889.41 | -3609889.35 | 0.1896 | 0.1786 |
| Venus | -14594-03-16 20:38 J | -3608960.71 | -3608960.64 | -3608960.56 | 0.1682 | 0.1489 |
| Mercury | -14594-06-04 04:19 J | -3608881.43 | -3608881.32 | -3608881.22 | 0.1629 | 0.0647 |
| Venus | -14592-01-13 06:57 J | -3608292.37 | -3608292.21 | -3608292.04 | 0.1702 | 0.0528 |
| Mercury | -14592-05-09 05:31 J | -3608176.35 | -3608176.27 | -3608176.19 | 0.1624 | 0.1117 |
| Mercury | -14587-01-19 17:45 J | -3606459.93 | -3606459.76 | -3606459.59 | 0.1894 | 0.0311 |
| Mercury | -14585-10-24 15:50 J | -3605450.92 | -3605450.84 | -3605450.75 | 0.1631 | 0.1080 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -14583-09-29 17:02 J | -3604745.89 | -3604745.79 | -3604745.68 | 0.1625 | 0.0692 |
| Mercury | -14578-06-11 09:21 J | -3603030.24 | -3603030.11 | -3603029.97 | 0.1892 | 0.1154 |
| Mercury | -14575-03-17 03:35 J | -3602020.39 | -3602020.35 | -3602020.31 | 0.1633 | 0.1507 |
| Mercury | -14573-02-20 04:48 J | -3601315.41 | -3601315.30 | -3601315.19 | 0.1626 | 0.0261 |
| Venus | -14565-05-30 15:35 J | -3598293.02 | -3598292.85 | -3598292.68 | 0.1827 | 0.0474 |
| Mercury | -14564-07-12 16:33 J | -3597884.93 | -3597884.81 | -3597884.70 | 0.1628 | 0.0166 |
| Mercury | -14562-06-17 17:45 J | -3597179.78 | -3597179.76 | -3597179.75 | 0.1624 | 0.1595 |
| Venus | -14560-01-12 07:26 J | -3596605.35 | -3596605.19 | -3596605.02 | 0.1693 | 0.0449 |
| Earth | -14560-10-14 18:00 J | -3596329.87 | -3596329.75 | -3596329.63 | 0.1706 | 0.1327 |
| Moon | -14560-10-15 00:28 J | -3596329.56 | -3596329.48 | -3596329.39 | 0.1706 | 0.1481 |
| Venus | -14559-11-11 15:21 J | -3595936.90 | -3595936.86 | -3595936.82 | 0.1713 | 0.1662 |
| Mercury | -14557-02-29 02:52 J | -3595462.38 | -3595462.38 | -3595462.38 | 0.1896 | 0.1895 |
| Mercury | -14555-12-03 04:19 J | -3594454.43 | -3594454.32 | -3594454.22 | 0.1629 | 0.0596 |
| Mercury | -14553-11-07 05:16 J | -3593749.35 | -3593749.28 | -3593749.20 | 0.1624 | 0.1172 |
| Mercury | -14548-07-20 18:28 J | -3592032.89 | -3592032.73 | -3592032.56 | 0.1894 | 0.0439 |
| Mercury | -14545-04-24 15:50 J | -3591023.92 | -3591023.84 | -3591023.75 | 0.1631 | 0.1022 |
| Mercury | -14543-03-30 17:02 J | -3590318.89 | -3590318.79 | -3590318.69 | 0.1625 | 0.0745 |
| Mercury | -14539-12-10 10:19 J | -3588603.21 | -3588603.07 | -3588602.93 | 0.1892 | 0.1024 |
| Mercury | -14536-09-15 03:35 J | -3587593.40 | -3587593.35 | -3587593.30 | 0.1633 | 0.1451 |
| Mercury | -14534-08-21 04:48 J | -3586888.41 | -3586888.30 | -3586888.19 | 0.1626 | 0.0319 |
| Venus | -14531-03-28 08:24 J | -3585938.29 | -3585938.15 | -3585938.01 | 0.1814 | 0.1058 |
| Venus | -14528-01-11 06:57 J | -3584918.30 | -3584918.21 | -3584918.11 | 0.1685 | 0.1388 |
| Venus | -14527-11-10 17:02 J | -3584249.95 | -3584249.79 | -3584249.63 | 0.1704 | 0.0645 |
| Mercury | -14524-01-10 16:33 J | -3583457.93 | -3583457.81 | -3583457.70 | 0.1628 | 0.0120 |
| Mercury | -14515-06-03 04:04 J | -3580027.43 | -3580027.33 | -3580027.22 | 0.1629 | 0.0541 |
| Mercury | -14513-05-08 05:16 J | -3579322.35 | -3579322.28 | -3579322.20 | 0.1624 | 0.1225 |
| Mercury | -14508-01-18 19:26 J | -3577605.85 | -3577605.69 | -3577605.52 | 0.1894 | 0.0567 |
| Earth | -14506-04-18 08:38 J | -3576786.33 | -3576786.14 | -3576785.94 | 0.1820 | 0.0165 |
| Moon | -14506-04-18 14:52 J | -3576786.09 | -3576785.88 | -3576785.67 | 0.1820 | 0.0009 * |
| Mercury | -14506-10-24 15:50 J | -3576596.93 | -3576596.84 | -3576596.75 | 0.1631 | 0.0967 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -14504-09-28 17:02 J | -3575891.89 | -3575891.79 | -3575891.69 | 0.1625 | 0.0798 |
| Venus | -14499-03-27 21:07 J | -3574250.80 | -3574250.62 | -3574250.45 | 0.1824 | 0.0262 |
| Mercury | -14499-06-10 11:02 J | -3574176.19 | -3574176.04 | -3574175.89 | 0.1892 | 0.0911 |
| Mercury | -14496-03-16 03:35 J | -3573166.41 | -3573166.35 | -3573166.29 | 0.1633 | 0.1396 |
| Venus | -14495-11-09 17:45 J | -3572562.93 | -3572562.76 | -3572562.59 | 0.1696 | 0.0340 |
| Mercury | -14494-02-19 04:48 J | -3572461.42 | -3572461.30 | -3572461.19 | 0.1626 | 0.0376 |
| Mercury | -14485-07-11 16:33 J | -3569030.93 | -3569030.81 | -3569030.70 | 0.1628 | 0.0085 |
| Mercury | -14476-12-02 04:04 J | -3565600.44 | -3565600.33 | -3565600.22 | 0.1629 | 0.0482 |
| Mercury | -14474-11-07 05:16 J | -3564895.35 | -3564895.28 | -3564895.21 | 0.1624 | 0.1282 |
| Mercury | -14469-07-19 20:24 J | -3563178.81 | -3563178.65 | -3563178.49 | 0.1894 | 0.0693 |
| Venus | -14467-03-27 12:28 J | -3562563.05 | -3562562.98 | -3562562.91 | 0.1835 | 0.1657 |
| Mercury | -14466-04-24 15:50 J | -3562169.94 | -3562169.84 | -3562169.75 | 0.1631 | 0.0912 |
| Venus | -14465-01-23 14:24 J | -3561896.03 | -3561895.90 | -3561895.78 | 0.1810 | 0.1251 |
| Mercury | -14464-03-29 17:02 J | -3561464.89 | -3561464.79 | -3561464.69 | 0.1625 | 0.0855 |
| Venus | -14463-11-08 17:45 J | -3560875.87 | -3560875.76 | -3560875.65 | 0.1687 | 0.1293 |
| Venus | -14461-09-07 02:38 J | -3560207.55 | -3560207.39 | -3560207.24 | 0.1707 | 0.0766 |
| Mercury | -14460-12-09 12:00 J | -3559749.16 | -3559749.00 | -3559748.85 | 0.1892 | 0.0777 |
| Mercury | -14457-09-14 03:21 J | -3558739.42 | -3558739.36 | -3558739.29 | 0.1633 | 0.1344 |
| Mercury | -14455-08-20 04:33 J | -3558034.42 | -3558034.31 | -3558034.20 | 0.1626 | 0.0428 |
| Mercury | -14445-01-10 16:19 J | -3554603.93 | -3554603.82 | -3554603.70 | 0.1628 | 0.0035 |
| Mercury | -14436-06-02 04:04 J | -3551173.44 | -3551173.33 | -3551173.22 | 0.1629 | 0.0427 |
| Mercury | -14434-05-08 05:16 J | -3550468.34 | -3550468.28 | -3550468.22 | 0.1624 | 0.1336 |
| Moon | -14434-10-10 16:19 J | -3550312.89 | -3550312.82 | -3550312.74 | 0.1693 | 0.1538 |
| Earth | -14434-10-10 20:38 J | -3550312.70 | -3550312.64 | -3550312.57 | 0.1693 | 0.1580 |
| Venus | -14433-01-23 03:21 J | -3550208.54 | -3550208.36 | -3550208.19 | 0.1821 | 0.0065 |
| Mercury | -14429-01-18 21:21 J | -3548751.77 | -3548751.61 | -3548751.46 | 0.1894 | 0.0821 |
| Venus | -14429-09-06 04:04 J | -3548520.50 | -3548520.33 | -3548520.16 | 0.1698 | 0.0233 |
| Mercury | -14427-10-23 15:50 J | -3547742.94 | -3547742.84 | -3547742.75 | 0.1631 | 0.0856 |
| Mercury | -14425-09-27 16:48 J | -3547037.89 | -3547037.80 | -3547037.70 | 0.1625 | 0.0912 |
| Mercury | -14420-06-09 12:57 J | -3545322.12 | -3545321.96 | -3545321.80 | 0.1892 | 0.0638 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -14417-03-15 03:21 J | -3544312.42 | -3544312.36 | -3544312.29 | 0.1633 | 0.1287 |
| Mercury | -14415-02-18 04:33 J | -3543607.42 | -3543607.31 | -3543607.20 | 0.1626 | 0.0487 |
| Mercury | -14406-07-11 16:19 J | -3540176.93 | -3540176.82 | -3540176.70 | 0.1628 | 0.0057 |
| Venus | -14401-01-22 17:31 J | -3538520.87 | -3538520.77 | -3538520.66 | 0.1831 | 0.1435 |
| Venus | -14400-11-19 20:52 J | -3537853.73 | -3537853.63 | -3537853.52 | 0.1807 | 0.1430 |
| Venus | -14397-09-05 03:50 J | -3536833.46 | -3536833.34 | -3536833.22 | 0.1690 | 0.1187 |
| Mercury | -14397-12-01 04:04 J | -3536746.45 | -3536746.33 | -3536746.22 | 0.1629 | 0.0376 |
| Venus | -14395-07-05 12:14 J | -3536165.14 | -3536164.99 | -3536164.85 | 0.1710 | 0.0890 |
| Mercury | -14395-11-06 05:16 J | -3536041.34 | -3536041.28 | -3536041.23 | 0.1624 | 0.1389 |
| Mercury | -14390-07-19 22:04 J | -3534324.73 | -3534324.58 | -3534324.43 | 0.1894 | 0.0946 |
| Mercury | -14387-04-23 15:35 J | -3533315.95 | -3533315.85 | -3533315.75 | 0.1631 | 0.0803 |
| Mercury | -14385-03-28 16:48 J | -3532610.89 | -3532610.80 | -3532610.70 | 0.1625 | 0.0965 |
| Mercury | -14381-12-08 13:26 J | -3530895.10 | -3530894.94 | -3530894.77 | 0.1892 | 0.0535 |
| Mercury | -14378-09-14 03:21 J | -3529885.43 | -3529885.36 | -3529885.29 | 0.1633 | 0.1231 |
| Mercury | -14376-08-19 04:33 J | -3529180.42 | -3529180.31 | -3529180.20 | 0.1626 | 0.0538 |
| Venus | -14368-11-19 09:07 J | -3526166.29 | -3526166.12 | -3526165.95 | 0.1817 | 0.0138 |
| Mercury | -14366-01-09 16:19 J | -3525749.94 | -3525749.82 | -3525749.71 | 0.1628 | 0.0112 |
| Venus | -14363-07-04 13:40 J | -3524478.10 | -3524477.93 | -3524477.76 | 0.1701 | 0.0115 |
| Mercury | -14357-06-01 04:04 J | -3522319.45 | -3522319.33 | -3522319.22 | 0.1629 | 0.0320 |
| Mercury | -14355-05-07 05:16 J | -3521614.33 | -3521614.28 | -3521614.23 | 0.1624 | 0.1447 |
| Moon | -14355-10-12 21:07 J | -3521455.81 | -3521455.62 | -3521455.42 | 0.1696 | 0.0137 |
| Earth | -14355-10-13 04:19 J | -3521455.51 | -3521455.32 | -3521455.13 | 0.1697 | 0.0048 * |
| Mercury | -14350-01-17 23:02 J | -3519897.68 | -3519897.54 | -3519897.40 | 0.1894 | 0.1071 |
| Mercury | -14348-10-22 15:35 J | -3518888.95 | -3518888.85 | -3518888.75 | 0.1631 | 0.0747 |
| Mercury | -14346-09-27 16:48 J | -3518183.89 | -3518183.80 | -3518183.71 | 0.1625 | 0.1019 |
| Mercury | -14341-06-08 14:38 J | -3516468.05 | -3516467.89 | -3516467.72 | 0.1892 | 0.0389 |
| Mercury | -14338-03-15 03:21 J | -3515458.44 | -3515458.36 | -3515458.28 | 0.1633 | 0.1175 |
| Mercury | -14336-02-17 04:33 J | -3514753.42 | -3514753.31 | -3514753.20 | 0.1626 | 0.0593 |
| Venus | -14336-11-18 23:02 J | -3514478.67 | -3514478.54 | -3514478.41 | 0.1828 | 0.1217 |
| Venus | -14334-09-17 03:07 J | -3513811.44 | -3513811.37 | -3513811.29 | 0.1803 | 0.1620 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -14332-10-29 06:00 J | -3513038.27 | -3513038.25 | -3513038.22 | 0.1889 | 0.1862 |
| Venus | -14331-07-03 14:09 J | -3512791.05 | -3512790.91 | -3512790.78 | 0.1693 | 0.1083 |
| Venus | -14329-05-01 21:50 J | -3512122.73 | -3512122.59 | -3512122.45 | 0.1713 | 0.1010 |
| Mercury | -14329-08-04 14:52 J | -3512027.89 | -3512027.88 | -3512027.86 | 0.1635 | 0.1608 |
| Mercury | -14327-07-10 16:19 J | -3511322.94 | -3511322.82 | -3511322.71 | 0.1628 | 0.0173 |
| Mercury | -14318-12-01 03:50 J | -3507892.45 | -3507892.34 | -3507892.22 | 0.1629 | 0.0265 |
| Mercury | -14316-11-05 05:02 J | -3507187.33 | -3507187.29 | -3507187.25 | 0.1624 | 0.1500 |
| Mercury | -14311-07-19 00:00 J | -3505470.63 | -3505470.50 | -3505470.37 | 0.1895 | 0.1204 |
| Mercury | -14308-04-22 15:35 J | -3504461.95 | -3504461.85 | -3504461.74 | 0.1631 | 0.0688 |
| Mercury | -14306-03-28 16:48 J | -3503756.88 | -3503756.80 | -3503756.71 | 0.1625 | 0.1075 |
| Venus | -14302-09-16 15:35 J | -3502124.02 | -3502123.85 | -3502123.68 | 0.1814 | 0.0333 |
| Mercury | -14302-12-08 15:35 J | -3502041.02 | -3502040.85 | -3502040.68 | 0.1892 | 0.0261 |
| Mercury | -14299-09-13 03:21 J | -3501031.44 | -3501031.36 | -3501031.28 | 0.1633 | 0.1121 |
| Venus | -14297-05-01 00:00 J | -3500435.67 | -3500435.50 | -3500435.32 | 0.1704 | 0.0014 |
| Mercury | -14297-08-18 04:33 J | -3500326.42 | -3500326.31 | -3500326.21 | 0.1626 | 0.0650 |
| Mercury | -14292-04-29 07:11 J | -3498611.27 | -3498611.20 | -3498611.13 | 0.1889 | 0.1724 |
| Mercury | -14289-02-03 14:52 J | -3497600.91 | -3497600.88 | -3497600.85 | 0.1635 | 0.1553 |
| Mercury | -14287-01-08 16:04 J | -3496895.94 | -3496895.83 | -3496895.71 | 0.1627 | 0.0229 |
| Mercury | -14278-06-01 03:50 J | -3493465.45 | -3493465.34 | -3493465.23 | 0.1629 | 0.0207 |
| Mercury | -14276-05-06 05:02 J | -3492760.32 | -3492760.29 | -3492760.26 | 0.1624 | 0.1554 |
| Moon | -14276-10-15 12:28 J | -3492598.08 | -3492597.98 | -3492597.89 | 0.1700 | 0.1494 |
| Earth | -14276-10-15 12:14 J | -3492598.07 | -3492597.99 | -3492597.91 | 0.1700 | 0.1520 * |
| Mercury | -14271-01-17 00:43 J | -3491043.59 | -3491043.47 | -3491043.35 | 0.1894 | 0.1326 |
| Venus | -14270-09-16 04:33 J | -3490436.46 | -3490436.31 | -3490436.16 | 0.1825 | 0.0998 |
| Mercury | -14269-10-21 15:35 J | -3490034.96 | -3490034.85 | -3490034.75 | 0.1631 | 0.0636 |
| Venus | -14268-07-14 10:19 J | -3489769.09 | -3489769.07 | -3489769.06 | 0.1800 | 0.1788 |
| Mercury | -14267-09-26 16:48 J | -3489329.88 | -3489329.80 | -3489329.72 | 0.1625 | 0.1129 |
| Venus | -14265-04-30 00:28 J | -3488748.62 | -3488748.48 | -3488748.34 | 0.1695 | 0.0980 |
| Venus | -14263-02-27 07:40 J | -3488080.31 | -3488080.18 | -3488080.05 | 0.1716 | 0.1131 |
| Mercury | -14262-06-08 16:19 J | -3487613.99 | -3487613.82 | -3487613.65 | 0.1892 | 0.0150 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -14259-03-14 03:21 J | -3486604.45 | -3486604.36 | -3486604.28 | 0.1633 | 0.1067 |
| Mercury | -14257-02-17 04:19 J | -3485899.42 | -3485899.32 | -3485899.21 | 0.1626 | 0.0706 |
| Mercury | -14253-10-28 08:09 J | -3484184.25 | -3484184.16 | -3484184.07 | 0.1890 | 0.1593 |
| Mercury | -14250-08-04 14:52 J | -3483173.92 | -3483173.88 | -3483173.84 | 0.1635 | 0.1495 |
| Mercury | -14248-07-09 16:04 J | -3482468.94 | -3482468.83 | -3482468.71 | 0.1628 | 0.0280 |
| Mercury | -14239-11-30 03:50 J | -3479038.45 | -3479038.34 | -3479038.23 | 0.1629 | 0.0150 |
| Mercury | -14237-11-04 05:02 J | -3478333.30 | -3478333.29 | -3478333.28 | 0.1624 | 0.1610 |
| Venus | -14236-07-13 21:35 J | -3478081.77 | -3478081.60 | -3478081.44 | 0.1811 | 0.0531 |
| Mercury | -14232-07-18 01:40 J | -3476616.54 | -3476616.43 | -3476616.32 | 0.1894 | 0.1453 |
| Venus | -14231-02-26 09:35 J | -3476393.27 | -3476393.10 | -3476392.92 | 0.1707 | 0.0111 |
| Mercury | -14229-04-21 15:21 J | -3475607.96 | -3475607.86 | -3475607.75 | 0.1631 | 0.0585 |
| Mercury | -14227-03-27 16:48 J | -3474902.88 | -3474902.80 | -3474902.73 | 0.1625 | 0.1185 |
| Mercury | -14223-12-07 17:16 J | -3473186.95 | -3473186.78 | -3473186.61 | 0.1892 | 0.0016 |
| Moon | -14222-04-17 23:02 J | -3473055.73 | -3473055.54 | -3473055.35 | 0.1828 | 0.0622 |
| Earth | -14222-04-18 06:57 J | -3473055.41 | -3473055.21 | -3473055.02 | 0.1827 | 0.0226 * |
| Mercury | -14220-09-12 03:07 J | -3472177.46 | -3472177.37 | -3472177.28 | 0.1633 | 0.1012 |
| Mercury | -14218-08-18 04:19 J | -3471472.42 | -3471472.32 | -3471472.22 | 0.1626 | 0.0756 |
| Mercury | -14213-04-28 08:52 J | -3469757.23 | -3469757.13 | -3469757.02 | 0.1889 | 0.1473 |
| Mercury | -14210-02-02 14:52 J | -3468746.93 | -3468746.88 | -3468746.83 | 0.1635 | 0.1441 |
| Mercury | -14208-01-07 16:04 J | -3468041.94 | -3468041.83 | -3468041.72 | 0.1627 | 0.0332 |
| Venus | -14204-07-13 09:50 J | -3466394.25 | -3466394.09 | -3466393.93 | 0.1822 | 0.0783 |
| Venus | -14199-02-25 10:33 J | -3464706.21 | -3464706.06 | -3464705.91 | 0.1698 | 0.0872 |
| Mercury | -14199-05-31 03:50 J | -3464611.46 | -3464611.34 | -3464611.23 | 0.1629 | 0.0108 |
| Venus | -14198-12-25 16:48 J | -3464037.92 | -3464037.80 | -3464037.69 | 0.1719 | 0.1264 |
| Mercury | -14192-01-16 02:38 J | -3462189.48 | -3462189.39 | -3462189.30 | 0.1895 | 0.1582 |
| Mercury | -14190-10-21 15:21 J | -3461180.96 | -3461180.86 | -3461180.75 | 0.1631 | 0.0528 |
| Mercury | -14188-09-25 16:33 J | -3460475.88 | -3460475.81 | -3460475.73 | 0.1625 | 0.1239 |
| Mercury | -14183-06-07 18:14 J | -3458759.91 | -3458759.74 | -3458759.56 | 0.1892 | 0.0135 |
| Mercury | -14180-03-13 03:07 J | -3457750.46 | -3457750.37 | -3457750.28 | 0.1632 | 0.0955 |
| Mercury | -14178-02-16 04:19 J | -3457045.42 | -3457045.32 | -3457045.22 | 0.1626 | 0.0815 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -14174-10-28 09:50 J | -3455330.21 | -3455330.09 | -3455329.97 | 0.1890 | 0.1348 |
| Mercury | -14171-08-03 14:38 J | -3454319.94 | -3454319.89 | -3454319.83 | 0.1634 | 0.1389 |
| Venus | -14170-05-11 04:19 J | -3454039.48 | -3454039.32 | -3454039.16 | 0.1808 | 0.0715 |
| Mercury | -14169-07-08 16:04 J | -3453614.94 | -3453614.83 | -3453614.72 | 0.1627 | 0.0387 |
| Venus | -14166-12-24 19:11 J | -3452350.87 | -3452350.70 | -3452350.52 | 0.1710 | 0.0230 |
| Mercury | -14160-11-29 03:35 J | -3450184.46 | -3450184.35 | -3450184.23 | 0.1629 | 0.0065 |
| Mercury | -14153-07-17 03:21 J | -3447762.43 | -3447762.36 | -3447762.29 | 0.1895 | 0.1704 |
| Mercury | -14150-04-21 15:21 J | -3446753.97 | -3446753.86 | -3446753.75 | 0.1631 | 0.0471 |
| Earth | -14150-10-11 16:04 J | -3446580.94 | -3446580.83 | -3446580.71 | 0.1688 | 0.1319 |
| Moon | -14150-10-11 22:33 J | -3446580.69 | -3446580.56 | -3446580.43 | 0.1688 | 0.1181 |
| Mercury | -14148-03-26 16:33 J | -3446048.88 | -3446048.81 | -3446048.74 | 0.1625 | 0.1293 |
| Mercury | -14144-12-06 18:43 J | -3444332.89 | -3444332.72 | -3444332.55 | 0.1893 | 0.0234 |
| Mercury | -14141-09-11 03:07 J | -3443323.47 | -3443323.37 | -3443323.28 | 0.1633 | 0.0899 |
| Mercury | -14139-08-17 04:19 J | -3442618.42 | -3442618.32 | -3442618.22 | 0.1626 | 0.0868 |
| Venus | -14138-05-10 16:19 J | -3442351.98 | -3442351.82 | -3442351.65 | 0.1818 | 0.0588 |
| Mercury | -14134-04-28 11:02 J | -3440903.17 | -3440903.04 | -3440902.91 | 0.1890 | 0.1202 |
| Venus | -14134-12-23 20:38 J | -3440663.79 | -3440663.64 | -3440663.48 | 0.1700 | 0.0764 |
| Venus | -14132-10-22 02:24 J | -3439995.50 | -3439995.40 | -3439995.30 | 0.1722 | 0.1388 |
| Mercury | -14131-02-01 14:38 J | -3439892.95 | -3439892.89 | -3439892.82 | 0.1634 | 0.1331 |
| Mercury | -14129-01-07 16:04 J | -3439187.94 | -3439187.83 | -3439187.72 | 0.1627 | 0.0445 |
| Mercury | -14120-05-30 03:35 J | -3435757.46 | -3435757.35 | -3435757.23 | 0.1629 | 0.0046 |
| Mercury | -14113-01-16 04:19 J | -3433335.36 | -3433335.32 | -3433335.28 | 0.1895 | 0.1830 |
| Mercury | -14111-10-20 15:21 J | -3432326.97 | -3432326.86 | -3432326.75 | 0.1631 | 0.0416 |
| Mercury | -14109-09-24 16:33 J | -3431621.87 | -3431621.81 | -3431621.75 | 0.1625 | 0.1348 |
| Venus | -14104-03-07 10:33 J | -3429997.21 | -3429997.06 | -3429996.91 | 0.1804 | 0.0903 |
| Mercury | -14104-06-06 20:09 J | -3429905.83 | -3429905.66 | -3429905.49 | 0.1893 | 0.0378 |
| Mercury | -14101-03-12 03:07 J | -3428896.47 | -3428896.37 | -3428896.28 | 0.1632 | 0.0846 |
| Venus | -14100-10-21 05:02 J | -3428308.46 | -3428308.29 | -3428308.12 | 0.1712 | 0.0350 |
| Mercury | -14099-02-15 04:19 J | -3428191.42 | -3428191.32 | -3428191.23 | 0.1626 | 0.0923 |
| Mercury | -14095-10-27 11:16 J | -3426476.16 | -3426476.03 | -3426475.89 | 0.1890 | 0.1103 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -14092-08-02 14:38 J | -3425465.96 | -3425465.89 | -3425465.82 | 0.1635 | 0.1277 |
| Mercury | -14090-07-08 15:50 J | -3424760.95 | -3424760.84 | -3424760.73 | 0.1627 | 0.0499 |
| Mercury | -14081-11-28 03:35 J | -3421330.46 | -3421330.35 | -3421330.24 | 0.1629 | 0.0069 |
| Venus | -14072-03-06 22:04 J | -3418309.75 | -3418309.58 | -3418309.41 | 0.1815 | 0.0381 |
| Mercury | -14071-04-20 15:21 J | -3417899.97 | -3417899.86 | -3417899.75 | 0.1630 | 0.0357 |
| Moon | -14071-10-13 23:16 J | -3417723.70 | -3417723.53 | -3417723.35 | 0.1691 | 0.0190 |
| Earth | -14071-10-13 23:45 J | -3417723.69 | -3417723.51 | -3417723.32 | 0.1691 | 0.0201 * |
| Mercury | -14069-03-25 16:33 J | -3417194.87 | -3417194.81 | -3417194.76 | 0.1625 | 0.1404 |
| Venus | -14068-10-20 06:43 J | -3416621.38 | -3416621.22 | -3416621.06 | 0.1703 | 0.0652 |
| Venus | -14066-08-19 11:02 J | -3415953.11 | -3415953.04 | -3415952.96 | 0.1725 | 0.1528 |
| Mercury | -14065-12-05 20:52 J | -3415478.80 | -3415478.63 | -3415478.47 | 0.1892 | 0.0499 |
| Mercury | -14062-09-11 02:52 J | -3414469.48 | -3414469.38 | -3414469.28 | 0.1632 | 0.0792 |
| Mercury | -14060-08-16 04:19 J | -3413764.41 | -3413764.32 | -3413764.23 | 0.1626 | 0.0980 |
| Mercury | -14055-04-27 12:28 J | -3412049.12 | -3412048.98 | -3412048.83 | 0.1890 | 0.0961 |
| Mercury | -14052-01-31 14:38 J | -3411038.97 | -3411038.89 | -3411038.82 | 0.1634 | 0.1221 |
| Mercury | -14050-01-06 15:50 J | -3410333.95 | -3410333.84 | -3410333.73 | 0.1627 | 0.0551 |
| Mercury | -14041-05-29 03:35 J | -3406903.47 | -3406903.35 | -3406903.24 | 0.1629 | 0.0125 |
| Venus | -14040-03-06 12:14 J | -3406622.04 | -3406621.99 | -3406621.94 | 0.1826 | 0.1741 |
| Venus | -14038-01-02 17:16 J | -3405954.92 | -3405954.78 | -3405954.64 | 0.1801 | 0.1086 |
| Venus | -14036-10-19 07:26 J | -3404934.23 | -3404934.19 | -3404934.14 | 0.1695 | 0.1620 |
| Venus | -14034-08-18 14:09 J | -3404266.08 | -3404265.91 | -3404265.74 | 0.1715 | 0.0478 |
| Mercury | -14032-10-19 15:07 J | -3403472.98 | -3403472.87 | -3403472.75 | 0.1631 | 0.0313 |
| Mercury | -14030-09-24 16:19 J | -3402767.86 | -3402767.82 | -3402767.77 | 0.1625 | 0.1457 |
| Mercury | -14025-06-05 21:35 J | -3401051.76 | -3401051.60 | -3401051.44 | 0.1893 | 0.0617 |
| Mercury | -14022-03-12 02:52 J | -3400042.48 | -3400042.38 | -3400042.27 | 0.1632 | 0.0735 |
| Mercury | -14020-02-14 04:04 J | -3399337.42 | -3399337.33 | -3399337.24 | 0.1626 | 0.1033 |
| Mercury | -14016-10-26 13:40 J | -3397622.09 | -3397621.93 | -3397621.78 | 0.1890 | 0.0828 |
| Mercury | -14013-08-01 14:38 J | -3396611.97 | -3396611.89 | -3396611.81 | 0.1634 | 0.1164 |
| Mercury | -14011-07-07 15:50 J | -3395906.94 | -3395906.84 | -3395906.73 | 0.1627 | 0.0609 |
| Venus | -14006-01-02 05:02 J | -3394267.47 | -3394267.29 | -3394267.12 | 0.1811 | 0.0196 |

Mercury -14004-12-23 02:09 J -3393181.43 -3393181.41 -3393181.39 0.1636 0.1598

Venus -14002-08-17 16:33 J -3392578.97 -3392578.81 -3392578.64 0.1706 0.0540

Mercury -14002-11-28 03:35 J -3392476.47 -3392476.35 -3392476.24 0.1629 0.0186

14TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 14th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|---|-------------|-------------|-------------|--------|--------|---|
| Venus | -14000-06-15 19:55 J | | -3391910.71 | -3391910.67 | -3391910.62 | 0.1728 | 0.1666 | |
| Mercury | -13992-04-19 15:07 J | | -3389045.98 | -3389045.87 | -3389045.75 | 0.1630 | 0.0254 | |
| Moon | -13992-10-16 00:28 J | | -3388866.55 | -3388866.48 | -3388866.41 | 0.1694 | 0.1547 | |
| Mercury | -13990-03-25 16:19 J | | -3388340.86 | -3388340.82 | -3388340.78 | 0.1625 | 0.1513 | |
| Mercury | -13986-12-05 22:33 J | | -3386624.71 | -3386624.56 | -3386624.40 | 0.1893 | 0.0752 | |
| Mercury | -13983-09-10 02:52 J | | -3385615.48 | -3385615.38 | -3385615.28 | 0.1632 | 0.0680 | |
| Mercury | -13981-08-15 04:04 J | | -3384910.41 | -3384910.33 | -3384910.25 | 0.1626 | 0.1086 | |
| Mercury | -13976-04-26 14:09 J | | -3383195.07 | -3383194.91 | -3383194.75 | 0.1890 | 0.0713 | |
| Venus | -13974-01-01 18:00 J | | -3382579.85 | -3382579.75 | -3382579.66 | 0.1822 | 0.1528 | |
| Mercury | -13973-01-31 14:38 J | | -3382184.98 | -3382184.89 | -3382184.81 | 0.1634 | 0.1111 | |
| Venus | -13973-10-30 00:14 J | | -3381912.61 | -3381912.49 | -3381912.37 | 0.1797 | 0.1257 | |
| Mercury | -13971-01-05 15:50 J | | -3381479.95 | -3381479.84 | -3381479.74 | 0.1627 | 0.0662 | |
| Venus | -13970-08-16 17:16 J | | -3380891.86 | -3380891.78 | -3380891.70 | 0.1697 | 0.1510 | |
| Venus | -13968-06-14 23:31 J | | -3380223.68 | -3380223.52 | -3380223.35 | 0.1718 | 0.0605 | |
| Mercury | -13964-06-23 02:09 J | | -3378754.44 | -3378754.41 | -3378754.37 | 0.1636 | 0.1541 | |
| Mercury | -13962-05-29 03:21 J | | -3378049.47 | -3378049.36 | -3378049.24 | 0.1629 | 0.0242 | |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -13953-10-18 15:07 J | -3374618.98 | -3374618.87 | -3374618.75 | 0.1630 | 0.0197 |
| Mercury | -13951-09-23 16:19 J | -3373913.85 | -3373913.82 | -3373913.79 | 0.1625 | 0.1567 |
| Mercury | -13946-06-05 23:45 J | -3372197.66 | -3372197.51 | -3372197.36 | 0.1893 | 0.0888 |
| Mercury | -13943-03-11 02:52 J | -3371188.49 | -3371188.38 | -3371188.28 | 0.1632 | 0.0623 |
| Mercury | -13941-02-14 04:04 J | -3370483.41 | -3370483.33 | -3370483.25 | 0.1626 | 0.1144 |
| Venus | -13941-10-29 11:02 J | -3370225.21 | -3370225.04 | -3370224.87 | 0.1808 | 0.0003 |
| Earth | -13938-04-18 03:35 J | -3369324.53 | -3369324.35 | -3369324.17 | 0.1835 | 0.0673 |
| Moon | -13938-04-18 06:00 J | -3369324.41 | -3369324.25 | -3369324.08 | 0.1835 | 0.0742 * |
| Mercury | -13937-10-25 15:07 J | -3368768.03 | -3368767.87 | -3368767.71 | 0.1890 | 0.0584 |
| Venus | -13936-06-14 02:09 J | -3368536.58 | -3368536.41 | -3368536.24 | 0.1709 | 0.0421 |
| Mercury | -13934-08-01 14:24 J | -3367757.98 | -3367757.90 | -3367757.81 | 0.1634 | 0.1056 |
| Mercury | -13932-07-06 15:50 J | -3367052.95 | -3367052.84 | -3367052.74 | 0.1627 | 0.0718 |
| Mercury | -13925-12-22 02:09 J | -3364327.45 | -3364327.41 | -3364327.37 | 0.1636 | 0.1487 |
| Mercury | -13923-11-27 03:21 J | -3363622.47 | -3363622.36 | -3363622.25 | 0.1629 | 0.0289 |
| Mercury | -13913-04-18 15:07 J | -3360191.98 | -3360191.87 | -3360191.76 | 0.1630 | 0.0139 |
| Mercury | -13911-03-24 16:19 J | -3359486.82 | -3359486.82 | -3359486.82 | 0.1625 | 0.1622 |
| Venus | -13909-10-28 23:31 J | -3358537.63 | -3358537.52 | -3358537.40 | 0.1819 | 0.1318 |
| Venus | -13907-08-27 06:43 J | -3357870.32 | -3357870.22 | -3357870.12 | 0.1793 | 0.1440 |
| Mercury | -13907-12-05 00:14 J | -3357770.64 | -3357770.49 | -3357770.35 | 0.1893 | 0.0994 |
| Venus | -13904-06-13 03:21 J | -3356849.46 | -3356849.36 | -3356849.26 | 0.1700 | 0.1404 |
| Mercury | -13904-09-09 02:52 J | -3356761.49 | -3356761.38 | -3356761.28 | 0.1632 | 0.0571 |
| Venus | -13902-04-12 08:52 J | -3356181.29 | -3356181.13 | -3356180.97 | 0.1721 | 0.0732 |
| Mercury | -13902-08-15 04:04 J | -3356056.41 | -3356056.33 | -3356056.26 | 0.1626 | 0.1197 |
| Mercury | -13897-04-25 16:19 J | -3354340.98 | -3354340.82 | -3354340.65 | 0.1890 | 0.0440 |
| Mercury | -13894-01-30 14:24 J | -3353330.99 | -3353330.90 | -3353330.81 | 0.1634 | 0.0999 |
| Mercury | -13892-01-04 15:50 J | -3352625.95 | -3352625.84 | -3352625.74 | 0.1627 | 0.0775 |
| Mercury | -13885-06-22 02:09 J | -3349900.47 | -3349900.41 | -3349900.36 | 0.1636 | 0.1433 |
| Mercury | -13883-05-28 03:21 J | -3349195.47 | -3349195.36 | -3349195.25 | 0.1629 | 0.0346 |
| Venus | -13875-08-26 17:45 J | -3346182.93 | -3346182.76 | -3346182.58 | 0.1804 | 0.0190 |
| Mercury | -13874-10-18 15:07 J | -3345764.99 | -3345764.87 | -3345764.76 | 0.1630 | 0.0093 |

Venus -13870-04-11 12:14 J -3344494.17 -3344493.99 -3344493.82 0.1712 0.0312
 Mercury -13867-06-05 01:26 J -3343343.58 -3343343.44 -3343343.30 0.1893 0.1138
 Moon -13866-10-12 12:28 J -3342849.14 -3342848.98 -3342848.82 0.1683 0.1044
 Earth -13866-10-12 13:11 J -3342849.10 -3342848.95 -3342848.80 0.1683 0.1033 *
 Mercury -13864-03-10 02:38 J -3342334.49 -3342334.39 -3342334.28 0.1632 0.0516
 Mercury -13862-02-13 03:50 J -3341629.41 -3341629.34 -3341629.26 0.1626 0.1252
 Mercury -13858-10-25 16:48 J -3339913.97 -3339913.80 -3339913.63 0.1890 0.0340
 Mercury -13855-07-31 14:24 J -3338903.99 -3338903.90 -3338903.81 0.1634 0.0945
 Mercury -13853-07-05 15:35 J -3338198.95 -3338198.85 -3338198.75 0.1627 0.0826
 Mercury -13848-03-16 08:38 J -3336484.19 -3336484.14 -3336484.08 0.1888 0.1775
 Mercury -13846-12-22 02:09 J -3335473.47 -3335473.41 -3335473.35 0.1636 0.1374
 Mercury -13844-11-26 03:21 J -3334768.47 -3334768.36 -3334768.25 0.1629 0.0400
 Venus -13843-08-26 05:31 J -3334495.40 -3334495.27 -3334495.13 0.1815 0.1111
 Venus -13841-06-23 14:24 J -3333827.98 -3333827.90 -3333827.83 0.1790 0.1600
 Venus -13838-04-10 13:26 J -3332807.05 -3332806.94 -3332806.83 0.1703 0.1296
 Venus -13836-02-06 18:28 J -3332138.89 -3332138.73 -3332138.58 0.1724 0.0858
 Mercury -13834-04-18 15:07 J -3331337.99 -3331337.87 -3331337.76 0.1630 0.0043
 Mercury -13828-12-04 02:09 J -3328916.54 -3328916.41 -3328916.28 0.1893 0.1258
 Mercury -13825-09-08 02:38 J -3327907.50 -3327907.39 -3327907.28 0.1632 0.0460
 Mercury -13823-08-14 03:50 J -3327202.40 -3327202.34 -3327202.27 0.1626 0.1308
 Mercury -13818-04-25 18:00 J -3325486.92 -3325486.75 -3325486.58 0.1890 0.0194
 Mercury -13815-01-29 14:24 J -3324477.00 -3324476.90 -3324476.81 0.1634 0.0890
 Mercury -13813-01-04 15:35 J -3323771.95 -3323771.85 -3323771.75 0.1627 0.0881
 Venus -13809-06-23 00:28 J -3322140.65 -3322140.48 -3322140.31 0.1801 0.0374
 Mercury -13809-09-14 09:35 J -3322057.18 -3322057.10 -3322057.02 0.1887 0.1654
 Mercury -13806-06-22 01:55 J -3321046.48 -3321046.42 -3321046.35 0.1636 0.1322
 Venus -13804-02-05 21:21 J -3320451.78 -3320451.61 -3320451.43 0.1715 0.0187
 Mercury -13804-05-27 03:21 J -3320341.47 -3320341.36 -3320341.25 0.1629 0.0457
 Mercury -13795-10-17 14:52 J -3316910.99 -3316910.88 -3316910.76 0.1630 0.0056
 Mercury -13788-06-04 03:07 J -3314489.49 -3314489.37 -3314489.26 0.1893 0.1383

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Earth | -13787-10-14 20:09 J | -3313991.84 | -3313991.66 | -3313991.48 | 0.1686 | 0.0457 |
| Moon | -13787-10-15 02:38 J | -3313991.57 | -3313991.39 | -3313991.21 | 0.1686 | 0.0588 * |
| Mercury | -13785-03-09 02:38 J | -3313480.50 | -3313480.39 | -3313480.28 | 0.1632 | 0.0401 |
| Mercury | -13783-02-12 03:50 J | -3312775.40 | -3312775.34 | -3312775.28 | 0.1626 | 0.1362 |
| Mercury | -13779-10-24 18:57 J | -3311059.88 | -3311059.71 | -3311059.54 | 0.1890 | 0.0063 |
| Venus | -13777-06-22 11:31 J | -3310453.17 | -3310453.02 | -3310452.87 | 0.1812 | 0.0906 |
| Mercury | -13776-07-30 14:24 J | -3310050.00 | -3310049.90 | -3310049.80 | 0.1634 | 0.0833 |
| Venus | -13775-04-20 21:50 J | -3309785.61 | -3309785.59 | -3309785.57 | 0.1787 | 0.1765 |
| Mercury | -13774-07-05 15:35 J | -3309344.94 | -3309344.85 | -3309344.76 | 0.1627 | 0.0938 |
| Venus | -13772-02-04 23:16 J | -3308764.66 | -3308764.53 | -3308764.41 | 0.1706 | 0.1185 |
| Venus | -13771-12-05 03:21 J | -3308096.50 | -3308096.36 | -3308096.22 | 0.1727 | 0.0993 |
| Mercury | -13769-03-15 10:33 J | -3307630.16 | -3307630.06 | -3307629.96 | 0.1887 | 0.1522 |
| Mercury | -13767-12-21 01:55 J | -3306619.49 | -3306619.42 | -3306619.35 | 0.1636 | 0.1267 |
| Mercury | -13765-11-25 03:07 J | -3305914.47 | -3305914.37 | -3305914.26 | 0.1628 | 0.0513 |
| Mercury | -13755-04-17 14:52 J | -3302483.99 | -3302483.88 | -3302483.76 | 0.1630 | 0.0084 |
| Mercury | -13749-12-03 04:04 J | -3300062.43 | -3300062.33 | -3300062.23 | 0.1893 | 0.1513 |
| Mercury | -13746-09-08 02:38 J | -3299053.50 | -3299053.39 | -3299053.28 | 0.1632 | 0.0349 |
| Mercury | -13744-08-13 03:50 J | -3298348.39 | -3298348.34 | -3298348.29 | 0.1626 | 0.1415 |
| Venus | -13743-04-20 07:40 J | -3298098.35 | -3298098.18 | -3298098.02 | 0.1798 | 0.0550 |
| Mercury | -13739-04-24 19:40 J | -3296632.86 | -3296632.68 | -3296632.51 | 0.1890 | 0.0061 |
| Venus | -13739-12-04 06:57 J | -3296409.39 | -3296409.21 | -3296409.04 | 0.1718 | 0.0067 |
| Mercury | -13736-01-28 14:09 J | -3295623.01 | -3295622.91 | -3295622.81 | 0.1634 | 0.0780 |
| Mercury | -13734-01-03 15:35 J | -3294917.94 | -3294917.85 | -3294917.76 | 0.1627 | 0.0992 |
| Mercury | -13730-09-14 11:16 J | -3293203.14 | -3293203.03 | -3293202.91 | 0.1888 | 0.1400 |
| Mercury | -13727-06-21 01:55 J | -3292192.49 | -3292192.42 | -3292192.34 | 0.1636 | 0.1209 |
| Mercury | -13725-05-26 03:07 J | -3291487.47 | -3291487.37 | -3291487.26 | 0.1629 | 0.0567 |
| Mercury | -13716-10-16 14:52 J | -3288056.99 | -3288056.88 | -3288056.76 | 0.1630 | 0.0141 |
| Venus | -13711-04-19 18:28 J | -3286410.89 | -3286410.73 | -3286410.57 | 0.1809 | 0.0719 |
| Mercury | -13709-06-03 05:02 J | -3285635.37 | -3285635.29 | -3285635.21 | 0.1893 | 0.1646 |
| Venus | -13707-12-03 09:07 J | -3284722.25 | -3284722.12 | -3284721.98 | 0.1708 | 0.1075 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -13706-03-09 02:38 J | -3284626.51 | -3284626.39 | -3284626.28 | 0.1632 | 0.0299 |
| Venus | -13705-10-01 12:43 J | -3284054.10 | -3284053.97 | -3284053.84 | 0.1730 | 0.1122 |
| Mercury | -13704-02-11 03:50 J | -3283921.39 | -3283921.34 | -3283921.29 | 0.1625 | 0.1471 |
| Mercury | -13700-10-23 20:38 J | -3282205.82 | -3282205.64 | -3282205.47 | 0.1891 | 0.0185 |
| Mercury | -13697-07-29 14:09 J | -3281196.01 | -3281195.91 | -3281195.81 | 0.1634 | 0.0724 |
| Mercury | -13695-07-04 15:21 J | -3280490.94 | -3280490.86 | -3280490.77 | 0.1627 | 0.1046 |
| Mercury | -13690-03-15 12:14 J | -3278776.11 | -3278775.99 | -3278775.86 | 0.1887 | 0.1268 |
| Mercury | -13688-12-20 01:55 J | -3277765.50 | -3277765.42 | -3277765.34 | 0.1636 | 0.1155 |
| Mercury | -13686-11-25 03:07 J | -3277060.47 | -3277060.37 | -3277060.26 | 0.1628 | 0.0620 |
| Mercury | -13678-05-12 13:26 J | -3274334.96 | -3274334.94 | -3274334.91 | 0.1639 | 0.1589 |
| Venus | -13677-02-15 14:24 J | -3274056.06 | -3274055.90 | -3274055.74 | 0.1794 | 0.0730 |
| Mercury | -13676-04-16 14:52 J | -3273630.00 | -3273629.88 | -3273629.77 | 0.1630 | 0.0193 |
| Venus | -13673-09-30 16:19 J | -3272367.00 | -3272366.82 | -3272366.65 | 0.1721 | 0.0062 |
| Mercury | -13670-12-03 05:31 J | -3271208.33 | -3271208.27 | -3271208.20 | 0.1894 | 0.1757 |
| Mercury | -13667-09-07 02:24 J | -3270199.51 | -3270199.40 | -3270199.28 | 0.1632 | 0.0244 |
| Mercury | -13665-08-12 03:50 J | -3269494.38 | -3269494.34 | -3269494.31 | 0.1626 | 0.1526 |
| Mercury | -13660-04-23 21:50 J | -3267778.76 | -3267778.59 | -3267778.42 | 0.1891 | 0.0326 |
| Mercury | -13657-01-28 14:09 J | -3266769.01 | -3266768.91 | -3266768.80 | 0.1634 | 0.0667 |
| Mercury | -13655-01-02 15:21 J | -3266063.94 | -3266063.86 | -3266063.77 | 0.1627 | 0.1104 |
| Earth | -13654-04-17 22:04 J | -3265593.73 | -3265593.58 | -3265593.43 | 0.1842 | 0.1195 |
| Moon | -13654-04-18 05:16 J | -3265593.44 | -3265593.28 | -3265593.11 | 0.1842 | 0.1108 * |
| Mercury | -13651-09-13 13:11 J | -3264349.09 | -3264348.95 | -3264348.82 | 0.1888 | 0.1145 |
| Mercury | -13648-06-20 01:55 J | -3263338.51 | -3263338.42 | -3263338.34 | 0.1636 | 0.1101 |
| Mercury | -13646-05-26 03:07 J | -3262633.47 | -3262633.37 | -3262633.27 | 0.1628 | 0.0675 |
| Venus | -13645-02-15 00:28 J | -3262368.64 | -3262368.48 | -3262368.31 | 0.1805 | 0.0520 |
| Venus | -13641-09-29 18:57 J | -3260679.85 | -3260679.71 | -3260679.57 | 0.1711 | 0.0960 |
| Venus | -13639-07-29 21:07 J | -3260011.74 | -3260011.62 | -3260011.50 | 0.1734 | 0.1267 |
| Mercury | -13639-11-10 13:26 J | -3259907.98 | -3259907.94 | -3259907.90 | 0.1638 | 0.1534 |
| Mercury | -13637-10-15 14:52 J | -3259203.00 | -3259202.88 | -3259202.77 | 0.1630 | 0.0254 |
| Mercury | -13627-03-08 02:24 J | -3255772.51 | -3255772.40 | -3255772.28 | 0.1632 | 0.0185 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -13625-02-11 03:35 J | -3255067.37 | -3255067.35 | -3255067.32 | 0.1625 | 0.1579 |
| Mercury | -13621-10-22 22:04 J | -3253351.74 | -3253351.58 | -3253351.41 | 0.1891 | 0.0429 |
| Mercury | -13618-07-29 14:09 J | -3252342.02 | -3252341.91 | -3252341.81 | 0.1634 | 0.0612 |
| Mercury | -13616-07-03 15:21 J | -3251636.94 | -3251636.86 | -3251636.78 | 0.1627 | 0.1156 |
| Venus | -13612-12-12 21:35 J | -3250013.75 | -3250013.60 | -3250013.46 | 0.1791 | 0.0907 |
| Mercury | -13611-03-14 14:09 J | -3249922.05 | -3249921.91 | -3249921.76 | 0.1888 | 0.1008 |
| Mercury | -13609-12-19 01:55 J | -3248911.51 | -3248911.42 | -3248911.34 | 0.1636 | 0.1043 |
| Venus | -13607-07-29 01:11 J | -3248324.62 | -3248324.45 | -3248324.28 | 0.1724 | 0.0193 |
| Mercury | -13607-11-24 03:07 J | -3248206.47 | -3248206.37 | -3248206.27 | 0.1628 | 0.0731 |
| Mercury | -13599-05-11 13:26 J | -3245480.99 | -3245480.94 | -3245480.90 | 0.1638 | 0.1479 |
| Mercury | -13597-04-15 14:52 J | -3244776.00 | -3244775.88 | -3244775.77 | 0.1630 | 0.0308 |
| Mercury | -13588-09-06 02:24 J | -3241345.52 | -3241345.40 | -3241345.29 | 0.1632 | 0.0128 |
| Moon | -13582-10-13 05:02 J | -3239117.45 | -3239117.29 | -3239117.13 | 0.1678 | 0.0819 |
| Earth | -13582-10-13 11:31 J | -3239117.19 | -3239117.02 | -3239116.85 | 0.1678 | 0.0720 * |
| Mercury | -13581-04-22 23:31 J | -3238924.69 | -3238924.52 | -3238924.36 | 0.1891 | 0.0572 |
| Venus | -13580-12-12 07:55 J | -3238326.35 | -3238326.17 | -3238326.00 | 0.1802 | 0.0344 |
| Mercury | -13578-01-27 14:09 J | -3237915.02 | -3237914.91 | -3237914.81 | 0.1634 | 0.0558 |
| Mercury | -13576-01-01 15:21 J | -3237209.94 | -3237209.86 | -3237209.79 | 0.1627 | 0.1210 |
| Earth | -13575-04-21 03:21 J | -3236735.47 | -3236735.36 | -3236735.25 | 0.1837 | 0.1514 |
| Moon | -13575-04-21 10:19 J | -3236735.15 | -3236735.07 | -3236734.99 | 0.1837 | 0.1634 |
| Venus | -13575-07-28 04:33 J | -3236637.46 | -3236637.31 | -3236637.16 | 0.1714 | 0.0845 |
| Venus | -13573-05-26 06:00 J | -3235969.35 | -3235969.25 | -3235969.15 | 0.1737 | 0.1408 |
| Mercury | -13572-09-12 14:52 J | -3235495.03 | -3235494.88 | -3235494.73 | 0.1888 | 0.0893 |
| Mercury | -13569-06-19 01:40 J | -3234484.52 | -3234484.43 | -3234484.34 | 0.1636 | 0.0990 |
| Mercury | -13567-05-25 03:07 J | -3233779.47 | -3233779.37 | -3233779.27 | 0.1628 | 0.0786 |
| Mercury | -13560-11-09 13:26 J | -3231054.00 | -3231053.94 | -3231053.89 | 0.1638 | 0.1423 |
| Mercury | -13558-10-15 14:38 J | -3230349.00 | -3230348.89 | -3230348.78 | 0.1630 | 0.0357 |
| Mercury | -13548-03-07 02:24 J | -3226918.51 | -3226918.40 | -3226918.29 | 0.1632 | 0.0069 |
| Venus | -13548-12-11 19:26 J | -3226638.76 | -3226638.69 | -3226638.62 | 0.1813 | 0.1639 |
| Venus | -13546-10-10 04:48 J | -3225971.44 | -3225971.30 | -3225971.16 | 0.1787 | 0.1073 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -13542-10-23 00:28 J | -3224497.64 | -3224497.48 | -3224497.32 | 0.1891 | 0.0701 |
| Venus | -13541-05-25 10:33 J | -3224282.24 | -3224282.06 | -3224281.89 | 0.1727 | 0.0325 |
| Mercury | -13539-07-28 14:09 J | -3223488.02 | -3223487.91 | -3223487.81 | 0.1634 | 0.0505 |
| Mercury | -13537-07-02 15:21 J | -3222782.93 | -3222782.86 | -3222782.79 | 0.1627 | 0.1267 |
| Mercury | -13532-03-13 16:04 J | -3221067.99 | -3221067.83 | -3221067.68 | 0.1888 | 0.0760 |
| Mercury | -13530-12-19 01:40 J | -3220057.52 | -3220057.43 | -3220057.34 | 0.1636 | 0.0934 |
| Mercury | -13528-11-23 02:52 J | -3219352.47 | -3219352.38 | -3219352.28 | 0.1628 | 0.0841 |
| Mercury | -13520-05-10 13:11 J | -3216627.01 | -3216626.95 | -3216626.88 | 0.1638 | 0.1369 |
| Mercury | -13518-04-15 14:38 J | -3215922.00 | -3215921.89 | -3215921.78 | 0.1630 | 0.0413 |
| Venus | -13514-10-09 14:24 J | -3214284.08 | -3214283.90 | -3214283.73 | 0.1798 | 0.0153 |
| Venus | -13509-05-24 13:55 J | -3212595.08 | -3212594.92 | -3212594.76 | 0.1717 | 0.0724 |
| Mercury | -13509-09-05 02:24 J | -3212491.52 | -3212491.40 | -3212491.29 | 0.1632 | 0.0060 |
| Venus | -13507-03-23 14:24 J | -3211926.97 | -3211926.90 | -3211926.82 | 0.1740 | 0.1553 |
| Moon | -13503-10-15 13:26 J | -3210260.12 | -3210259.94 | -3210259.77 | 0.1681 | 0.0794 |
| Earth | -13503-10-15 18:00 J | -3210259.92 | -3210259.75 | -3210259.58 | 0.1681 | 0.0741 * |
| Mercury | -13502-04-23 00:57 J | -3210070.61 | -3210070.46 | -3210070.30 | 0.1891 | 0.0813 |
| Mercury | -13499-01-26 13:55 J | -3209061.03 | -3209060.92 | -3209060.81 | 0.1634 | 0.0449 |
| Mercury | -13497-01-01 15:07 J | -3208355.93 | -3208355.87 | -3208355.80 | 0.1627 | 0.1321 |
| Mercury | -13493-09-11 16:48 J | -3206640.96 | -3206640.80 | -3206640.63 | 0.1888 | 0.0632 |
| Mercury | -13490-06-19 01:40 J | -3205630.53 | -3205630.43 | -3205630.33 | 0.1636 | 0.0876 |
| Mercury | -13488-05-24 02:52 J | -3204925.47 | -3204925.38 | -3204925.28 | 0.1628 | 0.0897 |
| Venus | -13482-10-09 01:40 J | -3202596.53 | -3202596.43 | -3202596.33 | 0.1809 | 0.1437 |
| Mercury | -13481-11-08 13:11 J | -3202200.01 | -3202199.95 | -3202199.88 | 0.1638 | 0.1313 |
| Venus | -13480-08-06 11:45 J | -3201929.13 | -3201929.01 | -3201928.89 | 0.1784 | 0.1246 |
| Mercury | -13479-10-14 14:38 J | -3201495.00 | -3201494.89 | -3201494.78 | 0.1630 | 0.0469 |
| Venus | -13475-03-22 19:26 J | -3200239.86 | -3200239.69 | -3200239.52 | 0.1730 | 0.0456 |
| Mercury | -13469-03-06 02:09 J | -3198064.52 | -3198064.41 | -3198064.29 | 0.1632 | 0.0067 |
| Mercury | -13463-10-22 01:55 J | -3195643.56 | -3195643.42 | -3195643.27 | 0.1891 | 0.0947 |
| Mercury | -13460-07-27 13:55 J | -3194634.03 | -3194633.92 | -3194633.81 | 0.1634 | 0.0392 |
| Mercury | -13458-07-02 15:07 J | -3193928.93 | -3193928.87 | -3193928.81 | 0.1627 | 0.1374 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -13453-03-12 17:45 J | -3192213.92 | -3192213.76 | -3192213.59 | 0.1888 | 0.0504 |
| Mercury | -13451-12-18 01:40 J | -3191203.53 | -3191203.43 | -3191203.33 | 0.1636 | 0.0823 |
| Mercury | -13449-11-22 02:52 J | -3190498.47 | -3190498.38 | -3190498.29 | 0.1628 | 0.0949 |
| Venus | -13448-08-05 21:35 J | -3190241.77 | -3190241.60 | -3190241.43 | 0.1795 | 0.0026 |
| Venus | -13443-03-21 23:45 J | -3188552.68 | -3188552.51 | -3188552.35 | 0.1720 | 0.0607 |
| Venus | -13441-01-18 22:48 J | -3187884.59 | -3187884.55 | -3187884.52 | 0.1744 | 0.1701 |
| Mercury | -13441-05-09 13:11 J | -3187773.02 | -3187772.95 | -3187772.88 | 0.1638 | 0.1256 |
| Mercury | -13439-04-14 14:38 J | -3187068.00 | -3187067.89 | -3187067.78 | 0.1630 | 0.0524 |
| Mercury | -13430-09-05 02:09 J | -3183637.52 | -3183637.41 | -3183637.29 | 0.1632 | 0.0106 |
| Mercury | -13423-04-22 03:21 J | -3181216.50 | -3181216.36 | -3181216.22 | 0.1891 | 0.1091 |
| Mercury | -13420-01-25 13:55 J | -3180207.03 | -3180206.92 | -3180206.81 | 0.1633 | 0.0335 |
| Mercury | -13419-12-31 15:07 J | -3179501.92 | -3179501.87 | -3179501.81 | 0.1626 | 0.1433 |
| Venus | -13416-08-05 07:55 J | -3178554.29 | -3178554.17 | -3178554.04 | 0.1806 | 0.1241 |
| Venus | -13414-06-03 19:55 J | -3177886.77 | -3177886.67 | -3177886.56 | 0.1780 | 0.1397 |
| Mercury | -13414-09-11 18:43 J | -3177786.89 | -3177786.72 | -3177786.55 | 0.1888 | 0.0382 |
| Venus | -13411-03-21 01:55 J | -3176865.47 | -3176865.42 | -3176865.36 | 0.1711 | 0.1612 |
| Mercury | -13411-06-18 01:26 J | -3176776.54 | -3176776.44 | -3176776.34 | 0.1636 | 0.0770 |
| Venus | -13409-01-18 04:33 J | -3176197.47 | -3176197.31 | -3176197.14 | 0.1733 | 0.0588 |
| Mercury | -13409-05-23 02:52 J | -3176071.47 | -3176071.38 | -3176071.29 | 0.1628 | 0.1004 |
| Mercury | -13404-01-31 10:19 J | -3174357.10 | -3174357.07 | -3174357.02 | 0.1885 | 0.1821 |
| Mercury | -13402-11-08 13:11 J | -3173346.03 | -3173345.95 | -3173345.87 | 0.1638 | 0.1202 |
| Mercury | -13400-10-13 14:24 J | -3172641.00 | -3172640.90 | -3172640.79 | 0.1630 | 0.0578 |
| Mercury | -13392-03-31 00:43 J | -3169915.47 | -3169915.47 | -3169915.46 | 0.1641 | 0.1637 |
| Mercury | -13390-03-06 02:09 J | -3169210.52 | -3169210.41 | -3169210.29 | 0.1632 | 0.0151 |
| Mercury | -13384-10-21 03:35 J | -3166789.48 | -3166789.35 | -3166789.21 | 0.1891 | 0.1190 |
| Venus | -13382-06-03 04:48 J | -3166199.47 | -3166199.30 | -3166199.13 | 0.1791 | 0.0201 |
| Mercury | -13381-07-26 13:55 J | -3165780.03 | -3165779.92 | -3165779.81 | 0.1634 | 0.0282 |
| Mercury | -13379-07-01 15:07 J | -3165074.91 | -3165074.87 | -3165074.83 | 0.1627 | 0.1484 |
| Venus | -13377-01-17 08:38 J | -3164510.31 | -3164510.14 | -3164509.97 | 0.1723 | 0.0479 |
| Mercury | -13374-03-12 19:40 J | -3163359.85 | -3163359.68 | -3163359.50 | 0.1889 | 0.0246 |

Mercury -13372-12-17 01:26 J -3162349.54 -3162349.44 -3162349.33 0.1636 0.0713
 Moon -13370-04-17 06:28 J -3161863.28 -3161863.23 -3161863.18 0.1850 0.1779
 Earth -13370-04-17 15:07 J -3161862.92 -3161862.87 -3161862.81 0.1849 0.1776
 Mercury -13370-11-22 02:52 J -3161644.47 -3161644.38 -3161644.30 0.1628 0.1060
 Mercury -13365-08-01 11:16 J -3159930.10 -3159930.03 -3159929.95 0.1885 0.1693
 Mercury -13362-05-09 13:11 J -3158919.03 -3158918.95 -3158918.87 0.1638 0.1146
 Mercury -13360-04-13 14:24 J -3158214.00 -3158213.90 -3158213.79 0.1630 0.0638
 Mercury -13353-09-29 00:43 J -3155488.50 -3155488.47 -3155488.44 0.1641 0.1582
 Mercury -13351-09-04 02:09 J -3154783.52 -3154783.41 -3154783.30 0.1631 0.0204
 Venus -13350-06-02 14:38 J -3154512.03 -3154511.89 -3154511.75 0.1802 0.1045
 Venus -13348-03-31 03:35 J -3153844.43 -3153844.35 -3153844.27 0.1777 0.1556
 Venus -13345-01-16 11:31 J -3152823.10 -3152823.02 -3152822.94 0.1714 0.1497
 Mercury -13344-04-21 04:48 J -3152362.42 -3152362.30 -3152362.18 0.1891 0.1336
 Venus -13344-11-14 13:26 J -3152155.10 -3152154.94 -3152154.79 0.1736 0.0729
 Mercury -13341-01-25 13:55 J -3151353.04 -3151352.92 -3151352.81 0.1633 0.0233
 Mercury -13340-12-30 15:07 J -3150647.91 -3150647.87 -3150647.84 0.1626 0.1538
 Mercury -13335-09-10 20:24 J -3148932.82 -3148932.65 -3148932.48 0.1888 0.0129
 Mercury -13332-06-17 01:26 J -3147922.54 -3147922.44 -3147922.33 0.1636 0.0657
 Mercury -13330-05-23 02:52 J -3147217.47 -3147217.38 -3147217.30 0.1628 0.1116
 Mercury -13325-01-31 12:00 J -3145503.09 -3145503.00 -3145502.90 0.1885 0.1575
 Mercury -13323-11-07 13:11 J -3144492.04 -3144491.95 -3144491.87 0.1638 0.1090
 Mercury -13321-10-12 14:24 J -3143787.00 -3143786.90 -3143786.79 0.1630 0.0688
 Venus -13316-03-30 12:14 J -3142157.16 -3142156.99 -3142156.82 0.1788 0.0371
 Mercury -13313-03-30 00:43 J -3141061.51 -3141061.47 -3141061.43 0.1640 0.1524
 Venus -13312-11-13 18:00 J -3140467.92 -3140467.75 -3140467.58 0.1726 0.0353
 Mercury -13311-03-05 02:09 J -3140356.52 -3140356.41 -3140356.30 0.1631 0.0262
 Mercury -13305-10-20 05:45 J -3137935.36 -3137935.26 -3137935.15 0.1891 0.1462
 Mercury -13302-07-26 13:55 J -3136926.04 -3136925.92 -3136925.81 0.1633 0.0182
 Mercury -13300-06-30 15:07 J -3136220.89 -3136220.87 -3136220.85 0.1626 0.1595
 Earth -13298-10-14 10:19 J -3135385.26 -3135385.07 -3135384.89 0.1673 0.0400

Moon -13298-10-14 14:38 J -3135385.06 -3135384.89 -3135384.72 0.1673 0.0441 *
 Mercury -13295-03-11 21:35 J -3134505.78 -3134505.60 -3134505.43 0.1889 0.0036
 Mercury -13293-12-16 01:26 J -3133495.55 -3133495.44 -3133495.33 0.1636 0.0602
 Earth -13291-04-20 22:04 J -3133004.74 -3133004.58 -3133004.41 0.1844 0.1042
 Moon -13291-04-21 00:14 J -3133004.67 -3133004.49 -3133004.31 0.1844 0.0975 *
 Mercury -13291-11-21 02:38 J -3132790.46 -3132790.39 -3132790.31 0.1628 0.1170
 Mercury -13286-08-01 13:11 J -3131076.06 -3131075.95 -3131075.84 0.1885 0.1439
 Venus -13284-03-29 21:35 J -3130469.75 -3130469.60 -3130469.44 0.1799 0.0865
 Mercury -13283-05-08 12:57 J -3130065.04 -3130064.96 -3130064.87 0.1638 0.1037
 Venus -13282-01-26 11:45 J -3129802.05 -3129802.01 -3129801.96 0.1774 0.1704
 Mercury -13281-04-12 14:24 J -3129360.00 -3129359.90 -3129359.80 0.1630 0.0742
 Venus -13280-11-12 21:21 J -3128780.71 -3128780.61 -3128780.51 0.1716 0.1383
 Venus -13278-09-11 22:19 J -3128112.72 -3128112.57 -3128112.42 0.1739 0.0864
 Mercury -13274-09-29 00:43 J -3126634.52 -3126634.47 -3126634.43 0.1641 0.1473
 Mercury -13272-09-03 02:09 J -3125929.53 -3125929.41 -3125929.30 0.1631 0.0320
 Mercury -13265-04-20 06:28 J -3123508.32 -3123508.23 -3123508.14 0.1892 0.1577
 Mercury -13262-01-24 13:40 J -3122499.04 -3122498.93 -3122498.81 0.1633 0.0120
 Mercury -13256-09-09 22:33 J -3120078.73 -3120078.56 -3120078.39 0.1889 0.0142
 Mercury -13253-06-16 01:26 J -3119068.55 -3119068.44 -3119068.33 0.1636 0.0543
 Mercury -13251-05-22 02:38 J -3118363.46 -3118363.39 -3118363.31 0.1628 0.1226
 Venus -13250-01-25 19:26 J -3118114.85 -3118114.69 -3118114.52 0.1784 0.0542
 Mercury -13246-01-30 14:09 J -3116649.03 -3116648.91 -3116648.79 0.1885 0.1310
 Venus -13246-09-11 02:52 J -3116425.55 -3116425.38 -3116425.20 0.1729 0.0222
 Mercury -13244-11-06 12:57 J -3115638.05 -3115637.96 -3115637.87 0.1638 0.0980
 Mercury -13242-10-12 14:24 J -3114933.00 -3114932.90 -3114932.80 0.1629 0.0798
 Mercury -13234-03-30 00:43 J -3112207.53 -3112207.47 -3112207.42 0.1640 0.1417
 Mercury -13232-03-04 01:55 J -3111502.53 -3111502.42 -3111502.30 0.1631 0.0372
 Mercury -13226-10-20 07:26 J -3109081.26 -3109081.19 -3109081.11 0.1892 0.1711
 Mercury -13223-07-25 13:40 J -3108072.04 -3108071.93 -3108071.81 0.1633 0.0062
 Moon -13219-10-16 12:28 J -3106528.11 -3106527.98 -3106527.85 0.1676 0.1109

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Earth | -13219-10-16 16:19 J | -3106527.96 | -3106527.82 | -3106527.67 | 0.1676 | 0.1041 * |
| Venus | -13218-01-25 04:19 J | -3106427.48 | -3106427.32 | -3106427.16 | 0.1795 | 0.0678 |
| Mercury | -13216-03-10 23:16 J | -3105651.70 | -3105651.53 | -3105651.36 | 0.1889 | 0.0259 |
| Venus | -13214-09-10 06:28 J | -3104738.34 | -3104738.23 | -3104738.11 | 0.1720 | 0.1262 |
| Mercury | -13214-12-16 01:26 J | -3104641.55 | -3104641.44 | -3104641.34 | 0.1636 | 0.0495 |
| Venus | -13212-07-09 06:14 J | -3104070.38 | -3104070.24 | -3104070.09 | 0.1743 | 0.1016 |
| Mercury | -13212-11-20 02:38 J | -3103936.46 | -3103936.39 | -3103936.32 | 0.1628 | 0.1277 |
| Mercury | -13207-07-31 14:52 J | -3102222.01 | -3102221.88 | -3102221.75 | 0.1885 | 0.1196 |
| Mercury | -13204-05-07 12:57 J | -3101211.05 | -3101210.96 | -3101210.86 | 0.1638 | 0.0923 |
| Mercury | -13202-04-12 14:24 J | -3100506.00 | -3100505.90 | -3100505.81 | 0.1630 | 0.0854 |
| Mercury | -13195-09-28 00:28 J | -3097780.54 | -3097780.48 | -3097780.41 | 0.1640 | 0.1361 |
| Mercury | -13193-09-02 01:55 J | -3097075.53 | -3097075.42 | -3097075.31 | 0.1631 | 0.0429 |
| Mercury | -13186-04-20 08:38 J | -3094654.17 | -3094654.14 | -3094654.10 | 0.1892 | 0.1851 |
| Venus | -13185-11-22 02:52 J | -3094072.54 | -3094072.38 | -3094072.22 | 0.1781 | 0.0711 |
| Mercury | -13183-01-23 13:40 J | -3093645.05 | -3093644.93 | -3093644.82 | 0.1633 | 0.0006 |
| Venus | -13180-07-08 11:31 J | -3092383.19 | -3092383.02 | -3092382.84 | 0.1733 | 0.0084 |
| Mercury | -13177-09-09 00:14 J | -3091224.66 | -3091224.49 | -3091224.33 | 0.1889 | 0.0386 |
| Mercury | -13174-06-16 01:11 J | -3090214.56 | -3090214.45 | -3090214.34 | 0.1635 | 0.0438 |
| Mercury | -13172-05-21 02:38 J | -3089509.46 | -3089509.39 | -3089509.33 | 0.1628 | 0.1332 |
| Mercury | -13167-01-29 15:50 J | -3087794.98 | -3087794.84 | -3087794.69 | 0.1885 | 0.1060 |
| Mercury | -13165-11-05 12:57 J | -3086784.06 | -3086783.96 | -3086783.86 | 0.1638 | 0.0869 |
| Mercury | -13163-10-11 14:09 J | -3086079.00 | -3086078.91 | -3086078.81 | 0.1629 | 0.0906 |
| Mercury | -13155-03-29 00:28 J | -3083353.54 | -3083353.48 | -3083353.41 | 0.1640 | 0.1305 |
| Mercury | -13153-03-03 01:55 J | -3082648.53 | -3082648.42 | -3082648.31 | 0.1631 | 0.0481 |
| Venus | -13153-11-21 12:00 J | -3082385.17 | -3082385.00 | -3082384.84 | 0.1792 | 0.0505 |
| Venus | -13148-07-07 16:04 J | -3080695.96 | -3080695.83 | -3080695.70 | 0.1722 | 0.1143 |
| Venus | -13146-05-06 14:52 J | -3080028.01 | -3080027.88 | -3080027.75 | 0.1746 | 0.1159 |
| Mercury | -13144-07-24 13:40 J | -3079218.05 | -3079217.93 | -3079217.82 | 0.1633 | 0.0067 |
| Mercury | -13137-03-10 01:26 J | -3076797.61 | -3076797.44 | -3076797.28 | 0.1889 | 0.0527 |
| Mercury | -13135-12-15 01:11 J | -3075787.56 | -3075787.45 | -3075787.33 | 0.1635 | 0.0381 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -13133-11-19 02:38 J | -3075082.45 | -3075082.39 | -3075082.34 | 0.1628 | 0.1389 |
| Mercury | -13128-07-30 16:48 J | -3073367.95 | -3073367.80 | -3073367.65 | 0.1885 | 0.0931 |
| Mercury | -13125-05-06 12:57 J | -3072357.06 | -3072356.96 | -3072356.86 | 0.1638 | 0.0814 |
| Mercury | -13123-04-11 14:09 J | -3071652.00 | -3071651.91 | -3071651.81 | 0.1629 | 0.0966 |
| Venus | -13121-11-20 22:19 J | -3070697.60 | -3070697.57 | -3070697.54 | 0.1803 | 0.1769 |
| Venus | -13119-09-19 10:33 J | -3070030.21 | -3070030.06 | -3070029.90 | 0.1777 | 0.0875 |
| Mercury | -13116-09-27 00:28 J | -3068926.55 | -3068926.48 | -3068926.41 | 0.1640 | 0.1250 |
| Venus | -13114-05-05 20:38 J | -3068340.82 | -3068340.64 | -3068340.47 | 0.1736 | 0.0051 |
| Mercury | -13114-09-02 01:55 J | -3068221.53 | -3068221.42 | -3068221.31 | 0.1631 | 0.0534 |
| Mercury | -13104-01-22 13:40 J | -3064791.05 | -3064790.93 | -3064790.82 | 0.1633 | 0.0123 |
| Mercury | -13098-09-09 01:55 J | -3062370.58 | -3062370.42 | -3062370.26 | 0.1889 | 0.0635 |
| Mercury | -13095-06-15 01:11 J | -3061360.56 | -3061360.45 | -3061360.34 | 0.1635 | 0.0325 |
| Mercury | -13093-05-20 02:38 J | -3060655.44 | -3060655.39 | -3060655.34 | 0.1628 | 0.1444 |
| Moon | -13093-10-12 01:26 J | -3060510.53 | -3060510.44 | -3060510.33 | 0.1666 | 0.1432 |
| Earth | -13093-10-12 05:16 J | -3060510.37 | -3060510.28 | -3060510.19 | 0.1666 | 0.1445 * |
| Mercury | -13088-01-28 17:45 J | -3058940.92 | -3058940.76 | -3058940.61 | 0.1886 | 0.0812 |
| Venus | -13087-09-18 18:57 J | -3058342.88 | -3058342.71 | -3058342.54 | 0.1788 | 0.0321 |
| Mercury | -13086-11-05 12:57 J | -3057930.06 | -3057929.96 | -3057929.86 | 0.1638 | 0.0759 |
| Mercury | -13084-10-10 14:09 J | -3057225.00 | -3057224.91 | -3057224.82 | 0.1629 | 0.1016 |
| Venus | -13082-05-05 01:11 J | -3056653.59 | -3056653.45 | -3056653.31 | 0.1726 | 0.1019 |
| Venus | -13080-03-02 23:16 J | -3055985.65 | -3055985.53 | -3055985.42 | 0.1749 | 0.1310 |
| Mercury | -13076-03-28 00:28 J | -3054499.56 | -3054499.48 | -3054499.40 | 0.1640 | 0.1192 |
| Mercury | -13074-03-03 01:55 J | -3053794.53 | -3053794.42 | -3053794.31 | 0.1631 | 0.0592 |
| Mercury | -13067-08-18 12:00 J | -3051069.01 | -3051069.00 | -3051068.99 | 0.1643 | 0.1633 |
| Mercury | -13065-07-23 13:26 J | -3050364.05 | -3050363.94 | -3050363.82 | 0.1633 | 0.0168 |
| Mercury | -13058-03-10 03:07 J | -3047943.53 | -3047943.37 | -3047943.22 | 0.1889 | 0.0773 |
| Mercury | -13056-12-14 01:11 J | -3046933.56 | -3046933.45 | -3046933.34 | 0.1635 | 0.0271 |
| Venus | -13055-09-18 05:02 J | -3046655.37 | -3046655.29 | -3046655.21 | 0.1800 | 0.1574 |
| Mercury | -13054-11-19 02:24 J | -3046228.44 | -3046228.40 | -3046228.36 | 0.1628 | 0.1496 |
| Venus | -13053-07-16 18:00 J | -3045987.89 | -3045987.75 | -3045987.61 | 0.1774 | 0.1040 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -13049-07-29 18:43 J | -3044513.88 | -3044513.72 | -3044513.56 | 0.1886 | 0.0679 |
| Venus | -13048-03-02 05:16 J | -3044298.45 | -3044298.28 | -3044298.11 | 0.1739 | 0.0187 |
| Mercury | -13046-05-06 12:43 J | -3043503.07 | -3043502.97 | -3043502.86 | 0.1638 | 0.0705 |
| Mercury | -13044-04-10 14:09 J | -3042798.00 | -3042797.91 | -3042797.83 | 0.1629 | 0.1071 |
| Mercury | -13037-09-26 00:28 J | -3040072.56 | -3040072.48 | -3040072.40 | 0.1640 | 0.1140 |
| Mercury | -13035-09-01 01:40 J | -3039367.53 | -3039367.43 | -3039367.32 | 0.1631 | 0.0648 |
| Mercury | -13027-02-16 12:00 J | -3036642.03 | -3036642.00 | -3036641.97 | 0.1643 | 0.1573 |
| Mercury | -13025-01-22 13:26 J | -3035937.05 | -3035936.94 | -3035936.82 | 0.1633 | 0.0219 |
| Venus | -13021-07-16 02:24 J | -3034300.57 | -3034300.40 | -3034300.22 | 0.1785 | 0.0156 |
| Mercury | -13019-09-08 04:04 J | -3033516.48 | -3033516.33 | -3033516.18 | 0.1889 | 0.0903 |
| Venus | -13016-03-01 10:33 J | -3032611.21 | -3032611.06 | -3032610.91 | 0.1729 | 0.0898 |
| Mercury | -13016-06-14 01:11 J | -3032506.57 | -3032506.45 | -3032506.34 | 0.1635 | 0.0216 |
| Venus | -13015-12-29 07:11 J | -3031943.30 | -3031943.20 | -3031943.11 | 0.1753 | 0.1466 |
| Mercury | -13014-05-20 02:24 J | -3031801.43 | -3031801.40 | -3031801.37 | 0.1628 | 0.1552 |
| Earth | -13014-10-15 10:04 J | -3031653.27 | -3031653.08 | -3031652.90 | 0.1669 | 0.0069 |
| Moon | -13014-10-15 14:38 J | -3031653.09 | -3031652.89 | -3031652.69 | 0.1669 | 0.0103 * |
| Mercury | -13009-01-28 19:40 J | -3030086.85 | -3030086.68 | -3030086.52 | 0.1886 | 0.0553 |
| Moon | -13007-04-20 07:26 J | -3029274.38 | -3029274.19 | -3029274.00 | 0.1852 | 0.0058 |
| Earth | -13007-04-20 14:38 J | -3029274.08 | -3029273.89 | -3029273.70 | 0.1852 | 0.0479 * |
| Mercury | -13007-11-04 12:43 J | -3029076.07 | -3029075.97 | -3029075.86 | 0.1638 | 0.0649 |
| Mercury | -13005-10-09 14:09 J | -3028370.99 | -3028370.91 | -3028370.83 | 0.1629 | 0.1127 |

13TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 13th millennium BCE.

| PLANET | MAX- | C | START | MAX | END | SUNRAD | DEPTH | S |
|--------|------|---|-------|-----|-----|--------|-------|---|
|--------|------|---|-------|-----|-----|--------|-------|---|

TRANSIT

TIME

| | | | | | | |
|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -12997-03-27 00:14 J | -3025645.57 | -3025645.49 | -3025645.40 | 0.1640 | 0.1085 |
| Mercury | -12995-03-02 01:40 J | -3024940.53 | -3024940.43 | -3024940.32 | 0.1631 | 0.0701 |
| Venus | -12989-07-15 11:45 J | -3022613.12 | -3022613.01 | -3022612.90 | 0.1796 | 0.1385 |
| Mercury | -12988-08-17 12:00 J | -3022215.04 | -3022215.00 | -3022214.96 | 0.1643 | 0.1522 |
| Venus | -12987-05-14 02:38 J | -3021945.52 | -3021945.39 | -3021945.26 | 0.1771 | 0.1186 |
| Mercury | -12986-07-23 13:26 J | -3021510.05 | -3021509.94 | -3021509.83 | 0.1633 | 0.0271 |
| Venus | -12983-12-28 13:55 J | -3020256.09 | -3020255.92 | -3020255.74 | 0.1742 | 0.0328 |
| Mercury | -12979-03-09 04:48 J | -3019089.45 | -3019089.30 | -3019089.16 | 0.1889 | 0.1018 |
| Mercury | -12977-12-13 00:57 J | -3018079.57 | -3018079.46 | -3018079.34 | 0.1635 | 0.0170 |
| Mercury | -12975-11-18 02:24 J | -3017374.42 | -3017374.40 | -3017374.39 | 0.1628 | 0.1604 |
| Mercury | -12970-07-29 20:24 J | -3015659.82 | -3015659.65 | -3015659.48 | 0.1886 | 0.0431 |
| Mercury | -12967-05-05 12:43 J | -3014649.08 | -3014648.97 | -3014648.86 | 0.1638 | 0.0591 |
| Mercury | -12965-04-09 13:55 J | -3013943.99 | -3013943.92 | -3013943.84 | 0.1629 | 0.1183 |
| Mercury | -12961-12-18 12:14 J | -3012230.01 | -3012229.99 | -3012229.96 | 0.1882 | 0.1856 |
| Mercury | -12958-09-26 00:14 J | -3011218.57 | -3011218.49 | -3011218.40 | 0.1640 | 0.1029 |
| Mercury | -12956-08-31 01:40 J | -3010513.53 | -3010513.43 | -3010513.33 | 0.1631 | 0.0757 |
| Venus | -12955-05-13 10:04 J | -3010258.25 | -3010258.08 | -3010257.90 | 0.1782 | 0.0034 |
| Venus | -12951-12-27 19:11 J | -3008568.86 | -3008568.70 | -3008568.54 | 0.1732 | 0.0765 |
| Venus | -12949-10-25 15:21 J | -3007900.92 | -3007900.86 | -3007900.80 | 0.1756 | 0.1622 |
| Mercury | -12948-02-15 11:45 J | -3007788.05 | -3007788.01 | -3007787.96 | 0.1643 | 0.1467 |
| Mercury | -12946-01-21 13:26 J | -3007083.05 | -3007082.94 | -3007082.83 | 0.1633 | 0.0327 |
| Mercury | -12940-09-07 05:31 J | -3004662.40 | -3004662.27 | -3004662.13 | 0.1889 | 0.1146 |
| Mercury | -12937-06-13 00:57 J | -3003652.57 | -3003652.46 | -3003652.34 | 0.1635 | 0.0108 |
| Earth | -12935-10-17 14:52 J | -3002795.99 | -3002795.88 | -3002795.77 | 0.1671 | 0.1344 |
| Moon | -12935-10-17 21:35 J | -3002795.64 | -3002795.60 | -3002795.55 | 0.1671 | 0.1608 |
| Mercury | -12930-01-27 21:21 J | -3001232.78 | -3001232.61 | -3001232.44 | 0.1886 | 0.0300 |
| Mercury | -12928-11-03 12:43 J | -3000222.08 | -3000221.97 | -3000221.86 | 0.1638 | 0.0538 |
| Mercury | -12926-10-09 13:55 J | -2999516.99 | -2999516.92 | -2999516.84 | 0.1629 | 0.1234 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Venus | -12923-05-12 18:43 J | -2998570.85 | -2998570.72 | -2998570.59 | 0.1793 | 0.1197 |
| Venus | -12921-03-10 10:19 J | -2997903.18 | -2997903.07 | -2997902.95 | 0.1767 | 0.1341 |
| Mercury | -12921-06-18 12:57 J | -2997803.02 | -2997802.96 | -2997802.90 | 0.1882 | 0.1745 |
| Mercury | -12918-03-27 00:14 J | -2996791.58 | -2996791.49 | -2996791.40 | 0.1640 | 0.0972 |
| Venus | -12917-10-24 22:33 J | -2996213.73 | -2996213.56 | -2996213.39 | 0.1745 | 0.0473 |
| Mercury | -12916-03-01 01:40 J | -2996086.53 | -2996086.43 | -2996086.33 | 0.1631 | 0.0808 |
| Mercury | -12909-08-16 11:45 J | -2993361.06 | -2993361.01 | -2993360.95 | 0.1643 | 0.1410 |
| Mercury | -12907-07-22 13:26 J | -2992656.06 | -2992655.94 | -2992655.83 | 0.1633 | 0.0385 |
| Mercury | -12900-03-08 06:57 J | -2990235.34 | -2990235.21 | -2990235.09 | 0.1890 | 0.1288 |
| Mercury | -12898-12-13 00:57 J | -2989225.57 | -2989225.46 | -2989225.34 | 0.1635 | 0.0057 |
| Mercury | -12891-07-28 22:19 J | -2986805.74 | -2986805.57 | -2986805.40 | 0.1886 | 0.0173 |
| Venus | -12889-03-09 17:45 J | -2986215.93 | -2986215.76 | -2986215.58 | 0.1778 | 0.0185 |
| Mercury | -12888-05-04 12:43 J | -2985795.08 | -2985794.97 | -2985794.86 | 0.1637 | 0.0485 |
| Mercury | -12886-04-09 13:55 J | -2985089.99 | -2985089.92 | -2985089.85 | 0.1629 | 0.1291 |
| Venus | -12885-10-24 04:19 J | -2984526.49 | -2984526.32 | -2984526.16 | 0.1735 | 0.0636 |
| Mercury | -12882-12-18 13:55 J | -2983376.00 | -2983375.92 | -2983375.83 | 0.1882 | 0.1614 |
| Mercury | -12879-09-25 00:14 J | -2982364.59 | -2982364.49 | -2982364.40 | 0.1640 | 0.0919 |
| Mercury | -12877-08-30 01:40 J | -2981659.53 | -2981659.43 | -2981659.34 | 0.1631 | 0.0862 |
| Mercury | -12869-02-15 11:45 J | -2978934.07 | -2978934.01 | -2978933.95 | 0.1643 | 0.1355 |
| Mercury | -12867-01-20 13:11 J | -2978229.06 | -2978228.95 | -2978228.84 | 0.1633 | 0.0438 |
| Mercury | -12861-09-06 07:26 J | -2975808.31 | -2975808.19 | -2975808.08 | 0.1889 | 0.1391 |
| Mercury | -12858-06-13 00:57 J | -2974798.58 | -2974798.46 | -2974798.35 | 0.1635 | 0.0013 |
| Venus | -12857-03-09 02:09 J | -2974528.56 | -2974528.41 | -2974528.27 | 0.1789 | 0.1021 |
| Venus | -12855-01-05 19:11 J | -2973860.79 | -2973860.70 | -2973860.61 | 0.1764 | 0.1482 |
| Venus | -12853-10-23 08:24 J | -2972839.18 | -2972839.15 | -2972839.11 | 0.1725 | 0.1684 |
| Mercury | -12851-01-26 23:02 J | -2972378.71 | -2972378.54 | -2972378.36 | 0.1886 | 0.0065 |
| Venus | -12851-08-22 06:57 J | -2972171.37 | -2972171.21 | -2972171.04 | 0.1749 | 0.0616 |
| Mercury | -12849-11-02 12:28 J | -2971368.09 | -2971367.98 | -2971367.86 | 0.1637 | 0.0432 |
| Mercury | -12847-10-08 13:55 J | -2970662.98 | -2970662.92 | -2970662.86 | 0.1629 | 0.1343 |
| Mercury | -12842-06-18 15:07 J | -2968948.97 | -2968948.87 | -2968948.76 | 0.1882 | 0.1476 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -12839-03-26 00:14 J | -2967937.59 | -2967937.49 | -2967937.39 | 0.1640 | 0.0861 |
| Mercury | -12837-02-29 01:40 J | -2967232.53 | -2967232.43 | -2967232.34 | 0.1631 | 0.0920 |
| Mercury | -12830-08-16 11:45 J | -2964507.08 | -2964507.01 | -2964506.94 | 0.1643 | 0.1300 |
| Mercury | -12828-07-21 13:11 J | -2963802.06 | -2963801.95 | -2963801.84 | 0.1633 | 0.0491 |
| Venus | -12823-01-05 01:40 J | -2962173.60 | -2962173.43 | -2962173.26 | 0.1775 | 0.0347 |
| Mercury | -12821-03-07 08:24 J | -2961381.25 | -2961381.15 | -2961381.05 | 0.1890 | 0.1529 |
| Venus | -12819-08-21 12:43 J | -2960484.14 | -2960483.97 | -2960483.80 | 0.1738 | 0.0495 |
| Mercury | -12819-12-12 00:57 J | -2960371.58 | -2960371.46 | -2960371.35 | 0.1635 | 0.0083 |
| Mercury | -12812-07-28 00:00 J | -2957951.67 | -2957951.50 | -2957951.32 | 0.1886 | 0.0087 |
| Mercury | -12809-05-03 12:28 J | -2956941.09 | -2956940.98 | -2956940.87 | 0.1637 | 0.0375 |
| Moon | -12809-10-13 02:09 J | -2956778.55 | -2956778.41 | -2956778.27 | 0.1661 | 0.1023 |
| Earth | -12809-10-13 05:31 J | -2956778.41 | -2956778.27 | -2956778.12 | 0.1662 | 0.1083 * |
| Mercury | -12807-04-08 13:55 J | -2956235.98 | -2956235.92 | -2956235.87 | 0.1629 | 0.1398 |
| Mercury | -12803-12-17 15:35 J | -2954521.97 | -2954521.85 | -2954521.73 | 0.1882 | 0.1374 |
| Mercury | -12800-09-24 00:00 J | -2953510.59 | -2953510.50 | -2953510.40 | 0.1640 | 0.0810 |
| Mercury | -12798-08-30 01:26 J | -2952805.53 | -2952805.44 | -2952805.34 | 0.1631 | 0.0974 |
| Venus | -12791-01-04 09:21 J | -2950486.27 | -2950486.11 | -2950485.96 | 0.1786 | 0.0842 |
| Mercury | -12790-02-14 11:45 J | -2950080.08 | -2950080.01 | -2950079.94 | 0.1642 | 0.1242 |
| Venus | -12790-11-03 03:21 J | -2949818.43 | -2949818.36 | -2949818.30 | 0.1760 | 0.1629 |
| Mercury | -12788-01-19 13:11 J | -2949375.06 | -2949374.95 | -2949374.84 | 0.1633 | 0.0545 |
| Venus | -12787-08-20 17:16 J | -2948796.85 | -2948796.78 | -2948796.71 | 0.1728 | 0.1557 |
| Venus | -12785-06-18 14:38 J | -2948129.04 | -2948128.89 | -2948128.73 | 0.1752 | 0.0775 |
| Mercury | -12782-09-06 09:21 J | -2946954.19 | -2946954.11 | -2946954.03 | 0.1890 | 0.1659 |
| Mercury | -12779-06-12 00:57 J | -2945944.58 | -2945944.46 | -2945944.35 | 0.1635 | 0.0127 |
| Mercury | -12772-01-26 00:57 J | -2943524.63 | -2943524.46 | -2943524.29 | 0.1886 | 0.0205 |
| Mercury | -12770-11-02 12:28 J | -2942514.09 | -2942513.98 | -2942513.87 | 0.1637 | 0.0318 |
| Mercury | -12768-10-07 13:55 J | -2941808.97 | -2941808.92 | -2941808.87 | 0.1629 | 0.1453 |
| Mercury | -12763-06-17 16:48 J | -2940094.93 | -2940094.80 | -2940094.67 | 0.1883 | 0.1229 |
| Mercury | -12760-03-25 00:00 J | -2939083.60 | -2939083.50 | -2939083.39 | 0.1640 | 0.0754 |
| Mercury | -12758-02-28 01:26 J | -2938378.53 | -2938378.44 | -2938378.35 | 0.1631 | 0.1026 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Venus | -12758-11-02 09:21 J | -2938131.28 | -2938131.11 | -2938130.95 | 0.1771 | 0.0512 |
| Venus | -12753-06-17 20:52 J | -2936441.80 | -2936441.63 | -2936441.45 | 0.1742 | 0.0354 |
| Mercury | -12751-08-15 11:31 J | -2935653.09 | -2935653.02 | -2935652.94 | 0.1643 | 0.1193 |
| Mercury | -12749-07-20 13:11 J | -2934948.06 | -2934947.95 | -2934947.85 | 0.1633 | 0.0600 |
| Mercury | -12742-03-07 10:04 J | -2932527.14 | -2932527.08 | -2932527.02 | 0.1890 | 0.1770 |
| Mercury | -12741-01-05 23:16 J | -2932222.54 | -2932222.53 | -2932222.52 | 0.1645 | 0.1628 |
| Mercury | -12740-12-11 00:43 J | -2931517.58 | -2931517.47 | -2931517.35 | 0.1635 | 0.0174 |
| Mercury | -12733-07-27 01:55 J | -2929097.59 | -2929097.42 | -2929097.25 | 0.1887 | 0.0330 |
| Mercury | -12730-05-03 12:28 J | -2928087.09 | -2928086.98 | -2928086.87 | 0.1637 | 0.0260 |
| Moon | -12730-10-16 04:19 J | -2927921.51 | -2927921.32 | -2927921.13 | 0.1664 | 0.0068 |
| Earth | -12730-10-16 10:33 J | -2927921.25 | -2927921.06 | -2927920.88 | 0.1664 | 0.0291 * |
| Mercury | -12728-04-07 13:40 J | -2927381.97 | -2927381.93 | -2927381.88 | 0.1629 | 0.1508 |
| Venus | -12726-11-01 17:02 J | -2926443.95 | -2926443.79 | -2926443.63 | 0.1782 | 0.0675 |
| Mercury | -12724-12-16 17:45 J | -2925667.90 | -2925667.76 | -2925667.62 | 0.1883 | 0.1104 |
| Earth | -12723-04-20 04:48 J | -2925543.50 | -2925543.30 | -2925543.10 | 0.1859 | 0.0176 |
| Moon | -12723-04-20 12:00 J | -2925543.19 | -2925543.00 | -2925542.81 | 0.1858 | 0.0337 * |
| Venus | -12721-06-17 02:24 J | -2924754.49 | -2924754.40 | -2924754.30 | 0.1731 | 0.1433 |
| Mercury | -12721-09-23 00:00 J | -2924656.60 | -2924656.50 | -2924656.40 | 0.1640 | 0.0698 |
| Venus | -12719-04-15 22:48 J | -2924086.69 | -2924086.55 | -2924086.40 | 0.1756 | 0.0926 |
| Mercury | -12719-08-29 01:26 J | -2923951.52 | -2923951.44 | -2923951.35 | 0.1631 | 0.1082 |
| Mercury | -12711-02-13 11:31 J | -2921226.10 | -2921226.02 | -2921225.93 | 0.1642 | 0.1136 |
| Mercury | -12709-01-19 13:11 J | -2920521.06 | -2920520.95 | -2920520.85 | 0.1633 | 0.0656 |
| Mercury | -12702-07-06 23:16 J | -2917795.56 | -2917795.53 | -2917795.50 | 0.1645 | 0.1575 |
| Mercury | -12700-06-11 00:43 J | -2917090.58 | -2917090.47 | -2917090.36 | 0.1635 | 0.0224 |
| Mercury | -12693-01-26 02:52 J | -2914670.55 | -2914670.38 | -2914670.22 | 0.1886 | 0.0456 |
| Venus | -12692-08-29 17:16 J | -2914088.94 | -2914088.78 | -2914088.62 | 0.1768 | 0.0667 |
| Mercury | -12691-11-01 12:28 J | -2913660.10 | -2913659.98 | -2913659.87 | 0.1637 | 0.0214 |
| Mercury | -12689-10-06 13:40 J | -2912954.96 | -2912954.93 | -2912954.90 | 0.1629 | 0.1558 |
| Venus | -12687-04-15 05:31 J | -2912399.44 | -2912399.27 | -2912399.09 | 0.1745 | 0.0218 |
| Mercury | -12684-06-16 18:28 J | -2911240.88 | -2911240.73 | -2911240.59 | 0.1883 | 0.0994 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -12681-03-24 00:00 J | -2910229.61 | -2910229.50 | -2910229.40 | 0.1640 | 0.0642 |
| Mercury | -12679-02-27 01:26 J | -2909524.52 | -2909524.44 | -2909524.36 | 0.1631 | 0.1135 |
| Mercury | -12672-08-14 11:31 J | -2906799.10 | -2906799.02 | -2906798.93 | 0.1642 | 0.1079 |
| Mercury | -12670-07-20 12:57 J | -2906094.06 | -2906093.96 | -2906093.85 | 0.1633 | 0.0711 |
| Mercury | -12662-01-04 23:02 J | -2903368.58 | -2903368.54 | -2903368.49 | 0.1645 | 0.1520 |
| Mercury | -12661-12-10 00:43 J | -2902663.58 | -2902663.47 | -2902663.36 | 0.1635 | 0.0281 |
| Venus | -12660-08-29 00:14 J | -2902401.65 | -2902401.49 | -2902401.32 | 0.1778 | 0.0499 |
| Venus | -12655-04-14 11:16 J | -2900712.14 | -2900712.03 | -2900711.92 | 0.1734 | 0.1303 |
| Mercury | -12654-07-27 03:35 J | -2900243.51 | -2900243.35 | -2900243.18 | 0.1887 | 0.0581 |
| Venus | -12653-02-11 06:43 J | -2900044.36 | -2900044.22 | -2900044.08 | 0.1759 | 0.1084 |
| Mercury | -12651-05-02 12:14 J | -2899233.10 | -2899232.99 | -2899232.87 | 0.1637 | 0.0162 |
| Earth | -12651-10-18 14:38 J | -2899063.90 | -2899063.89 | -2899063.88 | 0.1667 | 0.1662 |
| Mercury | -12649-04-06 13:40 J | -2898527.94 | -2898527.93 | -2898527.92 | 0.1629 | 0.1614 |
| Mercury | -12645-12-15 19:26 J | -2896813.84 | -2896813.69 | -2896813.54 | 0.1883 | 0.0861 |
| Mercury | -12642-09-23 00:00 J | -2895802.61 | -2895802.50 | -2895802.40 | 0.1640 | 0.0590 |
| Mercury | -12640-08-28 01:11 J | -2895097.52 | -2895097.45 | -2895097.37 | 0.1631 | 0.1190 |
| Mercury | -12632-02-12 11:31 J | -2892372.11 | -2892372.02 | -2892371.93 | 0.1642 | 0.1024 |
| Mercury | -12630-01-18 12:57 J | -2891667.06 | -2891666.96 | -2891666.86 | 0.1633 | 0.0763 |
| Venus | -12628-08-28 09:07 J | -2890714.16 | -2890714.12 | -2890714.07 | 0.1790 | 0.1719 |
| Venus | -12626-06-27 00:57 J | -2890046.61 | -2890046.46 | -2890046.30 | 0.1764 | 0.0827 |
| Mercury | -12623-07-05 23:02 J | -2888941.59 | -2888941.54 | -2888941.49 | 0.1645 | 0.1463 |
| Venus | -12621-02-10 13:55 J | -2888357.10 | -2888356.92 | -2888356.75 | 0.1748 | 0.0075 |
| Mercury | -12621-06-10 00:43 J | -2888236.59 | -2888236.47 | -2888236.36 | 0.1635 | 0.0336 |
| Mercury | -12614-01-25 04:33 J | -2885816.47 | -2885816.31 | -2885816.15 | 0.1887 | 0.0705 |
| Mercury | -12612-10-31 12:14 J | -2884806.10 | -2884805.99 | -2884805.87 | 0.1637 | 0.0109 |
| Mercury | -12605-06-15 20:38 J | -2882386.80 | -2882386.64 | -2882386.48 | 0.1883 | 0.0724 |
| Mercury | -12602-03-24 00:00 J | -2881375.61 | -2881375.50 | -2881375.40 | 0.1640 | 0.0534 |
| Mercury | -12600-02-26 01:26 J | -2880670.52 | -2880670.44 | -2880670.37 | 0.1630 | 0.1247 |
| Venus | -12594-06-26 08:24 J | -2878359.32 | -2878359.15 | -2878358.98 | 0.1775 | 0.0338 |
| Mercury | -12593-08-13 11:31 J | -2877945.11 | -2877945.02 | -2877944.93 | 0.1642 | 0.0970 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -12591-07-19 12:57 J | -2877240.06 | -2877239.96 | -2877239.86 | 0.1633 | 0.0817 |
| Venus | -12589-02-09 20:09 J | -2876669.79 | -2876669.66 | -2876669.53 | 0.1738 | 0.1176 |
| Venus | -12588-12-08 14:24 J | -2876002.03 | -2876001.90 | -2876001.78 | 0.1763 | 0.1248 |
| Mercury | -12583-01-03 23:02 J | -2874514.60 | -2874514.54 | -2874514.48 | 0.1645 | 0.1409 |
| Mercury | -12582-12-10 00:28 J | -2873809.59 | -2873809.48 | -2873809.36 | 0.1635 | 0.0392 |
| Mercury | -12575-07-26 05:31 J | -2871389.42 | -2871389.27 | -2871389.12 | 0.1887 | 0.0831 |
| Mercury | -12572-05-01 12:14 J | -2870379.10 | -2870378.99 | -2870378.87 | 0.1637 | 0.0044 |
| Mercury | -12566-12-15 20:52 J | -2867959.79 | -2867959.63 | -2867959.46 | 0.1883 | 0.0625 |
| Mercury | -12563-09-21 23:45 J | -2866948.62 | -2866948.51 | -2866948.40 | 0.1640 | 0.0480 |
| Venus | -12562-06-25 16:19 J | -2866671.91 | -2866671.82 | -2866671.73 | 0.1786 | 0.1538 |
| Mercury | -12561-08-27 01:11 J | -2866243.52 | -2866243.45 | -2866243.38 | 0.1631 | 0.1297 |
| Venus | -12560-04-23 10:04 J | -2866004.23 | -2866004.08 | -2866003.94 | 0.1761 | 0.0969 |
| Venus | -12556-12-07 22:19 J | -2864314.75 | -2864314.57 | -2864314.39 | 0.1751 | 0.0078 |
| Mercury | -12553-02-12 11:31 J | -2863518.12 | -2863518.02 | -2863517.93 | 0.1642 | 0.0913 |
| Mercury | -12551-01-17 12:57 J | -2862813.06 | -2862812.96 | -2862812.87 | 0.1632 | 0.0872 |
| Mercury | -12544-07-04 23:02 J | -2860087.60 | -2860087.54 | -2860087.48 | 0.1645 | 0.1355 |
| Mercury | -12542-06-10 00:28 J | -2859382.59 | -2859382.48 | -2859382.37 | 0.1635 | 0.0448 |
| Mercury | -12535-01-24 06:28 J | -2856962.38 | -2856962.23 | -2856962.09 | 0.1887 | 0.0957 |
| Mercury | -12533-10-30 12:14 J | -2855952.11 | -2855951.99 | -2855951.88 | 0.1637 | 0.0031 |
| Venus | -12528-04-22 16:19 J | -2854316.99 | -2854316.82 | -2854316.65 | 0.1772 | 0.0175 |
| Mercury | -12526-06-15 22:19 J | -2853532.74 | -2853532.57 | -2853532.41 | 0.1883 | 0.0479 |
| Earth | -12525-10-14 06:14 J | -2853046.41 | -2853046.24 | -2853046.07 | 0.1657 | 0.0718 |
| Moon | -12525-10-14 12:28 J | -2853046.16 | -2853045.98 | -2853045.81 | 0.1658 | 0.0552 * |
| Venus | -12524-12-07 04:33 J | -2852627.45 | -2852627.31 | -2852627.17 | 0.1741 | 0.1038 |
| Mercury | -12523-03-22 23:45 J | -2852521.62 | -2852521.51 | -2852521.40 | 0.1640 | 0.0423 |
| Venus | -12522-10-05 22:04 J | -2851959.68 | -2851959.58 | -2851959.48 | 0.1766 | 0.1410 |
| Mercury | -12521-02-26 01:11 J | -2851816.51 | -2851816.45 | -2851816.39 | 0.1630 | 0.1350 |
| Mercury | -12514-08-13 11:16 J | -2849091.12 | -2849091.03 | -2849090.93 | 0.1642 | 0.0863 |
| Mercury | -12512-07-18 12:43 J | -2848386.06 | -2848385.97 | -2848385.87 | 0.1633 | 0.0927 |
| Mercury | -12504-01-02 23:02 J | -2845660.61 | -2845660.54 | -2845660.47 | 0.1645 | 0.1297 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -12503-12-09 00:28 J | -2844955.59 | -2844955.48 | -2844955.37 | 0.1635 | 0.0498 |
| Venus | -12496-04-21 23:31 J | -2842629.63 | -2842629.52 | -2842629.41 | 0.1783 | 0.1357 |
| Mercury | -12496-07-25 07:26 J | -2842535.33 | -2842535.19 | -2842535.05 | 0.1887 | 0.1085 |
| Venus | -12494-02-18 18:00 J | -2841961.88 | -2841961.75 | -2841961.62 | 0.1757 | 0.1119 |
| Mercury | -12493-04-30 12:14 J | -2841525.11 | -2841524.99 | -2841524.88 | 0.1637 | 0.0076 |
| Venus | -12490-10-05 06:14 J | -2840272.41 | -2840272.24 | -2840272.06 | 0.1755 | 0.0233 |
| Mercury | -12487-12-14 23:02 J | -2839105.71 | -2839105.54 | -2839105.37 | 0.1883 | 0.0358 |
| Mercury | -12484-09-20 23:45 J | -2838094.62 | -2838094.51 | -2838094.40 | 0.1639 | 0.0369 |
| Mercury | -12482-08-27 01:11 J | -2837389.51 | -2837389.45 | -2837389.39 | 0.1630 | 0.1406 |
| Mercury | -12477-05-05 14:52 J | -2835675.93 | -2835675.88 | -2835675.82 | 0.1879 | 0.1780 |
| Mercury | -12474-02-11 11:16 J | -2834664.13 | -2834664.03 | -2834663.93 | 0.1642 | 0.0805 |
| Mercury | -12472-01-16 12:43 J | -2833959.06 | -2833958.97 | -2833958.88 | 0.1632 | 0.0980 |
| Mercury | -12465-07-03 23:02 J | -2831233.62 | -2831233.54 | -2831233.47 | 0.1645 | 0.1245 |
| Mercury | -12463-06-09 00:28 J | -2830528.59 | -2830528.48 | -2830528.37 | 0.1635 | 0.0551 |
| Venus | -12462-02-18 00:14 J | -2830274.66 | -2830274.49 | -2830274.32 | 0.1768 | 0.0017 |
| Venus | -12458-10-04 13:11 J | -2828585.10 | -2828584.95 | -2828584.80 | 0.1744 | 0.0901 |
| Mercury | -12456-01-23 08:09 J | -2828108.29 | -2828108.16 | -2828108.03 | 0.1887 | 0.1203 |
| Venus | -12456-08-02 05:02 J | -2827917.36 | -2827917.29 | -2827917.21 | 0.1769 | 0.1586 |
| Mercury | -12454-10-30 12:00 J | -2827098.11 | -2827098.00 | -2827097.88 | 0.1637 | 0.0126 |
| Mercury | -12447-06-14 23:45 J | -2824678.68 | -2824678.51 | -2824678.34 | 0.1883 | 0.0243 |
| Earth | -12446-10-17 10:33 J | -2824189.23 | -2824189.06 | -2824188.88 | 0.1660 | 0.0638 |
| Moon | -12446-10-17 10:48 J | -2824189.22 | -2824189.05 | -2824188.88 | 0.1660 | 0.0467 * |
| Mercury | -12444-03-21 23:45 J | -2823667.62 | -2823667.51 | -2823667.40 | 0.1640 | 0.0314 |
| Mercury | -12442-02-25 01:11 J | -2822962.50 | -2822962.45 | -2822962.41 | 0.1630 | 0.1460 |
| Moon | -12439-04-19 14:52 J | -2821813.05 | -2821812.88 | -2821812.71 | 0.1865 | 0.1193 |
| Earth | -12439-04-19 16:33 J | -2821812.99 | -2821812.81 | -2821812.64 | 0.1865 | 0.0916 * |
| Mercury | -12438-11-04 15:50 J | -2821248.91 | -2821248.84 | -2821248.75 | 0.1879 | 0.1652 |
| Mercury | -12435-08-12 11:16 J | -2820237.13 | -2820237.03 | -2820236.93 | 0.1642 | 0.0748 |
| Mercury | -12433-07-17 12:43 J | -2819532.06 | -2819531.97 | -2819531.88 | 0.1632 | 0.1036 |
| Venus | -12430-02-17 07:11 J | -2818587.33 | -2818587.20 | -2818587.07 | 0.1779 | 0.1187 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Venus | -12429-12-16 03:07 J | -2817919.49 | -2817919.37 | -2817919.25 | 0.1754 | 0.1256 |
| Mercury | -12425-01-02 22:48 J | -2816806.63 | -2816806.55 | -2816806.47 | 0.1645 | 0.1189 |
| Venus | -12424-08-01 14:24 J | -2816230.07 | -2816229.90 | -2816229.73 | 0.1758 | 0.0385 |
| Mercury | -12424-12-08 00:28 J | -2816101.59 | -2816101.48 | -2816101.38 | 0.1634 | 0.0607 |
| Mercury | -12417-07-24 09:07 J | -2813681.24 | -2813681.12 | -2813681.00 | 0.1887 | 0.1330 |
| Mercury | -12416-05-25 10:19 J | -2813376.08 | -2813376.07 | -2813376.06 | 0.1648 | 0.1631 |
| Mercury | -12414-04-30 12:00 J | -2812671.11 | -2812671.00 | -2812670.88 | 0.1637 | 0.0175 |
| Mercury | -12408-12-14 00:57 J | -2810251.64 | -2810251.46 | -2810251.29 | 0.1883 | 0.0115 |
| Mercury | -12405-09-19 23:31 J | -2809240.63 | -2809240.52 | -2809240.40 | 0.1639 | 0.0267 |
| Mercury | -12403-08-26 00:57 J | -2808535.50 | -2808535.46 | -2808535.42 | 0.1630 | 0.1513 |
| Mercury | -12398-05-05 16:33 J | -2806821.90 | -2806821.81 | -2806821.71 | 0.1879 | 0.1537 |
| Venus | -12397-12-15 08:24 J | -2806232.32 | -2806232.15 | -2806231.98 | 0.1765 | 0.0146 |
| Mercury | -12395-02-10 11:16 J | -2805810.13 | -2805810.03 | -2805809.93 | 0.1642 | 0.0695 |
| Mercury | -12393-01-16 12:43 J | -2805105.06 | -2805104.97 | -2805104.89 | 0.1632 | 0.1088 |
| Venus | -12392-07-31 21:07 J | -2804542.78 | -2804542.62 | -2804542.46 | 0.1748 | 0.0754 |
| Venus | -12390-05-30 12:43 J | -2803874.99 | -2803874.97 | -2803874.95 | 0.1773 | 0.1756 |
| Mercury | -12386-07-03 22:48 J | -2802379.63 | -2802379.55 | -2802379.47 | 0.1645 | 0.1133 |
| Mercury | -12384-06-08 00:28 J | -2801674.59 | -2801674.48 | -2801674.38 | 0.1635 | 0.0663 |
| Mercury | -12377-01-23 10:04 J | -2799254.19 | -2799254.08 | -2799253.97 | 0.1888 | 0.1458 |
| Mercury | -12377-11-23 10:19 J | -2798949.10 | -2798949.07 | -2798949.04 | 0.1648 | 0.1574 |
| Mercury | -12375-10-29 12:00 J | -2798244.11 | -2798244.00 | -2798243.89 | 0.1637 | 0.0231 |
| Mercury | -12368-06-14 01:55 J | -2795824.59 | -2795824.42 | -2795824.25 | 0.1883 | 0.0025 |
| Mercury | -12365-03-20 23:31 J | -2794813.63 | -2794813.52 | -2794813.40 | 0.1639 | 0.0210 |
| Venus | -12365-12-14 14:52 J | -2794545.02 | -2794544.88 | -2794544.74 | 0.1776 | 0.1012 |
| Mercury | -12363-02-24 00:57 J | -2794108.48 | -2794108.46 | -2794108.43 | 0.1630 | 0.1569 |
| Venus | -12363-10-13 11:31 J | -2793877.12 | -2793877.02 | -2793876.92 | 0.1751 | 0.1399 |
| Mercury | -12359-11-03 17:31 J | -2792394.88 | -2792394.77 | -2792394.66 | 0.1879 | 0.1414 |
| Venus | -12358-05-29 21:50 J | -2792187.76 | -2792187.59 | -2792187.42 | 0.1762 | 0.0548 |
| Mercury | -12356-08-11 11:16 J | -2791383.14 | -2791383.03 | -2791382.93 | 0.1642 | 0.0644 |
| Mercury | -12354-07-17 12:43 J | -2790678.05 | -2790677.97 | -2790677.89 | 0.1632 | 0.1142 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -12346-01-01 22:48 J | -2787952.64 | -2787952.55 | -2787952.47 | 0.1645 | 0.1079 |
| Mercury | -12345-12-07 00:14 J | -2787247.59 | -2787247.49 | -2787247.38 | 0.1634 | 0.0714 |
| Mercury | -12338-07-24 10:48 J | -2784827.14 | -2784827.05 | -2784826.95 | 0.1887 | 0.1580 |
| Mercury | -12337-05-24 10:19 J | -2784522.11 | -2784522.07 | -2784522.03 | 0.1648 | 0.1520 |
| Mercury | -12335-04-29 12:00 J | -2783817.11 | -2783817.00 | -2783816.89 | 0.1637 | 0.0285 |
| Venus | -12331-10-12 16:19 J | -2782189.99 | -2782189.82 | -2782189.65 | 0.1762 | 0.0307 |
| Mercury | -12329-12-13 02:24 J | -2781397.57 | -2781397.40 | -2781397.23 | 0.1884 | 0.0127 |
| Venus | -12326-05-29 05:16 J | -2780500.44 | -2780500.28 | -2780500.11 | 0.1751 | 0.0607 |
| Mercury | -12326-09-19 23:31 J | -2780386.63 | -2780386.52 | -2780386.41 | 0.1639 | 0.0150 |
| Mercury | -12324-08-25 00:57 J | -2779681.47 | -2779681.46 | -2779681.45 | 0.1630 | 0.1620 |
| Mercury | -12319-05-04 18:43 J | -2777967.84 | -2777967.72 | -2777967.59 | 0.1880 | 0.1273 |
| Mercury | -12316-02-09 11:16 J | -2776956.14 | -2776956.03 | -2776955.93 | 0.1642 | 0.0585 |
| Mercury | -12314-01-15 12:43 J | -2776251.05 | -2776250.97 | -2776250.90 | 0.1632 | 0.1198 |
| Mercury | -12307-07-02 22:48 J | -2773525.64 | -2773525.55 | -2773525.47 | 0.1645 | 0.1026 |
| Mercury | -12305-06-07 00:14 J | -2772820.59 | -2772820.49 | -2772820.39 | 0.1634 | 0.0771 |
| Venus | -12299-10-11 22:48 J | -2770502.70 | -2770502.55 | -2770502.40 | 0.1772 | 0.0849 |
| Mercury | -12298-01-22 11:45 J | -2770400.08 | -2770400.01 | -2770399.94 | 0.1887 | 0.1702 |
| Mercury | -12298-11-23 10:19 J | -2770095.12 | -2770095.07 | -2770095.02 | 0.1648 | 0.1466 |
| Venus | -12297-08-09 20:24 J | -2769834.73 | -2769834.65 | -2769834.57 | 0.1747 | 0.1537 |
| Mercury | -12296-10-28 11:45 J | -2769390.12 | -2769390.01 | -2769389.89 | 0.1637 | 0.0341 |
| Venus | -12294-05-28 11:45 J | -2768813.03 | -2768813.01 | -2768812.98 | 0.1740 | 0.1713 |
| Venus | -12292-03-26 05:45 J | -2768145.42 | -2768145.26 | -2768145.10 | 0.1765 | 0.0707 |
| Mercury | -12289-06-13 03:35 J | -2766970.52 | -2766970.35 | -2766970.18 | 0.1884 | 0.0270 |
| Mercury | -12286-03-20 23:31 J | -2765959.64 | -2765959.52 | -2765959.41 | 0.1639 | 0.0096 |
| Mercury | -12280-11-02 19:11 J | -2763540.83 | -2763540.70 | -2763540.57 | 0.1879 | 0.1172 |
| Mercury | -12277-08-10 11:02 J | -2762529.15 | -2762529.04 | -2762528.93 | 0.1642 | 0.0532 |
| Mercury | -12275-07-16 12:28 J | -2761824.05 | -2761823.98 | -2761823.90 | 0.1632 | 0.1250 |
| Mercury | -12268-12-31 22:48 J | -2759098.65 | -2759098.55 | -2759098.46 | 0.1645 | 0.0968 |
| Mercury | -12266-12-07 00:14 J | -2758393.59 | -2758393.49 | -2758393.39 | 0.1634 | 0.0823 |
| Venus | -12265-08-09 00:43 J | -2758147.64 | -2758147.47 | -2758147.30 | 0.1758 | 0.0456 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Venus | -12260-03-25 13:26 J | -2756458.11 | -2756457.94 | -2756457.77 | 0.1754 | 0.0461 |
| Mercury | -12259-07-23 12:43 J | -2755973.01 | -2755972.97 | -2755972.93 | 0.1888 | 0.1834 |
| Mercury | -12258-05-24 10:04 J | -2755668.13 | -2755668.08 | -2755668.02 | 0.1648 | 0.1411 |
| Mercury | -12256-04-28 11:45 J | -2754963.12 | -2754963.01 | -2754962.89 | 0.1637 | 0.0399 |
| Mercury | -12250-12-13 04:33 J | -2752543.48 | -2752543.31 | -2752543.15 | 0.1884 | 0.0394 |
| Mercury | -12247-09-18 23:31 J | -2751532.64 | -2751532.52 | -2751532.41 | 0.1639 | 0.0063 |
| Earth | -12241-10-15 07:55 J | -2749314.36 | -2749314.17 | -2749313.99 | 0.1653 | 0.0338 |
| Moon | -12241-10-15 08:09 J | -2749314.36 | -2749314.16 | -2749313.96 | 0.1653 | 0.0199 * |
| Mercury | -12240-05-03 20:24 J | -2749113.79 | -2749113.65 | -2749113.51 | 0.1880 | 0.1033 |
| Mercury | -12237-02-09 11:02 J | -2748102.15 | -2748102.04 | -2748101.93 | 0.1642 | 0.0476 |
| Mercury | -12235-01-14 12:28 J | -2747397.05 | -2747396.98 | -2747396.91 | 0.1632 | 0.1303 |
| Venus | -12233-08-08 06:28 J | -2746460.39 | -2746460.23 | -2746460.07 | 0.1769 | 0.0681 |
| Venus | -12231-06-07 05:02 J | -2745792.33 | -2745792.29 | -2745792.24 | 0.1744 | 0.1674 |
| Venus | -12228-03-24 20:24 J | -2744770.73 | -2744770.65 | -2744770.58 | 0.1744 | 0.1576 |
| Mercury | -12228-07-01 22:33 J | -2744671.65 | -2744671.56 | -2744671.46 | 0.1645 | 0.0915 |
| Venus | -12226-01-21 12:57 J | -2744103.11 | -2744102.96 | -2744102.81 | 0.1769 | 0.0875 |
| Mercury | -12226-06-07 00:14 J | -2743966.59 | -2743966.49 | -2743966.40 | 0.1634 | 0.0877 |
| Mercury | -12219-11-22 10:04 J | -2741241.14 | -2741241.08 | -2741241.01 | 0.1648 | 0.1356 |
| Mercury | -12217-10-27 11:45 J | -2740536.12 | -2740536.01 | -2740535.90 | 0.1637 | 0.0446 |
| Mercury | -12210-06-13 05:16 J | -2738116.45 | -2738116.28 | -2738116.12 | 0.1884 | 0.0510 |
| Mercury | -12207-03-19 23:31 J | -2737105.64 | -2737105.52 | -2737105.41 | 0.1639 | 0.0057 |
| Mercury | -12201-11-01 21:21 J | -2734686.76 | -2734686.61 | -2734686.46 | 0.1880 | 0.0905 |
| Venus | -12199-06-06 08:52 J | -2734105.29 | -2734105.13 | -2734104.96 | 0.1755 | 0.0610 |
| Mercury | -12198-08-10 11:02 J | -2733675.15 | -2733675.04 | -2733674.93 | 0.1642 | 0.0419 |
| Mercury | -12196-07-15 12:28 J | -2732970.04 | -2732969.98 | -2732969.92 | 0.1632 | 0.1359 |
| Venus | -12194-01-20 21:21 J | -2732415.79 | -2732415.61 | -2732415.44 | 0.1758 | 0.0306 |
| Mercury | -12189-12-30 22:33 J | -2730244.66 | -2730244.56 | -2730244.46 | 0.1645 | 0.0860 |
| Mercury | -12187-12-06 00:14 J | -2729539.59 | -2729539.49 | -2729539.40 | 0.1634 | 0.0933 |
| Mercury | -12179-05-23 10:04 J | -2726814.15 | -2726814.08 | -2726814.01 | 0.1648 | 0.1300 |
| Mercury | -12177-04-27 11:45 J | -2726109.12 | -2726109.01 | -2726108.90 | 0.1637 | 0.0502 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -12171-12-12 06:14 J | -2723689.40 | -2723689.24 | -2723689.08 | 0.1884 | 0.0639 |
| Mercury | -12168-09-17 23:16 J | -2722678.64 | -2722678.53 | -2722678.41 | 0.1639 | 0.0081 |
| Venus | -12167-06-05 15:07 J | -2722418.04 | -2722417.87 | -2722417.71 | 0.1765 | 0.0528 |
| Venus | -12162-01-20 04:48 J | -2720728.39 | -2720728.30 | -2720728.20 | 0.1747 | 0.1443 |
| Earth | -12162-10-18 11:31 J | -2720457.17 | -2720457.02 | -2720456.87 | 0.1656 | 0.0989 |
| Moon | -12162-10-18 18:14 J | -2720456.90 | -2720456.74 | -2720456.58 | 0.1656 | 0.0898 * |
| Mercury | -12161-05-02 22:04 J | -2720259.74 | -2720259.58 | -2720259.43 | 0.1880 | 0.0794 |
| Venus | -12161-11-17 20:24 J | -2720060.80 | -2720060.65 | -2720060.51 | 0.1772 | 0.1047 |
| Mercury | -12158-02-08 11:02 J | -2719248.16 | -2719248.04 | -2719247.93 | 0.1642 | 0.0370 |
| Mercury | -12156-01-13 12:28 J | -2718543.04 | -2718542.98 | -2718542.93 | 0.1632 | 0.1411 |
| Earth | -12155-04-19 02:24 J | -2718082.48 | -2718082.40 | -2718082.33 | 0.1872 | 0.1737 |
| Mercury | -12149-06-30 22:33 J | -2715817.66 | -2715817.56 | -2715817.46 | 0.1645 | 0.0802 |
| Mercury | -12147-06-06 00:00 J | -2715112.59 | -2715112.50 | -2715112.41 | 0.1634 | 0.0986 |
| Mercury | -12140-11-21 10:04 J | -2712387.15 | -2712387.08 | -2712387.01 | 0.1647 | 0.1244 |
| Mercury | -12138-10-27 11:45 J | -2711682.12 | -2711682.01 | -2711681.90 | 0.1636 | 0.0558 |
| Venus | -12135-06-04 21:50 J | -2710730.64 | -2710730.59 | -2710730.54 | 0.1776 | 0.1699 |
| Venus | -12133-04-02 18:00 J | -2710062.90 | -2710062.75 | -2710062.59 | 0.1751 | 0.0746 |
| Mercury | -12131-06-12 07:11 J | -2709262.35 | -2709262.20 | -2709262.04 | 0.1884 | 0.0771 |
| Venus | -12129-11-17 05:31 J | -2708373.44 | -2708373.27 | -2708373.09 | 0.1761 | 0.0155 |
| Mercury | -12128-03-18 23:16 J | -2708251.64 | -2708251.53 | -2708251.41 | 0.1639 | 0.0124 |
| Mercury | -12122-11-01 22:48 J | -2705832.71 | -2705832.55 | -2705832.38 | 0.1880 | 0.0670 |
| Mercury | -12119-08-09 10:48 J | -2704821.16 | -2704821.05 | -2704820.93 | 0.1642 | 0.0318 |
| Mercury | -12117-07-14 12:14 J | -2704116.03 | -2704115.99 | -2704115.94 | 0.1632 | 0.1465 |
| Mercury | -12110-12-30 22:33 J | -2701390.67 | -2701390.56 | -2701390.46 | 0.1644 | 0.0751 |
| Mercury | -12108-12-05 00:00 J | -2700685.59 | -2700685.50 | -2700685.41 | 0.1634 | 0.1039 |
| Venus | -12101-04-01 23:16 J | -2698375.70 | -2698375.53 | -2698375.36 | 0.1762 | 0.0371 |
| Mercury | -12100-05-22 10:04 J | -2697960.16 | -2697960.08 | -2697960.00 | 0.1648 | 0.1191 |
| Mercury | -12098-04-27 11:31 J | -2697255.12 | -2697255.02 | -2697254.91 | 0.1637 | 0.0612 |
| Venus | -12097-11-16 12:57 J | -2696686.07 | -2696685.96 | -2696685.84 | 0.1750 | 0.1299 |
| Venus | -12095-09-15 03:35 J | -2696018.48 | -2696018.35 | -2696018.22 | 0.1776 | 0.1217 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -12092-12-11 07:40 J | -2694835.33 | -2694835.18 | -2694835.02 | 0.1884 | 0.0876 |
| Mercury | -12091-10-12 21:35 J | -2694529.61 | -2694529.60 | -2694529.59 | 0.1651 | 0.1633 |
| Mercury | -12089-09-16 23:16 J | -2693824.64 | -2693824.53 | -2693824.42 | 0.1639 | 0.0178 |
| Mercury | -12082-05-03 00:14 J | -2691405.66 | -2691405.49 | -2691405.33 | 0.1880 | 0.0525 |
| Mercury | -12079-02-07 10:48 J | -2690394.16 | -2690394.05 | -2690393.93 | 0.1641 | 0.0261 |
| Mercury | -12077-01-13 12:14 J | -2689689.02 | -2689688.99 | -2689688.95 | 0.1632 | 0.1522 |
| Moon | -12076-04-22 04:19 J | -2689224.48 | -2689224.32 | -2689224.16 | 0.1868 | 0.1225 |
| Earth | -12076-04-22 12:14 J | -2689224.14 | -2689223.99 | -2689223.85 | 0.1868 | 0.1281 |
| Mercury | -12070-06-30 22:19 J | -2686963.67 | -2686963.57 | -2686963.46 | 0.1644 | 0.0697 |
| Venus | -12069-04-01 05:16 J | -2686688.36 | -2686688.28 | -2686688.19 | 0.1773 | 0.1525 |
| Mercury | -12068-06-05 00:00 J | -2686258.58 | -2686258.50 | -2686258.42 | 0.1634 | 0.1094 |
| Venus | -12067-01-29 02:38 J | -2686020.54 | -2686020.39 | -2686020.24 | 0.1748 | 0.0890 |
| Venus | -12063-09-14 12:57 J | -2684331.13 | -2684330.96 | -2684330.78 | 0.1765 | 0.0038 |
| Mercury | -12061-11-20 09:50 J | -2683533.17 | -2683533.09 | -2683533.00 | 0.1647 | 0.1138 |
| Mercury | -12059-10-26 11:31 J | -2682828.12 | -2682828.02 | -2682827.91 | 0.1636 | 0.0662 |
| Mercury | -12052-06-11 09:07 J | -2680408.27 | -2680408.12 | -2680407.98 | 0.1884 | 0.1019 |
| Mercury | -12051-04-12 21:21 J | -2680102.63 | -2680102.61 | -2680102.58 | 0.1651 | 0.1581 |
| Mercury | -12049-03-17 23:16 J | -2679397.65 | -2679397.53 | -2679397.42 | 0.1639 | 0.0235 |
| Mercury | -12043-11-01 00:28 J | -2676978.64 | -2676978.48 | -2676978.31 | 0.1880 | 0.0429 |
| Mercury | -12040-08-08 10:48 J | -2675967.16 | -2675967.05 | -2675966.94 | 0.1642 | 0.0203 |
| Mercury | -12038-07-14 12:14 J | -2675262.02 | -2675261.99 | -2675261.96 | 0.1632 | 0.1573 |
| Moon | -12036-10-14 05:31 J | -2674439.36 | -2674439.27 | -2674439.17 | 0.1648 | 0.1373 |
| Earth | -12036-10-14 06:57 J | -2674439.33 | -2674439.21 | -2674439.09 | 0.1648 | 0.1252 * |
| Venus | -12035-01-28 07:40 J | -2674333.35 | -2674333.18 | -2674333.01 | 0.1759 | 0.0218 |
| Mercury | -12033-03-22 16:48 J | -2673548.83 | -2673548.80 | -2673548.76 | 0.1876 | 0.1822 |
| Venus | -12031-09-13 21:07 J | -2672643.75 | -2672643.62 | -2672643.49 | 0.1754 | 0.1156 |
| Mercury | -12031-12-29 22:19 J | -2672536.67 | -2672536.57 | -2672536.46 | 0.1644 | 0.0639 |
| Venus | -12029-07-12 10:19 J | -2671976.18 | -2671976.07 | -2671975.97 | 0.1779 | 0.1401 |
| Mercury | -12029-12-04 00:00 J | -2671831.58 | -2671831.50 | -2671831.42 | 0.1634 | 0.1148 |
| Mercury | -12021-05-21 09:50 J | -2669106.17 | -2669106.09 | -2669106.00 | 0.1647 | 0.1082 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -12019-04-26 11:31 J | -2668401.12 | -2668401.02 | -2668400.92 | 0.1636 | 0.0721 |
| Mercury | -12013-12-10 09:50 J | -2665981.23 | -2665981.09 | -2665980.95 | 0.1884 | 0.1138 |
| Mercury | -12012-10-11 21:21 J | -2665675.65 | -2665675.61 | -2665675.57 | 0.1651 | 0.1525 |
| Mercury | -12010-09-16 23:16 J | -2664970.65 | -2664970.53 | -2664970.42 | 0.1639 | 0.0294 |
| Venus | -12003-01-27 13:26 J | -2662646.04 | -2662645.94 | -2662645.83 | 0.1769 | 0.1364 |
| Mercury | -12003-05-02 01:40 J | -2662551.60 | -2662551.43 | -2662551.26 | 0.1880 | 0.0290 |
| Venus | -12002-11-26 12:00 J | -2661978.14 | -2661978.00 | -2661977.87 | 0.1745 | 0.1023 |

12TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 12th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|-------------|-------------|-------------|--------|--------|-------|---|
| Mercury | -12000-02-06 10:48 J | -2661540.17 | -2661540.05 | -2661539.94 | 0.1641 | 0.0149 | | |
| Mercury | -11998-01-12 12:14 J | -2660835.00 | -2660834.99 | -2660834.99 | 0.1632 | 0.1625 | | |
| Venus | -11997-07-11 20:38 J | -2660288.81 | -2660288.64 | -2660288.46 | 0.1768 | 0.0171 | | |
| Mercury | -11994-09-21 17:45 J | -2659121.83 | -2659121.76 | -2659121.69 | 0.1876 | 0.1705 | | |
| Mercury | -11991-06-29 22:19 J | -2658109.68 | -2658109.57 | -2658109.46 | 0.1644 | 0.0585 | | |
| Mercury | -11989-06-03 23:45 J | -2657404.58 | -2657404.51 | -2657404.43 | 0.1634 | 0.1202 | | |
| Mercury | -11982-11-20 09:50 J | -2654679.18 | -2654679.09 | -2654679.00 | 0.1647 | 0.1025 | | |
| Mercury | -11980-10-25 11:31 J | -2653974.12 | -2653974.02 | -2653973.92 | 0.1636 | 0.0772 | | |
| Mercury | -11973-06-10 10:33 J | -2651554.18 | -2651554.06 | -2651553.93 | 0.1885 | 0.1260 | | |
| Mercury | -11972-04-11 21:21 J | -2651248.66 | -2651248.61 | -2651248.56 | 0.1650 | 0.1467 | | |
| Mercury | -11970-03-17 23:02 J | -2650543.65 | -2650543.54 | -2650543.42 | 0.1639 | 0.0349 | | |
| Venus | -11970-11-25 16:04 J | -2650291.00 | -2650290.83 | -2650290.66 | 0.1755 | 0.0067 | | |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Venus | -11965-07-11 04:48 J | -2648601.44 | -2648601.30 | -2648601.16 | 0.1757 | 0.1002 |
| Mercury | -11964-10-31 02:38 J | -2648124.56 | -2648124.39 | -2648124.21 | 0.1880 | 0.0165 |
| Venus | -11963-05-09 17:31 J | -2647933.85 | -2647933.77 | -2647933.69 | 0.1783 | 0.1575 |
| Mercury | -11961-08-07 10:48 J | -2647113.17 | -2647113.05 | -2647112.94 | 0.1641 | 0.0098 |
| Moon | -11957-10-16 03:21 J | -2645582.54 | -2645582.36 | -2645582.18 | 0.1650 | 0.0162 |
| Earth | -11957-10-16 10:04 J | -2645582.27 | -2645582.08 | -2645581.90 | 0.1650 | 0.0059 * |
| Mercury | -11954-03-22 18:43 J | -2644694.81 | -2644694.72 | -2644694.63 | 0.1876 | 0.1575 |
| Mercury | -11952-12-28 22:19 J | -2643682.68 | -2643682.57 | -2643682.46 | 0.1644 | 0.0531 |
| Mercury | -11950-12-03 23:45 J | -2642977.58 | -2642977.51 | -2642977.44 | 0.1634 | 0.1256 |
| Mercury | -11942-05-21 09:50 J | -2640252.18 | -2640252.09 | -2640252.00 | 0.1647 | 0.0970 |
| Mercury | -11940-04-25 11:31 J | -2639547.12 | -2639547.02 | -2639546.92 | 0.1636 | 0.0828 |
| Venus | -11938-11-24 21:21 J | -2638603.74 | -2638603.61 | -2638603.48 | 0.1766 | 0.1195 |
| Venus | -11936-09-22 20:38 J | -2637935.76 | -2637935.64 | -2637935.51 | 0.1741 | 0.1163 |
| Mercury | -11934-12-10 11:31 J | -2637127.13 | -2637127.02 | -2637126.90 | 0.1885 | 0.1386 |
| Mercury | -11933-10-10 21:21 J | -2636821.67 | -2636821.61 | -2636821.56 | 0.1651 | 0.1416 |
| Venus | -11931-05-09 04:04 J | -2636246.51 | -2636246.33 | -2636246.16 | 0.1772 | 0.0334 |
| Mercury | -11931-09-15 23:02 J | -2636116.65 | -2636116.54 | -2636116.43 | 0.1639 | 0.0395 |
| Mercury | -11924-05-01 03:21 J | -2633697.53 | -2633697.36 | -2633697.19 | 0.1880 | 0.0050 |
| Mercury | -11921-02-06 10:33 J | -2632686.17 | -2632686.06 | -2632685.94 | 0.1641 | 0.0077 |
| Mercury | -11915-09-20 19:26 J | -2630267.79 | -2630267.69 | -2630267.58 | 0.1876 | 0.1454 |
| Mercury | -11912-06-28 22:19 J | -2629255.68 | -2629255.57 | -2629255.46 | 0.1644 | 0.0473 |
| Mercury | -11910-06-03 23:45 J | -2628550.58 | -2628550.51 | -2628550.44 | 0.1634 | 0.1310 |
| Venus | -11904-09-22 00:28 J | -2626248.65 | -2626248.48 | -2626248.31 | 0.1752 | 0.0092 |
| Mercury | -11903-11-19 09:50 J | -2625825.19 | -2625825.09 | -2625825.00 | 0.1647 | 0.0915 |
| Mercury | -11901-10-24 11:31 J | -2625120.12 | -2625120.02 | -2625119.93 | 0.1636 | 0.0884 |
| Venus | -11899-05-08 12:43 J | -2624559.12 | -2624558.97 | -2624558.82 | 0.1761 | 0.0852 |
| Venus | -11897-03-06 00:14 J | -2623891.51 | -2623891.49 | -2623891.46 | 0.1786 | 0.1761 |
| Mercury | -11894-06-10 12:43 J | -2622700.07 | -2622699.97 | -2622699.87 | 0.1885 | 0.1517 |
| Mercury | -11893-04-10 21:21 J | -2622394.68 | -2622394.61 | -2622394.55 | 0.1650 | 0.1360 |
| Mercury | -11891-03-16 23:02 J | -2621689.65 | -2621689.54 | -2621689.43 | 0.1639 | 0.0450 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -11885-10-30 04:19 J | -2619270.49 | -2619270.32 | -2619270.14 | 0.1881 | 0.0091 |
| Mercury | -11882-08-07 10:33 J | -2618259.17 | -2618259.06 | -2618258.94 | 0.1641 | 0.0034 |
| Moon | -11878-10-19 09:21 J | -2616725.26 | -2616725.11 | -2616724.96 | 0.1652 | 0.1108 |
| Earth | -11878-10-19 13:26 J | -2616725.04 | -2616724.94 | -2616724.83 | 0.1652 | 0.1364 * |
| Mercury | -11875-03-21 20:24 J | -2615840.77 | -2615840.65 | -2615840.52 | 0.1876 | 0.1327 |
| Mercury | -11873-12-27 22:19 J | -2614828.69 | -2614828.57 | -2614828.46 | 0.1644 | 0.0424 |
| Venus | -11872-09-21 05:45 J | -2614561.40 | -2614561.26 | -2614561.12 | 0.1762 | 0.1037 |
| Mercury | -11871-12-02 23:45 J | -2614123.57 | -2614123.51 | -2614123.45 | 0.1634 | 0.1362 |
| Venus | -11870-07-21 05:45 J | -2613893.37 | -2613893.26 | -2613893.14 | 0.1738 | 0.1295 |
| Venus | -11865-03-05 11:31 J | -2612204.19 | -2612204.02 | -2612203.85 | 0.1775 | 0.0499 |
| Mercury | -11863-05-20 09:50 J | -2611398.19 | -2611398.09 | -2611398.00 | 0.1647 | 0.0861 |
| Mercury | -11861-04-24 11:16 J | -2610693.12 | -2610693.03 | -2610692.93 | 0.1636 | 0.0936 |
| Mercury | -11855-12-09 13:11 J | -2608273.03 | -2608272.95 | -2608272.86 | 0.1885 | 0.1627 |
| Mercury | -11854-10-10 21:21 J | -2607967.68 | -2607967.61 | -2607967.54 | 0.1650 | 0.1303 |
| Mercury | -11852-09-14 23:02 J | -2607262.65 | -2607262.54 | -2607262.43 | 0.1639 | 0.0506 |
| Mercury | -11845-04-30 05:31 J | -2604843.44 | -2604843.27 | -2604843.09 | 0.1881 | 0.0228 |
| Mercury | -11842-02-05 10:33 J | -2603832.17 | -2603832.06 | -2603831.94 | 0.1641 | 0.0083 |
| Venus | -11838-07-20 09:07 J | -2602206.29 | -2602206.12 | -2602205.95 | 0.1748 | 0.0237 |
| Mercury | -11836-09-19 21:21 J | -2601413.74 | -2601413.61 | -2601413.48 | 0.1876 | 0.1209 |
| Venus | -11833-03-04 20:38 J | -2600516.80 | -2600516.64 | -2600516.48 | 0.1764 | 0.0699 |
| Mercury | -11833-06-27 22:04 J | -2600401.69 | -2600401.58 | -2600401.47 | 0.1644 | 0.0367 |
| Mercury | -11831-06-02 23:45 J | -2599696.57 | -2599696.51 | -2599696.46 | 0.1634 | 0.1417 |
| Mercury | -11824-11-18 09:35 J | -2596971.19 | -2596971.10 | -2596971.00 | 0.1647 | 0.0808 |
| Mercury | -11822-10-24 11:16 J | -2596266.12 | -2596266.03 | -2596265.94 | 0.1636 | 0.0988 |
| Mercury | -11815-06-09 14:24 J | -2593845.95 | -2593845.90 | -2593845.84 | 0.1885 | 0.1767 |
| Mercury | -11814-04-10 21:07 J | -2593540.69 | -2593540.62 | -2593540.54 | 0.1650 | 0.1249 |
| Mercury | -11812-03-15 23:02 J | -2592835.65 | -2592835.54 | -2592835.44 | 0.1639 | 0.0561 |
| Venus | -11806-07-19 13:55 J | -2590519.07 | -2590518.92 | -2590518.77 | 0.1759 | 0.0878 |
| Mercury | -11806-10-30 06:00 J | -2590416.42 | -2590416.25 | -2590416.08 | 0.1881 | 0.0320 |
| Venus | -11804-05-17 15:21 J | -2589850.96 | -2589850.86 | -2589850.77 | 0.1735 | 0.1425 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -11803-08-06 10:33 J | -2589405.18 | -2589405.06 | -2589404.95 | 0.1641 | 0.0128 |
| Venus | -11800-12-31 18:28 J | -2588161.89 | -2588161.73 | -2588161.57 | 0.1779 | 0.0675 |
| Mercury | -11796-03-20 22:19 J | -2586986.71 | -2586986.57 | -2586986.43 | 0.1877 | 0.1076 |
| Mercury | -11794-12-27 22:04 J | -2585974.69 | -2585974.58 | -2585974.46 | 0.1644 | 0.0310 |
| Moon | -11792-04-21 19:40 J | -2585493.86 | -2585493.68 | -2585493.50 | 0.1874 | 0.0477 |
| Earth | -11792-04-21 21:35 J | -2585493.80 | -2585493.60 | -2585493.41 | 0.1874 | 0.0478 * |
| Mercury | -11792-12-01 23:31 J | -2585269.56 | -2585269.52 | -2585269.47 | 0.1634 | 0.1472 |
| Mercury | -11784-05-19 09:35 J | -2582544.20 | -2582544.10 | -2582544.00 | 0.1647 | 0.0751 |
| Mercury | -11782-04-24 11:16 J | -2581839.12 | -2581839.03 | -2581838.94 | 0.1636 | 0.1046 |
| Mercury | -11776-12-08 15:21 J | -2579418.86 | -2579418.86 | -2579418.86 | 0.1885 | 0.1884 |
| Mercury | -11775-10-09 21:07 J | -2579113.70 | -2579113.62 | -2579113.54 | 0.1650 | 0.1194 |
| Mercury | -11773-09-13 22:48 J | -2578408.65 | -2578408.55 | -2578408.44 | 0.1638 | 0.0615 |
| Venus | -11772-05-16 18:00 J | -2578163.92 | -2578163.75 | -2578163.58 | 0.1745 | 0.0381 |
| Venus | -11768-12-31 04:04 J | -2576474.50 | -2576474.33 | -2576474.17 | 0.1768 | 0.0539 |
| Mercury | -11766-04-30 07:11 J | -2575989.36 | -2575989.20 | -2575989.03 | 0.1881 | 0.0463 |
| Mercury | -11765-03-01 08:38 J | -2575683.15 | -2575683.14 | -2575683.13 | 0.1654 | 0.1640 |
| Mercury | -11763-02-04 10:33 J | -2574978.18 | -2574978.06 | -2574977.95 | 0.1641 | 0.0187 |
| Mercury | -11757-09-18 23:02 J | -2572559.68 | -2572559.54 | -2572559.39 | 0.1876 | 0.0962 |
| Mercury | -11754-06-27 22:04 J | -2571547.69 | -2571547.58 | -2571547.47 | 0.1644 | 0.0256 |
| Mercury | -11752-06-01 23:31 J | -2570842.56 | -2570842.52 | -2570842.48 | 0.1634 | 0.1525 |
| Earth | -11752-10-15 09:50 J | -2570707.25 | -2570707.09 | -2570706.93 | 0.1644 | 0.0836 |
| Moon | -11752-10-15 16:04 J | -2570706.98 | -2570706.83 | -2570706.67 | 0.1644 | 0.0912 * |
| Mercury | -11745-11-17 09:35 J | -2568117.20 | -2568117.10 | -2568116.99 | 0.1647 | 0.0694 |
| Mercury | -11743-10-23 11:16 J | -2567412.12 | -2567412.03 | -2567411.95 | 0.1636 | 0.1098 |
| Venus | -11740-05-15 23:02 J | -2566476.70 | -2566476.54 | -2566476.39 | 0.1756 | 0.0731 |
| Venus | -11738-03-15 00:28 J | -2565808.55 | -2565808.48 | -2565808.40 | 0.1732 | 0.1554 |
| Venus | -11736-12-30 12:57 J | -2564787.00 | -2564786.96 | -2564786.93 | 0.1757 | 0.1705 |
| Mercury | -11735-04-09 21:07 J | -2564686.70 | -2564686.62 | -2564686.54 | 0.1650 | 0.1136 |
| Venus | -11734-10-29 01:26 J | -2564119.59 | -2564119.44 | -2564119.28 | 0.1782 | 0.0853 |
| Mercury | -11733-03-14 22:48 J | -2563981.65 | -2563981.55 | -2563981.44 | 0.1638 | 0.0671 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -11727-10-29 08:09 J | -2561562.32 | -2561562.16 | -2561561.99 | 0.1881 | 0.0588 |
| Mercury | -11726-08-31 08:38 J | -2561256.17 | -2561256.14 | -2561256.11 | 0.1654 | 0.1587 |
| Mercury | -11724-08-05 10:33 J | -2560551.18 | -2560551.06 | -2560550.95 | 0.1641 | 0.0242 |
| Mercury | -11717-03-20 00:14 J | -2558132.65 | -2558132.49 | -2558132.34 | 0.1877 | 0.0830 |
| Mercury | -11715-12-26 22:04 J | -2557120.70 | -2557120.58 | -2557120.47 | 0.1644 | 0.0203 |
| Mercury | -11713-11-30 23:31 J | -2556415.54 | -2556415.52 | -2556415.49 | 0.1633 | 0.1578 |
| Venus | -11706-03-14 03:21 J | -2554121.53 | -2554121.36 | -2554121.20 | 0.1742 | 0.0514 |
| Mercury | -11705-05-18 09:35 J | -2553690.21 | -2553690.10 | -2553690.00 | 0.1647 | 0.0640 |
| Mercury | -11703-04-23 11:02 J | -2552985.12 | -2552985.04 | -2552984.96 | 0.1636 | 0.1153 |
| Venus | -11702-10-28 12:00 J | -2552432.17 | -2552432.00 | -2552431.83 | 0.1771 | 0.0381 |
| Mercury | -11696-10-08 21:07 J | -2550259.71 | -2550259.62 | -2550259.54 | 0.1650 | 0.1085 |
| Mercury | -11694-09-13 22:48 J | -2549554.65 | -2549554.55 | -2549554.45 | 0.1638 | 0.0721 |
| Mercury | -11687-04-29 08:52 J | -2547135.29 | -2547135.13 | -2547134.97 | 0.1881 | 0.0702 |
| Mercury | -11686-03-01 08:38 J | -2546829.18 | -2546829.14 | -2546829.10 | 0.1653 | 0.1527 |
| Mercury | -11684-02-03 10:19 J | -2546124.18 | -2546124.07 | -2546123.95 | 0.1641 | 0.0293 |
| Mercury | -11678-09-19 00:57 J | -2543705.62 | -2543705.46 | -2543705.30 | 0.1877 | 0.0707 |
| Mercury | -11675-06-26 22:04 J | -2542693.70 | -2542693.58 | -2542693.47 | 0.1644 | 0.0146 |
| Venus | -11674-03-13 07:26 J | -2542434.36 | -2542434.19 | -2542434.03 | 0.1752 | 0.0579 |
| Mercury | -11673-05-31 23:31 J | -2541988.52 | -2541988.52 | -2541988.52 | 0.1634 | 0.1633 |
| Earth | -11673-10-17 12:43 J | -2541850.15 | -2541849.97 | -2541849.79 | 0.1646 | 0.0444 |
| Moon | -11673-10-17 15:21 J | -2541850.03 | -2541849.86 | -2541849.70 | 0.1646 | 0.0643 * |
| Venus | -11672-01-09 10:04 J | -2541766.11 | -2541766.08 | -2541766.04 | 0.1728 | 0.1677 |
| Venus | -11670-10-27 20:38 J | -2540744.72 | -2540744.64 | -2540744.56 | 0.1760 | 0.1555 |
| Venus | -11668-08-25 08:24 J | -2540077.30 | -2540077.15 | -2540077.01 | 0.1786 | 0.1035 |
| Mercury | -11666-11-17 09:35 J | -2539263.21 | -2539263.10 | -2539263.00 | 0.1647 | 0.0587 |
| Mercury | -11664-10-22 11:02 J | -2538558.11 | -2538558.04 | -2538557.96 | 0.1636 | 0.1208 |
| Mercury | -11656-04-08 21:07 J | -2535832.71 | -2535832.62 | -2535832.53 | 0.1650 | 0.1029 |
| Mercury | -11654-03-14 22:48 J | -2535127.65 | -2535127.55 | -2535127.45 | 0.1638 | 0.0777 |
| Mercury | -11648-10-28 09:50 J | -2532708.24 | -2532708.09 | -2532707.93 | 0.1881 | 0.0833 |
| Mercury | -11647-08-30 08:24 J | -2532402.19 | -2532402.15 | -2532402.10 | 0.1653 | 0.1476 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -11645-08-04 10:19 J | -2531697.18 | -2531697.07 | -2531696.96 | 0.1641 | 0.0345 |
| Venus | -11642-03-12 12:28 J | -2530747.02 | -2530746.98 | -2530746.94 | 0.1763 | 0.1706 |
| Venus | -11640-01-08 12:14 J | -2530079.15 | -2530078.99 | -2530078.83 | 0.1738 | 0.0652 |
| Mercury | -11638-03-20 01:55 J | -2529278.58 | -2529278.42 | -2529278.26 | 0.1877 | 0.0584 |
| Venus | -11636-08-24 18:57 J | -2528389.88 | -2528389.71 | -2528389.53 | 0.1775 | 0.0216 |
| Mercury | -11636-12-25 21:50 J | -2528266.70 | -2528266.59 | -2528266.47 | 0.1644 | 0.0105 |
| Mercury | -11626-05-18 09:35 J | -2524836.21 | -2524836.10 | -2524835.99 | 0.1647 | 0.0531 |
| Mercury | -11624-04-22 11:02 J | -2524131.11 | -2524131.04 | -2524130.97 | 0.1636 | 0.1260 |
| Mercury | -11617-10-07 21:07 J | -2521405.72 | -2521405.62 | -2521405.53 | 0.1650 | 0.0973 |
| Mercury | -11615-09-12 22:48 J | -2520700.65 | -2520700.55 | -2520700.45 | 0.1638 | 0.0833 |
| Venus | -11608-01-07 16:19 J | -2518391.98 | -2518391.82 | -2518391.65 | 0.1749 | 0.0434 |
| Mercury | -11608-04-28 11:02 J | -2518281.18 | -2518281.04 | -2518280.89 | 0.1881 | 0.0971 |
| Mercury | -11607-02-28 08:24 J | -2517975.20 | -2517975.15 | -2517975.09 | 0.1653 | 0.1419 |
| Mercury | -11605-02-03 10:19 J | -2517270.18 | -2517270.07 | -2517269.96 | 0.1641 | 0.0400 |
| Venus | -11604-08-24 04:19 J | -2516702.42 | -2516702.32 | -2516702.21 | 0.1764 | 0.1405 |
| Venus | -11602-06-22 14:38 J | -2516035.02 | -2516034.89 | -2516034.76 | 0.1790 | 0.1227 |
| Mercury | -11599-09-18 02:38 J | -2514851.55 | -2514851.39 | -2514851.22 | 0.1877 | 0.0466 |
| Mercury | -11596-06-25 21:50 J | -2513839.70 | -2513839.59 | -2513839.47 | 0.1644 | 0.0044 |
| Moon | -11594-10-20 11:16 J | -2512993.11 | -2512993.03 | -2512992.96 | 0.1648 | 0.1488 |
| Mercury | -11589-02-07 18:57 J | -2511421.73 | -2511421.71 | -2511421.68 | 0.1872 | 0.1852 |
| Mercury | -11587-11-16 09:21 J | -2510409.22 | -2510409.11 | -2510409.00 | 0.1647 | 0.0478 |
| Mercury | -11585-10-21 11:02 J | -2509704.11 | -2509704.04 | -2509703.97 | 0.1636 | 0.1313 |
| Mercury | -11577-04-07 20:52 J | -2506978.72 | -2506978.63 | -2506978.53 | 0.1650 | 0.0918 |
| Venus | -11576-01-06 21:07 J | -2506704.70 | -2506704.62 | -2506704.54 | 0.1760 | 0.1552 |
| Mercury | -11575-03-13 22:33 J | -2506273.65 | -2506273.56 | -2506273.46 | 0.1638 | 0.0889 |
| Venus | -11575-11-05 21:50 J | -2506036.74 | -2506036.59 | -2506036.43 | 0.1735 | 0.0778 |
| Venus | -11570-06-22 02:24 J | -2504347.57 | -2504347.40 | -2504347.22 | 0.1778 | 0.0053 |
| Mercury | -11569-10-27 11:31 J | -2503854.16 | -2503854.02 | -2503853.88 | 0.1881 | 0.1067 |
| Mercury | -11568-08-29 08:24 J | -2503548.21 | -2503548.15 | -2503548.09 | 0.1653 | 0.1363 |
| Mercury | -11566-08-04 10:19 J | -2502843.18 | -2502843.07 | -2502842.96 | 0.1641 | 0.0455 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -11559-03-19 03:50 J | -2500424.51 | -2500424.34 | -2500424.17 | 0.1877 | 0.0328 |
| Mercury | -11557-12-24 21:50 J | -2499412.70 | -2499412.59 | -2499412.47 | 0.1644 | 0.0044 |
| Mercury | -11550-08-08 19:55 J | -2496994.73 | -2496994.67 | -2496994.61 | 0.1872 | 0.1729 |
| Mercury | -11547-05-17 09:21 J | -2495982.22 | -2495982.11 | -2495982.00 | 0.1647 | 0.0421 |
| Mercury | -11545-04-21 11:02 J | -2495277.10 | -2495277.04 | -2495276.98 | 0.1636 | 0.1370 |
| Venus | -11543-11-05 01:11 J | -2494349.63 | -2494349.45 | -2494349.28 | 0.1746 | 0.0291 |
| Venus | -11538-06-21 11:45 J | -2492660.13 | -2492660.01 | -2492659.88 | 0.1767 | 0.1245 |
| Mercury | -11538-10-07 20:52 J | -2492551.73 | -2492551.63 | -2492551.53 | 0.1650 | 0.0864 |
| Venus | -11536-04-18 21:35 J | -2491992.71 | -2491992.60 | -2491992.49 | 0.1793 | 0.1409 |
| Mercury | -11536-09-11 22:33 J | -2491846.65 | -2491846.56 | -2491846.46 | 0.1638 | 0.0939 |
| Mercury | -11529-04-27 12:43 J | -2489427.10 | -2489426.97 | -2489426.84 | 0.1882 | 0.1213 |
| Mercury | -11528-02-27 08:24 J | -2489121.22 | -2489121.15 | -2489121.08 | 0.1653 | 0.1308 |
| Mercury | -11526-02-02 10:19 J | -2488416.18 | -2488416.07 | -2488415.97 | 0.1641 | 0.0511 |
| Mercury | -11520-09-17 04:33 J | -2485997.48 | -2485997.31 | -2485997.14 | 0.1877 | 0.0216 |
| Mercury | -11517-06-24 21:50 J | -2484985.71 | -2484985.59 | -2484985.48 | 0.1644 | 0.0074 |
| Venus | -11511-11-04 05:16 J | -2482662.39 | -2482662.28 | -2482662.18 | 0.1756 | 0.1392 |
| Mercury | -11510-02-06 20:38 J | -2482567.72 | -2482567.64 | -2482567.56 | 0.1873 | 0.1616 |
| Venus | -11509-09-02 06:57 J | -2481994.35 | -2481994.21 | -2481994.06 | 0.1732 | 0.0914 |
| Earth | -11508-04-21 05:45 J | -2481763.46 | -2481763.26 | -2481763.06 | 0.1880 | 0.0375 |
| Moon | -11508-04-21 13:55 J | -2481763.13 | -2481762.92 | -2481762.71 | 0.1880 | 0.0363 * |
| Mercury | -11508-11-15 09:21 J | -2481555.22 | -2481555.11 | -2481555.00 | 0.1647 | 0.0364 |
| Mercury | -11506-10-21 11:02 J | -2480850.10 | -2480850.04 | -2480849.99 | 0.1636 | 0.1422 |
| Venus | -11504-04-18 09:21 J | -2480305.28 | -2480305.11 | -2480304.93 | 0.1782 | 0.0130 |
| Mercury | -11498-04-07 20:52 J | -2478124.73 | -2478124.63 | -2478124.53 | 0.1650 | 0.0805 |
| Mercury | -11496-03-12 22:33 J | -2477419.65 | -2477419.56 | -2477419.47 | 0.1638 | 0.0996 |
| Mercury | -11490-10-27 13:40 J | -2475000.05 | -2474999.93 | -2474999.81 | 0.1882 | 0.1338 |
| Mercury | -11489-08-28 08:24 J | -2474694.23 | -2474694.15 | -2474694.08 | 0.1653 | 0.1254 |
| Mercury | -11487-08-03 10:04 J | -2473989.18 | -2473989.08 | -2473988.97 | 0.1641 | 0.0567 |
| Mercury | -11480-03-18 05:45 J | -2471570.44 | -2471570.26 | -2471570.09 | 0.1877 | 0.0097 |
| Mercury | -11478-12-24 21:50 J | -2470558.71 | -2470558.59 | -2470558.48 | 0.1643 | 0.0133 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Venus | -11477-09-01 09:50 J | -2470307.26 | -2470307.09 | -2470306.92 | 0.1742 | 0.0138 |
| Venus | -11472-04-17 19:26 J | -2468617.83 | -2468617.69 | -2468617.56 | 0.1771 | 0.1088 |
| Mercury | -11471-08-07 21:35 J | -2468140.70 | -2468140.60 | -2468140.49 | 0.1873 | 0.1485 |
| Venus | -11470-02-14 03:50 J | -2467950.41 | -2467950.34 | -2467950.26 | 0.1797 | 0.1602 |
| Mercury | -11468-05-16 09:21 J | -2467128.22 | -2467128.11 | -2467128.00 | 0.1647 | 0.0311 |
| Moon | -11468-10-16 11:02 J | -2466975.23 | -2466975.04 | -2466974.86 | 0.1641 | 0.0607 |
| Earth | -11468-10-16 13:40 J | -2466975.11 | -2466974.93 | -2466974.74 | 0.1641 | 0.0412 * |
| Mercury | -11466-04-21 10:48 J | -2466423.09 | -2466423.05 | -2466423.00 | 0.1636 | 0.1476 |
| Mercury | -11459-10-06 20:52 J | -2463697.73 | -2463697.63 | -2463697.53 | 0.1650 | 0.0754 |
| Mercury | -11457-09-10 22:33 J | -2462992.65 | -2462992.56 | -2462992.47 | 0.1638 | 0.1048 |
| Mercury | -11450-04-27 14:24 J | -2460573.01 | -2460572.90 | -2460572.79 | 0.1882 | 0.1451 |
| Mercury | -11449-02-27 08:24 J | -2460267.23 | -2460267.15 | -2460267.07 | 0.1653 | 0.1194 |
| Mercury | -11447-02-01 10:04 J | -2459562.18 | -2459562.08 | -2459561.97 | 0.1641 | 0.0619 |
| Venus | -11445-08-31 14:09 J | -2458620.04 | -2458619.91 | -2458619.79 | 0.1753 | 0.1241 |
| Venus | -11443-06-30 16:33 J | -2457951.94 | -2457951.81 | -2457951.67 | 0.1729 | 0.1040 |
| Mercury | -11441-09-16 06:28 J | -2457143.40 | -2457143.23 | -2457143.05 | 0.1878 | 0.0066 |
| Mercury | -11440-07-19 19:40 J | -2456836.69 | -2456836.68 | -2456836.67 | 0.1657 | 0.1647 |
| Venus | -11438-02-13 16:33 J | -2456262.99 | -2456262.81 | -2456262.64 | 0.1785 | 0.0304 |
| Mercury | -11438-06-24 21:50 J | -2456131.71 | -2456131.59 | -2456131.48 | 0.1643 | 0.0190 |
| Mercury | -11431-02-05 22:33 J | -2453713.67 | -2453713.56 | -2453713.44 | 0.1873 | 0.1360 |
| Mercury | -11429-11-14 09:21 J | -2452701.23 | -2452701.11 | -2452701.00 | 0.1647 | 0.0259 |
| Mercury | -11427-10-20 10:48 J | -2451996.08 | -2451996.05 | -2451996.01 | 0.1635 | 0.1531 |
| Mercury | -11419-04-06 20:52 J | -2449270.74 | -2449270.63 | -2449270.53 | 0.1650 | 0.0698 |
| Mercury | -11417-03-11 22:33 J | -2448565.65 | -2448565.56 | -2448565.48 | 0.1638 | 0.1102 |
| Venus | -11411-06-29 18:57 J | -2446264.88 | -2446264.71 | -2446264.54 | 0.1739 | 0.0013 |
| Mercury | -11411-10-26 15:21 J | -2446145.95 | -2446145.86 | -2446145.76 | 0.1882 | 0.1582 |
| Mercury | -11410-08-28 08:09 J | -2445840.24 | -2445840.16 | -2445840.07 | 0.1653 | 0.1145 |
| Mercury | -11408-08-02 10:04 J | -2445135.18 | -2445135.08 | -2445134.98 | 0.1641 | 0.0671 |
| Venus | -11406-02-13 02:52 J | -2444575.53 | -2444575.38 | -2444575.23 | 0.1774 | 0.0928 |
| Venus | -11405-12-11 10:48 J | -2443908.07 | -2443908.05 | -2443908.04 | 0.1800 | 0.1790 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -11401-03-17 07:26 J | -2442716.36 | -2442716.19 | -2442716.02 | 0.1877 | 0.0162 |
| Mercury | -11400-01-17 19:40 J | -2442409.71 | -2442409.68 | -2442409.65 | 0.1657 | 0.1591 |
| Mercury | -11399-12-23 21:35 J | -2441704.71 | -2441704.60 | -2441704.48 | 0.1644 | 0.0245 |
| Mercury | -11392-08-06 23:16 J | -2439286.65 | -2439286.53 | -2439286.40 | 0.1873 | 0.1247 |
| Mercury | -11389-05-15 09:21 J | -2438274.23 | -2438274.11 | -2438274.00 | 0.1647 | 0.0205 |
| Earth | -11389-10-18 16:19 J | -2438117.98 | -2438117.82 | -2438117.66 | 0.1643 | 0.0858 |
| Moon | -11389-10-18 20:52 J | -2438117.78 | -2438117.63 | -2438117.49 | 0.1643 | 0.1101 * |
| Mercury | -11387-04-20 10:48 J | -2437569.07 | -2437569.05 | -2437569.02 | 0.1636 | 0.1584 |
| Mercury | -11380-10-05 20:52 J | -2434843.74 | -2434843.63 | -2434843.53 | 0.1650 | 0.0643 |
| Venus | -11379-06-28 22:33 J | -2434577.69 | -2434577.56 | -2434577.42 | 0.1749 | 0.1089 |
| Mercury | -11378-09-10 22:33 J | -2434138.64 | -2434138.56 | -2434138.48 | 0.1638 | 0.1158 |
| Venus | -11377-04-27 02:24 J | -2433909.53 | -2433909.40 | -2433909.27 | 0.1726 | 0.1166 |
| Venus | -11373-12-10 23:02 J | -2432220.70 | -2432220.54 | -2432220.37 | 0.1789 | 0.0487 |
| Mercury | -11371-04-26 16:33 J | -2431718.88 | -2431718.81 | -2431718.74 | 0.1882 | 0.1716 |
| Mercury | -11370-02-26 08:09 J | -2431413.24 | -2431413.16 | -2431413.07 | 0.1653 | 0.1088 |
| Mercury | -11368-01-31 10:04 J | -2430708.18 | -2430708.08 | -2430707.98 | 0.1640 | 0.0726 |
| Mercury | -11362-09-16 08:24 J | -2428289.32 | -2428289.15 | -2428288.98 | 0.1878 | 0.0289 |
| Mercury | -11361-07-18 19:40 J | -2427982.72 | -2427982.68 | -2427982.64 | 0.1656 | 0.1536 |
| Mercury | -11359-06-23 21:35 J | -2427277.71 | -2427277.60 | -2427277.49 | 0.1643 | 0.0293 |
| Mercury | -11352-02-05 00:28 J | -2424859.61 | -2424859.48 | -2424859.34 | 0.1873 | 0.1111 |
| Mercury | -11350-11-14 09:07 J | -2423847.23 | -2423847.12 | -2423847.00 | 0.1646 | 0.0154 |
| Venus | -11345-04-26 04:04 J | -2422222.50 | -2422222.33 | -2422222.16 | 0.1736 | 0.0142 |
| Venus | -11341-12-10 10:04 J | -2420533.24 | -2420533.08 | -2420532.93 | 0.1778 | 0.0762 |
| Mercury | -11340-04-05 20:38 J | -2420416.74 | -2420416.64 | -2420416.53 | 0.1650 | 0.0587 |
| Mercury | -11338-03-11 22:19 J | -2419711.64 | -2419711.57 | -2419711.49 | 0.1638 | 0.1211 |
| Mercury | -11332-10-25 17:02 J | -2417291.83 | -2417291.79 | -2417291.75 | 0.1882 | 0.1816 |
| Mercury | -11331-08-27 08:09 J | -2416986.24 | -2416986.16 | -2416986.07 | 0.1653 | 0.1031 |
| Mercury | -11329-08-01 10:04 J | -2416281.18 | -2416281.08 | -2416280.98 | 0.1641 | 0.0782 |
| Mercury | -11322-03-17 09:35 J | -2413862.27 | -2413862.10 | -2413861.94 | 0.1878 | 0.0426 |
| Mercury | -11321-01-17 19:40 J | -2413555.73 | -2413555.68 | -2413555.63 | 0.1656 | 0.1479 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -11320-12-22 21:35 J | -2412850.71 | -2412850.60 | -2412850.49 | 0.1643 | 0.0353 |
| Venus | -11313-04-25 07:55 J | -2410535.31 | -2410535.17 | -2410535.03 | 0.1746 | 0.0946 |
| Mercury | -11313-08-06 01:26 J | -2410432.59 | -2410432.44 | -2410432.30 | 0.1873 | 0.0990 |
| Venus | -11311-02-22 12:00 J | -2409867.12 | -2409867.00 | -2409866.89 | 0.1723 | 0.1292 |
| Mercury | -11310-05-15 09:07 J | -2409420.23 | -2409420.12 | -2409420.00 | 0.1646 | 0.0091 |
| Venus | -11307-10-08 05:45 J | -2408178.42 | -2408178.26 | -2408178.10 | 0.1793 | 0.0671 |
| Mercury | -11301-10-04 20:38 J | -2405989.75 | -2405989.64 | -2405989.53 | 0.1650 | 0.0533 |
| Mercury | -11299-09-09 22:19 J | -2405284.64 | -2405284.57 | -2405284.50 | 0.1638 | 0.1263 |
| Mercury | -11291-02-25 08:09 J | -2402559.25 | -2402559.16 | -2402559.07 | 0.1653 | 0.0976 |
| Mercury | -11289-01-31 09:50 J | -2401854.18 | -2401854.09 | -2401853.99 | 0.1640 | 0.0838 |
| Mercury | -11283-09-15 10:04 J | -2399435.25 | -2399435.08 | -2399434.92 | 0.1878 | 0.0529 |
| Mercury | -11282-07-18 19:40 J | -2399128.74 | -2399128.68 | -2399128.63 | 0.1656 | 0.1425 |
| Mercury | -11280-06-22 21:35 J | -2398423.71 | -2398423.60 | -2398423.49 | 0.1643 | 0.0402 |
| Venus | -11279-02-21 13:40 J | -2398180.10 | -2398179.93 | -2398179.76 | 0.1733 | 0.0270 |
| Venus | -11275-10-07 17:31 J | -2396490.93 | -2396490.77 | -2396490.60 | 0.1781 | 0.0598 |
| Mercury | -11273-02-05 02:09 J | -2396005.56 | -2396005.41 | -2396005.26 | 0.1873 | 0.0874 |
| Mercury | -11271-11-13 09:07 J | -2394993.23 | -2394993.12 | -2394993.01 | 0.1646 | 0.0035 |
| Earth | -11263-10-15 15:21 J | -2392099.98 | -2392099.86 | -2392099.74 | 0.1636 | 0.1236 |
| Moon | -11263-10-15 17:45 J | -2392099.89 | -2392099.76 | -2392099.63 | 0.1636 | 0.1075 * |
| Mercury | -11261-04-04 20:38 J | -2391562.75 | -2391562.64 | -2391562.53 | 0.1649 | 0.0475 |
| Mercury | -11259-03-10 22:19 J | -2390857.63 | -2390857.57 | -2390857.50 | 0.1638 | 0.1321 |
| Mercury | -11252-08-26 08:09 J | -2388132.26 | -2388132.16 | -2388132.07 | 0.1653 | 0.0922 |
| Mercury | -11250-08-01 09:50 J | -2387427.18 | -2387427.09 | -2387426.99 | 0.1640 | 0.0891 |
| Venus | -11247-02-20 16:33 J | -2386492.96 | -2386492.81 | -2386492.65 | 0.1743 | 0.0800 |
| Venus | -11246-12-20 21:50 J | -2385824.68 | -2385824.59 | -2385824.49 | 0.1720 | 0.1411 |
| Mercury | -11243-03-16 11:02 J | -2385008.20 | -2385008.04 | -2385007.87 | 0.1878 | 0.0665 |
| Mercury | -11242-01-16 19:26 J | -2384701.75 | -2384701.69 | -2384701.62 | 0.1656 | 0.1371 |
| Venus | -11241-08-04 12:00 J | -2384136.15 | -2384136.00 | -2384135.84 | 0.1796 | 0.0864 |
| Mercury | -11241-12-21 21:35 J | -2383996.71 | -2383996.60 | -2383996.49 | 0.1643 | 0.0458 |
| Mercury | -11234-08-06 03:07 J | -2381578.52 | -2381578.37 | -2381578.21 | 0.1873 | 0.0745 |

Mercury -11231-05-14 09:07 J -2380566.24 -2380566.12 -2380566.01 0.1646 0.0030

Moon -11224-04-20 03:07 J -2378033.42 -2378033.37 -2378033.31 0.1886 0.1810

Earth -11224-04-20 12:14 J -2378033.13 -2378032.99 -2378032.84 0.1886 0.1298

Mercury -11222-10-04 20:38 J -2377135.75 -2377135.64 -2377135.53 0.1650 0.0423

Mercury -11220-09-08 22:19 J -2376430.63 -2376430.57 -2376430.51 0.1638 0.1372

Venus -11214-12-19 23:02 J -2374137.71 -2374137.54 -2374137.37 0.1729 0.0403

Mercury -11212-02-24 08:09 J -2373705.26 -2373705.16 -2373705.06 0.1653 0.0863

Mercury -11210-01-30 09:50 J -2373000.18 -2373000.09 -2373000.00 0.1640 0.0944

Venus -11209-08-04 00:14 J -2372448.66 -2372448.49 -2372448.32 0.1785 0.0420

Mercury -11204-09-14 12:14 J -2370581.15 -2370580.99 -2370580.84 0.1878 0.0792

Mercury -11203-07-17 19:26 J -2370274.75 -2370274.69 -2370274.62 0.1656 0.1315

Mercury -11201-06-21 21:35 J -2369569.71 -2369569.60 -2369569.49 0.1643 0.0514

Mercury -11194-02-04 04:04 J -2367151.49 -2367151.33 -2367151.16 0.1873 0.0619

Mercury -11192-11-12 09:07 J -2366139.24 -2366139.12 -2366139.01 0.1646 0.0096

Moon -11184-10-17 13:11 J -2363243.12 -2363242.95 -2363242.77 0.1638 0.0193

Earth -11184-10-17 18:14 J -2363242.93 -2363242.74 -2363242.55 0.1638 0.0026 *

Mercury -11182-04-04 20:38 J -2362708.75 -2362708.64 -2362708.53 0.1649 0.0369

Venus -11182-12-19 02:09 J -2362450.57 -2362450.41 -2362450.25 0.1740 0.0660

Mercury -11180-03-09 22:19 J -2362003.63 -2362003.57 -2362003.52 0.1638 0.1426

Venus -11180-10-17 07:40 J -2361782.26 -2361782.18 -2361782.11 0.1717 0.1533

Venus -11177-08-03 10:48 J -2360761.11 -2360761.05 -2360760.99 0.1773 0.1644

Venus -11175-06-01 18:14 J -2360093.88 -2360093.74 -2360093.60 0.1800 0.1063

Mercury -11173-08-25 07:55 J -2359278.26 -2359278.17 -2359278.07 0.1653 0.0815

Mercury -11171-07-31 09:50 J -2358573.18 -2358573.09 -2358573.00 0.1640 0.0996

Mercury -11164-03-15 12:57 J -2356154.11 -2356153.96 -2356153.81 0.1878 0.0906

Mercury -11163-01-15 19:26 J -2355847.76 -2355847.69 -2355847.61 0.1656 0.1258

Mercury -11162-12-21 21:21 J -2355142.71 -2355142.61 -2355142.50 0.1643 0.0567

Mercury -11155-08-05 05:02 J -2352724.46 -2352724.29 -2352724.13 0.1874 0.0504

Mercury -11152-05-13 09:07 J -2351712.24 -2351712.12 -2351712.01 0.1646 0.0142

Venus -11148-10-16 08:52 J -2350095.29 -2350095.13 -2350094.96 0.1726 0.0528

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Venus | -11143-06-01 07:26 J | -2348406.37 | -2348406.19 | -2348406.02 | 0.1788 | 0.0249 |
| Mercury | -11143-10-03 20:24 J | -2348281.76 | -2348281.65 | -2348281.53 | 0.1649 | 0.0317 |
| Mercury | -11141-09-07 22:19 J | -2347576.62 | -2347576.57 | -2347576.53 | 0.1638 | 0.1482 |
| Mercury | -11133-02-24 07:55 J | -2344851.27 | -2344851.17 | -2344851.06 | 0.1653 | 0.0758 |
| Mercury | -11131-01-29 09:50 J | -2344146.18 | -2344146.09 | -2344146.00 | 0.1640 | 0.1051 |
| Mercury | -11125-09-13 13:55 J | -2341727.07 | -2341726.92 | -2341726.78 | 0.1878 | 0.1032 |
| Mercury | -11124-07-16 19:26 J | -2341420.77 | -2341420.69 | -2341420.61 | 0.1656 | 0.1203 |
| Mercury | -11122-06-21 21:21 J | -2340715.71 | -2340715.61 | -2340715.50 | 0.1643 | 0.0620 |
| Venus | -11116-10-15 11:02 J | -2338408.20 | -2338408.04 | -2338407.87 | 0.1736 | 0.0519 |
| Mercury | -11115-02-03 06:00 J | -2338297.42 | -2338297.25 | -2338297.08 | 0.1874 | 0.0371 |
| Mercury | -11115-12-07 06:57 J | -2337990.22 | -2337990.21 | -2337990.21 | 0.1660 | 0.1656 |
| Venus | -11114-08-14 17:31 J | -2337739.81 | -2337739.77 | -2337739.72 | 0.1713 | 0.1648 |
| Mercury | -11113-11-11 08:52 J | -2337285.24 | -2337285.13 | -2337285.01 | 0.1646 | 0.0183 |
| Venus | -11111-05-31 18:00 J | -2336718.85 | -2336718.75 | -2336718.66 | 0.1777 | 0.1480 |
| Venus | -11109-03-29 00:43 J | -2336051.59 | -2336051.47 | -2336051.34 | 0.1803 | 0.1255 |
| Mercury | -11106-06-25 22:04 J | -2334867.64 | -2334867.58 | -2334867.53 | 0.1868 | 0.1769 |
| Moon | -11105-10-19 14:52 J | -2334385.98 | -2334385.88 | -2334385.79 | 0.1639 | 0.1419 |
| Earth | -11105-10-19 20:24 J | -2334385.76 | -2334385.65 | -2334385.53 | 0.1640 | 0.1273 |
| Mercury | -11103-04-03 20:24 J | -2333854.76 | -2333854.65 | -2333854.53 | 0.1649 | 0.0260 |
| Mercury | -11101-03-08 22:04 J | -2333149.61 | -2333149.58 | -2333149.54 | 0.1638 | 0.1533 |
| Mercury | -11094-08-25 07:55 J | -2330424.27 | -2330424.17 | -2330424.06 | 0.1653 | 0.0700 |
| Mercury | -11092-07-30 09:50 J | -2329719.18 | -2329719.09 | -2329719.01 | 0.1640 | 0.1107 |
| Mercury | -11085-03-14 15:07 J | -2327300.01 | -2327299.87 | -2327299.74 | 0.1879 | 0.1170 |
| Mercury | -11084-01-14 19:26 J | -2326993.77 | -2326993.69 | -2326993.61 | 0.1656 | 0.1148 |
| Venus | -11084-10-14 14:09 J | -2326720.98 | -2326720.91 | -2326720.84 | 0.1747 | 0.1596 |
| Mercury | -11083-12-20 21:21 J | -2326288.71 | -2326288.61 | -2326288.50 | 0.1643 | 0.0676 |
| Venus | -11082-08-13 18:14 J | -2326052.90 | -2326052.74 | -2326052.58 | 0.1723 | 0.0658 |
| Venus | -11077-03-28 13:55 J | -2324364.10 | -2324363.92 | -2324363.75 | 0.1792 | 0.0065 |
| Mercury | -11076-08-04 06:57 J | -2323870.39 | -2323870.21 | -2323870.04 | 0.1874 | 0.0257 |
| Mercury | -11075-06-07 06:43 J | -2323563.24 | -2323563.22 | -2323563.19 | 0.1660 | 0.1601 |

Mercury -11073-05-12 08:52 J -2322858.24 -2322858.13 -2322858.02 0.1646 0.0237

Mercury -11067-12-24 23:02 J -2320440.62 -2320440.54 -2320440.46 0.1869 0.1638

Mercury -11064-10-02 20:24 J -2319427.76 -2319427.65 -2319427.54 0.1649 0.0203

Mercury -11062-09-07 22:04 J -2318722.61 -2318722.58 -2318722.56 0.1637 0.1586

Mercury -11054-02-23 07:55 J -2315997.27 -2315997.17 -2315997.06 0.1653 0.0646

Mercury -11052-01-28 09:35 J -2315292.17 -2315292.10 -2315292.02 0.1640 0.1161

Venus -11050-08-12 20:09 J -2314365.83 -2314365.66 -2314365.50 0.1733 0.0375

Mercury -11046-09-13 15:35 J -2312872.98 -2312872.85 -2312872.73 0.1878 0.1270

Venus -11045-03-28 00:57 J -2312676.57 -2312676.46 -2312676.34 0.1781 0.1315

Mercury -11045-07-15 19:26 J -2312566.78 -2312566.69 -2312566.61 0.1656 0.1094

Venus -11043-01-24 06:28 J -2312009.33 -2312009.23 -2312009.13 0.1807 0.1460

Mercury -11043-06-20 21:21 J -2311861.71 -2311861.61 -2311861.51 0.1643 0.0728

Mercury -11036-02-02 07:40 J -2309443.35 -2309443.18 -2309443.01 0.1874 0.0132

Mercury -11036-12-06 06:43 J -2309136.25 -2309136.22 -2309136.18 0.1659 0.1543

Mercury -11034-11-11 08:52 J -2308431.24 -2308431.13 -2308431.02 0.1646 0.0294

Mercury -11027-06-25 00:14 J -2306013.59 -2306013.49 -2306013.39 0.1869 0.1502

Mercury -11024-04-02 20:24 J -2305000.76 -2305000.65 -2305000.54 0.1649 0.0146

Venus -11018-08-11 23:02 J -2302678.63 -2302678.54 -2302678.44 0.1743 0.1451

Venus -11016-06-10 04:19 J -2302010.47 -2302010.32 -2302010.17 0.1720 0.0779

Mercury -11015-08-24 07:55 J -2301570.28 -2301570.17 -2301570.07 0.1652 0.0593

Mercury -11013-07-29 09:35 J -2300865.17 -2300865.10 -2300865.02 0.1640 0.1213

Venus -11011-01-23 20:24 J -2300321.82 -2300321.65 -2300321.47 0.1795 0.0123

Mercury -11006-03-14 16:33 J -2298445.92 -2298445.81 -2298445.69 0.1879 0.1406

Mercury -11005-01-14 19:11 J -2298139.78 -2298139.70 -2298139.61 0.1656 0.1040

Mercury -11004-12-19 21:21 J -2297434.71 -2297434.61 -2297434.51 0.1643 0.0783

11TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 11th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|-------------|-------------|-------------|--------|--------|-------|---|
| Mercury | -10997-08-03 08:52 J | -2295016.31 | -2295016.13 | -2295015.96 | 0.1874 | 0.0050 | | |
| Mercury | -10996-06-06 06:43 J | -2294709.27 | -2294709.22 | -2294709.17 | 0.1660 | 0.1490 | | |
| Mercury | -10994-05-12 08:52 J | -2294004.24 | -2294004.13 | -2294004.02 | 0.1646 | 0.0350 | | |
| Mercury | -10988-12-24 00:28 J | -2291586.59 | -2291586.48 | -2291586.36 | 0.1869 | 0.1408 | | |
| Mercury | -10985-10-01 20:24 J | -2290573.77 | -2290573.65 | -2290573.54 | 0.1649 | 0.0100 | | |
| Venus | -10984-06-09 05:45 J | -2290323.43 | -2290323.26 | -2290323.09 | 0.1730 | 0.0243 | | |
| Venus | -10979-01-23 07:55 J | -2288634.30 | -2288634.17 | -2288634.03 | 0.1784 | 0.1144 | | |
| Earth | -10979-10-16 19:55 J | -2288367.83 | -2288367.67 | -2288367.50 | 0.1633 | 0.0795 | | |
| Moon | -10979-10-17 01:55 J | -2288367.60 | -2288367.42 | -2288367.24 | 0.1633 | 0.0587 | * | |
| Venus | -10978-11-21 12:57 J | -2287967.03 | -2287966.96 | -2287966.89 | 0.1810 | 0.1658 | | |
| Mercury | -10975-02-22 07:55 J | -2287143.28 | -2287143.17 | -2287143.06 | 0.1652 | 0.0534 | | |
| Mercury | -10973-01-28 09:35 J | -2286438.17 | -2286438.10 | -2286438.03 | 0.1640 | 0.1267 | | |
| Mercury | -10967-09-12 17:45 J | -2284018.86 | -2284018.76 | -2284018.66 | 0.1879 | 0.1537 | | |
| Mercury | -10966-07-15 19:11 J | -2283712.79 | -2283712.70 | -2283712.61 | 0.1656 | 0.0984 | | |
| Mercury | -10964-06-19 21:21 J | -2283007.71 | -2283007.61 | -2283007.52 | 0.1643 | 0.0840 | | |
| Mercury | -10957-02-02 09:35 J | -2280589.27 | -2280589.10 | -2280588.93 | 0.1874 | 0.0119 | | |
| Mercury | -10957-12-05 06:43 J | -2280282.28 | -2280282.22 | -2280282.16 | 0.1659 | 0.1433 | | |
| Mercury | -10955-11-10 08:38 J | -2279577.25 | -2279577.14 | -2279577.02 | 0.1646 | 0.0405 | | |
| Venus | -10952-06-08 08:09 J | -2278636.27 | -2278636.16 | -2278636.04 | 0.1740 | 0.1307 | | |
| Venus | -10950-04-07 14:09 J | -2277968.05 | -2277967.91 | -2277967.76 | 0.1717 | 0.0902 | | |
| Mercury | -10948-06-24 01:55 J | -2277159.55 | -2277159.42 | -2277159.30 | 0.1869 | 0.1267 | | |
| Venus | -10946-11-21 02:52 J | -2276279.56 | -2276279.38 | -2276279.21 | 0.1799 | 0.0316 | | |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -10945-04-01 20:24 J | -2276146.77 | -2276146.65 | -2276146.54 | 0.1649 | 0.0070 |
| Mercury | -10936-08-23 07:40 J | -2272716.28 | -2272716.18 | -2272716.07 | 0.1652 | 0.0486 |
| Mercury | -10934-07-29 09:35 J | -2272011.17 | -2272011.10 | -2272011.03 | 0.1640 | 0.1320 |
| Mercury | -10927-03-13 18:14 J | -2269591.82 | -2269591.74 | -2269591.65 | 0.1879 | 0.1646 |
| Mercury | -10926-01-13 19:11 J | -2269285.79 | -2269285.70 | -2269285.60 | 0.1656 | 0.0926 |
| Mercury | -10925-12-18 21:07 J | -2268580.71 | -2268580.62 | -2268580.52 | 0.1643 | 0.0891 |
| Venus | -10918-04-06 14:52 J | -2266281.05 | -2266280.88 | -2266280.70 | 0.1727 | 0.0109 |
| Mercury | -10918-08-03 10:33 J | -2266162.23 | -2266162.06 | -2266161.89 | 0.1874 | 0.0243 |
| Mercury | -10917-06-05 06:43 J | -2265855.28 | -2265855.22 | -2265855.16 | 0.1659 | 0.1377 |
| Mercury | -10915-05-11 08:38 J | -2265150.25 | -2265150.14 | -2265150.03 | 0.1646 | 0.0460 |
| Venus | -10914-11-20 14:52 J | -2264592.03 | -2264591.88 | -2264591.73 | 0.1788 | 0.0969 |
| Mercury | -10909-12-23 02:52 J | -2262732.52 | -2262732.38 | -2262732.25 | 0.1869 | 0.1145 |
| Mercury | -10906-10-01 20:09 J | -2261719.77 | -2261719.66 | -2261719.54 | 0.1649 | 0.0062 |
| Earth | -10900-10-18 22:19 J | -2259510.75 | -2259510.57 | -2259510.39 | 0.1635 | 0.0453 |
| Moon | -10900-10-19 03:50 J | -2259510.52 | -2259510.34 | -2259510.16 | 0.1635 | 0.0312 * |
| Mercury | -10896-02-21 07:40 J | -2258289.29 | -2258289.18 | -2258289.07 | 0.1652 | 0.0428 |
| Mercury | -10894-01-27 09:35 J | -2257584.16 | -2257584.10 | -2257584.04 | 0.1640 | 0.1374 |
| Mercury | -10888-09-11 19:26 J | -2255164.75 | -2255164.69 | -2255164.64 | 0.1879 | 0.1772 |
| Mercury | -10887-07-14 19:11 J | -2254858.80 | -2254858.70 | -2254858.60 | 0.1656 | 0.0873 |
| Venus | -10886-04-05 17:45 J | -2254593.89 | -2254593.76 | -2254593.64 | 0.1737 | 0.1168 |
| Mercury | -10885-06-18 21:07 J | -2254153.71 | -2254153.62 | -2254153.53 | 0.1643 | 0.0943 |
| Venus | -10884-02-02 00:00 J | -2253925.63 | -2253925.50 | -2253925.36 | 0.1714 | 0.1024 |
| Venus | -10880-09-17 08:52 J | -2252237.30 | -2252237.13 | -2252236.96 | 0.1803 | 0.0509 |
| Mercury | -10878-02-01 11:31 J | -2251735.19 | -2251735.02 | -2251734.85 | 0.1874 | 0.0366 |
| Mercury | -10878-12-05 06:43 J | -2251428.29 | -2251428.22 | -2251428.16 | 0.1659 | 0.1326 |
| Mercury | -10876-11-09 08:38 J | -2250723.25 | -2250723.14 | -2250723.03 | 0.1646 | 0.0508 |
| Mercury | -10869-06-23 03:21 J | -2248305.50 | -2248305.36 | -2248305.21 | 0.1869 | 0.1036 |
| Mercury | -10866-04-01 20:09 J | -2247292.77 | -2247292.66 | -2247292.54 | 0.1649 | 0.0081 |
| Moon | -10861-04-22 22:48 J | -2245444.71 | -2245444.55 | -2245444.39 | 0.1888 | 0.1131 |
| Earth | -10861-04-23 07:55 J | -2245444.35 | -2245444.17 | -2245444.00 | 0.1887 | 0.1006 |

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|---------|----------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -10857-08-22 07:40 J | -2243862.29 | -2243862.18 | -2243862.07 | 0.1652 | 0.0372 |
| Mercury | -10855-07-28 09:35 J | -2243157.16 | -2243157.10 | -2243157.05 | 0.1640 | 0.1429 |
| Venus | -10852-02-01 00:43 J | -2242238.64 | -2242238.47 | -2242238.29 | 0.1723 | 0.0049 |
| Venus | -10848-09-16 21:50 J | -2240549.75 | -2240549.59 | -2240549.43 | 0.1791 | 0.0795 |
| Mercury | -10847-01-12 19:11 J | -2240431.80 | -2240431.70 | -2240431.60 | 0.1656 | 0.0820 |
| Mercury | -10846-12-18 21:07 J | -2239726.71 | -2239726.62 | -2239726.53 | 0.1642 | 0.0999 |
| Mercury | -10839-08-02 12:14 J | -2237308.15 | -2237307.99 | -2237307.82 | 0.1874 | 0.0486 |
| Mercury | -10838-06-05 06:28 J | -2237001.30 | -2237001.23 | -2237001.15 | 0.1659 | 0.1271 |
| Mercury | -10836-05-10 08:38 J | -2236296.25 | -2236296.14 | -2236296.03 | 0.1646 | 0.0563 |
| Mercury | -10830-12-23 04:33 J | -2233878.46 | -2233878.31 | -2233878.16 | 0.1869 | 0.0906 |
| Mercury | -10827-09-30 20:09 J | -2232865.77 | -2232865.66 | -2232865.55 | 0.1649 | 0.0125 |
| Venus | -10820-01-31 02:52 J | -2230551.52 | -2230551.38 | -2230551.24 | 0.1734 | 0.1027 |
| Venus | -10819-11-30 10:19 J | -2229883.20 | -2229883.07 | -2229882.95 | 0.1711 | 0.1142 |
| Mercury | -10817-02-21 07:40 J | -2229435.29 | -2229435.18 | -2229435.07 | 0.1652 | 0.0318 |
| Mercury | -10815-01-26 09:21 J | -2228730.15 | -2228730.11 | -2228730.06 | 0.1640 | 0.1481 |
| Venus | -10814-07-15 14:38 J | -2228195.05 | -2228194.89 | -2228194.73 | 0.1806 | 0.0713 |
| Mercury | -10808-07-13 19:11 J | -2226004.80 | -2226004.70 | -2226004.60 | 0.1656 | 0.0764 |
| Mercury | -10806-06-18 21:07 J | -2225299.71 | -2225299.62 | -2225299.54 | 0.1643 | 0.1052 |
| Mercury | -10799-01-31 13:11 J | -2222881.11 | -2222880.95 | -2222880.79 | 0.1875 | 0.0609 |
| Mercury | -10799-12-04 06:28 J | -2222574.30 | -2222574.23 | -2222574.15 | 0.1659 | 0.1212 |
| Mercury | -10797-11-08 08:38 J | -2221869.25 | -2221869.14 | -2221869.04 | 0.1646 | 0.0620 |
| Mercury | -10790-06-23 05:31 J | -2219451.42 | -2219451.27 | -2219451.11 | 0.1869 | 0.0774 |
| Mercury | -10787-03-31 20:09 J | -2218438.77 | -2218438.66 | -2218438.55 | 0.1649 | 0.0181 |
| Venus | -10787-11-29 10:19 J | -2218196.24 | -2218196.07 | -2218195.90 | 0.1720 | 0.0154 |
| Venus | -10782-07-15 04:04 J | -2216507.50 | -2216507.33 | -2216507.17 | 0.1795 | 0.0607 |
| Mercury | -10778-08-22 07:40 J | -2215008.30 | -2215008.18 | -2215008.07 | 0.1652 | 0.0270 |
| Mercury | -10776-07-27 09:21 J | -2214303.15 | -2214303.11 | -2214303.07 | 0.1640 | 0.1533 |
| Earth | -10774-10-16 00:14 J | -2213492.55 | -2213492.49 | -2213492.43 | 0.1629 | 0.1538 |
| Mercury | -10768-01-11 18:57 J | -2211577.81 | -2211577.71 | -2211577.60 | 0.1655 | 0.0711 |
| Mercury | -10767-12-17 20:52 J | -2210872.71 | -2210872.63 | -2210872.54 | 0.1642 | 0.1106 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -10760-08-01 14:09 J | -2208454.07 | -2208453.91 | -2208453.75 | 0.1875 | 0.0733 |
| Mercury | -10759-06-04 06:28 J | -2208147.31 | -2208147.23 | -2208147.15 | 0.1659 | 0.1159 |
| Mercury | -10757-05-09 08:38 J | -2207442.25 | -2207442.14 | -2207442.04 | 0.1646 | 0.0674 |
| Venus | -10755-11-28 12:28 J | -2206509.13 | -2206508.98 | -2206508.84 | 0.1731 | 0.0892 |
| Venus | -10753-09-26 20:09 J | -2205840.77 | -2205840.66 | -2205840.55 | 0.1708 | 0.1263 |
| Mercury | -10751-12-22 06:00 J | -2205024.41 | -2205024.25 | -2205024.09 | 0.1870 | 0.0678 |
| Mercury | -10750-10-25 17:45 J | -2204716.78 | -2204716.76 | -2204716.73 | 0.1663 | 0.1613 |
| Venus | -10748-05-11 20:24 J | -2204152.80 | -2204152.65 | -2204152.50 | 0.1810 | 0.0920 |
| Mercury | -10748-09-29 20:09 J | -2204011.78 | -2204011.66 | -2204011.55 | 0.1649 | 0.0240 |
| Mercury | -10738-02-20 07:40 J | -2200581.30 | -2200581.18 | -2200581.07 | 0.1652 | 0.0208 |
| Mercury | -10736-01-25 09:21 J | -2199876.13 | -2199876.11 | -2199876.08 | 0.1640 | 0.1588 |
| Mercury | -10729-07-12 18:57 J | -2197150.81 | -2197150.71 | -2197150.60 | 0.1655 | 0.0654 |
| Mercury | -10727-06-17 20:52 J | -2196445.71 | -2196445.63 | -2196445.55 | 0.1642 | 0.1161 |
| Venus | -10721-09-25 20:38 J | -2194153.81 | -2194153.64 | -2194153.47 | 0.1717 | 0.0277 |
| Mercury | -10720-01-30 14:52 J | -2194027.03 | -2194026.88 | -2194026.72 | 0.1875 | 0.0852 |
| Mercury | -10720-12-03 06:28 J | -2193720.32 | -2193720.23 | -2193720.15 | 0.1659 | 0.1103 |
| Mercury | -10718-11-08 08:24 J | -2193015.25 | -2193015.15 | -2193015.05 | 0.1645 | 0.0724 |
| Venus | -10716-05-11 10:48 J | -2192465.22 | -2192465.05 | -2192464.88 | 0.1798 | 0.0428 |
| Mercury | -10711-06-22 07:11 J | -2190597.36 | -2190597.20 | -2190597.03 | 0.1870 | 0.0537 |
| Mercury | -10710-04-25 17:45 J | -2190289.80 | -2190289.76 | -2190289.72 | 0.1663 | 0.1559 |
| Mercury | -10708-03-30 20:09 J | -2189584.78 | -2189584.66 | -2189584.55 | 0.1649 | 0.0295 |
| Mercury | -10699-08-21 07:26 J | -2186154.30 | -2186154.19 | -2186154.07 | 0.1652 | 0.0157 |
| Moon | -10695-10-17 20:38 J | -2184635.84 | -2184635.64 | -2184635.45 | 0.1631 | 0.0223 |
| Earth | -10695-10-18 01:26 J | -2184635.62 | -2184635.44 | -2184635.26 | 0.1631 | 0.0342 * |
| Mercury | -10689-01-11 18:57 J | -2182723.81 | -2182723.71 | -2182723.60 | 0.1655 | 0.0598 |
| Venus | -10689-09-24 21:35 J | -2182466.75 | -2182466.60 | -2182466.44 | 0.1727 | 0.0750 |
| Mercury | -10688-12-16 20:52 J | -2182018.71 | -2182018.63 | -2182018.56 | 0.1642 | 0.1212 |
| Venus | -10687-07-25 06:28 J | -2181798.33 | -2181798.23 | -2181798.13 | 0.1705 | 0.1376 |
| Venus | -10684-05-10 22:48 J | -2180777.60 | -2180777.55 | -2180777.50 | 0.1787 | 0.1695 |
| Venus | -10682-03-09 02:24 J | -2180110.54 | -2180110.40 | -2180110.26 | 0.1813 | 0.1124 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -10681-07-31 15:50 J | -2179599.98 | -2179599.84 | -2179599.69 | 0.1875 | 0.0977 |
| Mercury | -10680-06-03 06:28 J | -2179293.32 | -2179293.23 | -2179293.14 | 0.1659 | 0.1048 |
| Mercury | -10678-05-09 08:24 J | -2178588.25 | -2178588.15 | -2178588.05 | 0.1645 | 0.0782 |
| Mercury | -10672-12-21 08:09 J | -2176170.33 | -2176170.16 | -2176169.99 | 0.1870 | 0.0414 |
| Mercury | -10671-10-24 17:45 J | -2175862.81 | -2175862.76 | -2175862.71 | 0.1663 | 0.1504 |
| Mercury | -10669-09-28 19:55 J | -2175157.78 | -2175157.67 | -2175157.56 | 0.1648 | 0.0344 |
| Mercury | -10662-05-13 00:28 J | -2172740.52 | -2172740.48 | -2172740.43 | 0.1865 | 0.1784 |
| Mercury | -10659-02-19 07:26 J | -2171727.30 | -2171727.19 | -2171727.07 | 0.1652 | 0.0100 |
| Venus | -10655-07-24 06:00 J | -2170111.41 | -2170111.25 | -2170111.08 | 0.1714 | 0.0403 |
| Venus | -10650-03-08 16:48 J | -2168422.97 | -2168422.80 | -2168422.62 | 0.1802 | 0.0235 |
| Mercury | -10650-07-12 18:57 J | -2168296.82 | -2168296.71 | -2168296.60 | 0.1655 | 0.0546 |
| Mercury | -10648-06-16 20:52 J | -2167591.70 | -2167591.63 | -2167591.56 | 0.1642 | 0.1265 |
| Mercury | -10641-01-30 16:48 J | -2165172.94 | -2165172.80 | -2165172.66 | 0.1875 | 0.1097 |
| Mercury | -10641-12-02 06:28 J | -2164866.33 | -2164866.23 | -2164866.14 | 0.1659 | 0.0996 |
| Mercury | -10639-11-07 08:24 J | -2164161.25 | -2164161.15 | -2164161.05 | 0.1645 | 0.0832 |
| Mercury | -10632-06-21 08:52 J | -2161743.30 | -2161743.13 | -2161742.96 | 0.1870 | 0.0307 |
| Mercury | -10631-04-24 17:45 J | -2161435.81 | -2161435.76 | -2161435.71 | 0.1663 | 0.1445 |
| Mercury | -10629-03-29 19:55 J | -2160730.78 | -2160730.67 | -2160730.56 | 0.1649 | 0.0398 |
| Venus | -10623-07-23 06:57 J | -2158424.37 | -2158424.21 | -2158424.05 | 0.1724 | 0.0612 |
| Mercury | -10623-11-11 01:26 J | -2158313.51 | -2158313.44 | -2158313.36 | 0.1865 | 0.1662 |
| Venus | -10621-05-21 16:33 J | -2157755.89 | -2157755.81 | -2157755.73 | 0.1702 | 0.1490 |
| Mercury | -10620-08-20 07:26 J | -2157300.30 | -2157300.19 | -2157300.08 | 0.1652 | 0.0043 |
| Venus | -10618-03-08 05:16 J | -2156735.37 | -2156735.28 | -2156735.18 | 0.1791 | 0.1521 |
| Venus | -10616-01-03 07:40 J | -2156068.29 | -2156068.18 | -2156068.06 | 0.1817 | 0.1341 |
| Earth | -10616-10-20 02:52 J | -2155778.54 | -2155778.38 | -2155778.22 | 0.1632 | 0.0881 |
| Moon | -10616-10-20 05:45 J | -2155778.44 | -2155778.26 | -2155778.08 | 0.1632 | 0.0721 * |
| Mercury | -10610-01-10 18:57 J | -2153869.82 | -2153869.71 | -2153869.60 | 0.1655 | 0.0492 |
| Mercury | -10609-12-15 20:52 J | -2153164.70 | -2153164.63 | -2153164.57 | 0.1642 | 0.1320 |
| Mercury | -10602-07-31 17:45 J | -2150745.89 | -2150745.76 | -2150745.63 | 0.1875 | 0.1220 |
| Mercury | -10601-06-02 06:14 J | -2150439.33 | -2150439.24 | -2150439.14 | 0.1659 | 0.0940 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -10599-05-08 08:24 J | -2149734.25 | -2149734.15 | -2149734.06 | 0.1645 | 0.0887 |
| Mercury | -10593-12-20 09:50 J | -2147316.26 | -2147316.09 | -2147315.92 | 0.1870 | 0.0177 |
| Mercury | -10592-10-23 17:45 J | -2147008.82 | -2147008.76 | -2147008.70 | 0.1663 | 0.1396 |
| Venus | -10591-07-22 08:52 J | -2146737.17 | -2146737.13 | -2146737.08 | 0.1734 | 0.1668 |
| Mercury | -10590-09-28 19:55 J | -2146303.78 | -2146303.67 | -2146303.56 | 0.1648 | 0.0450 |
| Venus | -10589-05-20 16:33 J | -2146068.97 | -2146068.81 | -2146068.65 | 0.1711 | 0.0518 |
| Venus | -10584-01-02 23:02 J | -2144380.72 | -2144380.54 | -2144380.36 | 0.1806 | 0.0040 |
| Mercury | -10583-05-12 02:09 J | -2143886.50 | -2143886.41 | -2143886.31 | 0.1865 | 0.1549 |
| Mercury | -10580-02-18 07:26 J | -2142873.31 | -2142873.19 | -2142873.08 | 0.1652 | 0.0051 |
| Earth | -10577-04-22 10:19 J | -2141714.28 | -2141714.07 | -2141713.87 | 0.1892 | 0.0047 |
| Moon | -10577-04-22 18:57 J | -2141713.90 | -2141713.71 | -2141713.51 | 0.1892 | 0.0400 * |
| Mercury | -10571-07-11 18:57 J | -2139442.82 | -2139442.71 | -2139442.60 | 0.1655 | 0.0436 |
| Mercury | -10569-06-15 20:38 J | -2138737.70 | -2138737.64 | -2138737.58 | 0.1642 | 0.1373 |
| Mercury | -10562-01-29 18:43 J | -2136318.84 | -2136318.72 | -2136318.60 | 0.1876 | 0.1344 |
| Mercury | -10562-12-02 06:14 J | -2136012.33 | -2136012.24 | -2136012.14 | 0.1659 | 0.0883 |
| Mercury | -10560-11-06 08:24 J | -2135307.25 | -2135307.15 | -2135307.06 | 0.1645 | 0.0943 |
| Venus | -10557-05-19 17:02 J | -2134381.96 | -2134381.79 | -2134381.63 | 0.1721 | 0.0485 |
| Venus | -10555-03-19 03:21 J | -2133713.42 | -2133713.36 | -2133713.30 | 0.1699 | 0.1594 |
| Mercury | -10553-06-20 10:48 J | -2132889.22 | -2132889.05 | -2132888.87 | 0.1870 | 0.0070 |
| Venus | -10552-01-02 12:00 J | -2132693.12 | -2132693.00 | -2132692.89 | 0.1794 | 0.1342 |
| Mercury | -10552-04-23 17:31 J | -2132581.83 | -2132581.77 | -2132581.70 | 0.1663 | 0.1340 |
| Venus | -10551-10-31 13:55 J | -2132026.01 | -2132025.92 | -2132025.83 | 0.1820 | 0.1549 |
| Mercury | -10550-03-29 19:55 J | -2131876.78 | -2131876.67 | -2131876.56 | 0.1648 | 0.0506 |
| Mercury | -10544-11-10 03:07 J | -2129459.48 | -2129459.37 | -2129459.26 | 0.1865 | 0.1431 |
| Mercury | -10541-08-19 07:11 J | -2128446.31 | -2128446.20 | -2128446.08 | 0.1652 | 0.0086 |
| Mercury | -10531-01-09 18:43 J | -2125015.83 | -2125015.72 | -2125015.60 | 0.1655 | 0.0383 |
| Mercury | -10530-12-15 20:38 J | -2124310.69 | -2124310.64 | -2124310.58 | 0.1642 | 0.1425 |
| Venus | -10525-05-18 18:28 J | -2122694.81 | -2122694.73 | -2122694.65 | 0.1731 | 0.1526 |
| Venus | -10523-03-18 02:24 J | -2122026.56 | -2122026.40 | -2122026.24 | 0.1708 | 0.0640 |
| Mercury | -10523-07-30 19:26 J | -2121891.79 | -2121891.69 | -2121891.58 | 0.1875 | 0.1463 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -10522-06-02 06:14 J | -2121585.34 | -2121585.24 | -2121585.14 | 0.1659 | 0.0830 |
| Mercury | -10520-05-07 08:09 J | -2120880.25 | -2120880.16 | -2120880.07 | 0.1645 | 0.0994 |
| Venus | -10519-10-31 05:02 J | -2120338.47 | -2120338.29 | -2120338.12 | 0.1809 | 0.0164 |
| Mercury | -10514-12-20 11:16 J | -2118462.20 | -2118462.03 | -2118461.86 | 0.1870 | 0.0060 |
| Mercury | -10513-10-22 17:31 J | -2118154.84 | -2118154.77 | -2118154.69 | 0.1663 | 0.1283 |
| Mercury | -10511-09-27 19:40 J | -2117449.78 | -2117449.68 | -2117449.57 | 0.1648 | 0.0561 |
| Mercury | -10504-05-11 04:19 J | -2115032.44 | -2115032.32 | -2115032.20 | 0.1865 | 0.1292 |
| Mercury | -10501-02-18 07:11 J | -2114019.31 | -2114019.20 | -2114019.08 | 0.1651 | 0.0138 |
| Mercury | -10492-07-10 18:43 J | -2110588.83 | -2110588.72 | -2110588.61 | 0.1655 | 0.0327 |
| Venus | -10491-03-17 02:24 J | -2110339.57 | -2110339.40 | -2110339.24 | 0.1718 | 0.0351 |
| Mercury | -10490-06-15 20:38 J | -2109883.69 | -2109883.64 | -2109883.59 | 0.1642 | 0.1479 |
| Earth | -10490-10-17 05:16 J | -2109760.41 | -2109760.28 | -2109760.14 | 0.1627 | 0.1088 |
| Moon | -10490-10-17 09:21 J | -2109760.23 | -2109760.11 | -2109759.99 | 0.1627 | 0.1187 * |
| Venus | -10487-10-30 18:28 J | -2108650.87 | -2108650.73 | -2108650.60 | 0.1798 | 0.1158 |
| Venus | -10485-08-27 18:43 J | -2107983.76 | -2107983.72 | -2107983.68 | 0.1824 | 0.1775 |
| Mercury | -10483-01-28 20:24 J | -2107464.74 | -2107464.65 | -2107464.56 | 0.1875 | 0.1581 |
| Mercury | -10483-12-01 06:14 J | -2107158.34 | -2107158.24 | -2107158.14 | 0.1659 | 0.0776 |
| Mercury | -10481-11-05 08:09 J | -2106453.25 | -2106453.16 | -2106453.07 | 0.1645 | 0.1046 |
| Mercury | -10474-06-20 12:43 J | -2104035.14 | -2104034.97 | -2104034.80 | 0.1870 | 0.0195 |
| Mercury | -10473-04-22 17:31 J | -2103727.84 | -2103727.77 | -2103727.69 | 0.1663 | 0.1229 |
| Mercury | -10471-03-28 19:40 J | -2103022.78 | -2103022.68 | -2103022.57 | 0.1648 | 0.0614 |
| Mercury | -10465-11-09 04:48 J | -2100605.43 | -2100605.30 | -2100605.17 | 0.1865 | 0.1194 |
| Mercury | -10462-08-19 07:11 J | -2099592.31 | -2099592.20 | -2099592.09 | 0.1652 | 0.0172 |
| Venus | -10459-03-16 03:50 J | -2098652.43 | -2098652.34 | -2098652.23 | 0.1728 | 0.1392 |
| Venus | -10457-01-13 12:43 J | -2097984.12 | -2097983.97 | -2097983.81 | 0.1705 | 0.0757 |
| Venus | -10453-08-27 10:19 J | -2096296.24 | -2096296.07 | -2096295.89 | 0.1813 | 0.0375 |
| Mercury | -10452-01-08 18:43 J | -2096161.83 | -2096161.72 | -2096161.61 | 0.1655 | 0.0270 |
| Mercury | -10451-12-14 20:38 J | -2095456.68 | -2095456.64 | -2095456.61 | 0.1642 | 0.1531 |
| Mercury | -10444-07-29 21:21 J | -2093037.68 | -2093037.61 | -2093037.54 | 0.1876 | 0.1711 |
| Mercury | -10443-06-01 06:14 J | -2092731.35 | -2092731.24 | -2092731.14 | 0.1659 | 0.0720 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -10441-05-06 08:09 J | -2092026.24 | -2092026.16 | -2092026.07 | 0.1645 | 0.1104 |
| Mercury | -10435-12-19 13:26 J | -2089608.11 | -2089607.94 | -2089607.77 | 0.1870 | 0.0313 |
| Mercury | -10434-10-22 17:31 J | -2089300.85 | -2089300.77 | -2089300.69 | 0.1663 | 0.1175 |
| Mercury | -10432-09-26 19:40 J | -2088595.78 | -2088595.68 | -2088595.58 | 0.1648 | 0.0665 |
| Venus | -10425-01-12 12:28 J | -2086297.15 | -2086296.98 | -2086296.80 | 0.1715 | 0.0233 |
| Mercury | -10425-05-10 05:45 J | -2086178.40 | -2086178.26 | -2086178.11 | 0.1865 | 0.1064 |
| Mercury | -10424-03-14 04:47 J | -2085870.32 | -2085870.30 | -2085870.28 | 0.1666 | 0.1632 |
| Mercury | -10422-02-17 07:12 J | -2085165.32 | -2085165.20 | -2085165.09 | 0.1651 | 0.0228 |
| Venus | -10421-08-27 00:43 J | -2084608.61 | -2084608.47 | -2084608.32 | 0.1801 | 0.0972 |
| Mercury | -10413-07-09 18:43 J | -2081734.84 | -2081734.72 | -2081734.61 | 0.1655 | 0.0220 |
| Mercury | -10411-06-14 20:24 J | -2081029.67 | -2081029.65 | -2081029.62 | 0.1642 | 0.1585 |
| Moon | -10411-10-19 04:19 J | -2080903.50 | -2080903.32 | -2080903.15 | 0.1628 | 0.0276 |
| Earth | -10411-10-19 06:43 J | -2080903.41 | -2080903.22 | -2080903.04 | 0.1628 | 0.0110 * |
| Mercury | -10404-01-27 22:04 J | -2078610.61 | -2078610.58 | -2078610.54 | 0.1876 | 0.1826 |
| Mercury | -10404-11-30 06:00 J | -2078304.35 | -2078304.25 | -2078304.14 | 0.1659 | 0.0667 |
| Mercury | -10402-11-05 08:09 J | -2077599.24 | -2077599.16 | -2077599.08 | 0.1645 | 0.1154 |
| Mercury | -10395-06-19 14:09 J | -2075181.08 | -2075180.91 | -2075180.74 | 0.1871 | 0.0424 |
| Mercury | -10394-04-22 17:31 J | -2074873.85 | -2074873.77 | -2074873.69 | 0.1662 | 0.1116 |
| Venus | -10393-01-11 13:40 J | -2074610.05 | -2074609.93 | -2074609.82 | 0.1724 | 0.1256 |
| Mercury | -10392-03-27 19:40 J | -2074168.78 | -2074168.68 | -2074168.58 | 0.1648 | 0.0721 |
| Venus | -10392-11-09 23:02 J | -2073941.69 | -2073941.54 | -2073941.39 | 0.1702 | 0.0870 |
| Venus | -10387-06-24 15:50 J | -2072254.01 | -2072253.84 | -2072253.67 | 0.1816 | 0.0587 |
| Mercury | -10386-11-09 06:43 J | -2071751.36 | -2071751.22 | -2071751.07 | 0.1865 | 0.0941 |
| Mercury | -10385-09-12 04:47 J | -2071443.34 | -2071443.30 | -2071443.27 | 0.1666 | 0.1578 |
| Mercury | -10383-08-18 07:12 J | -2070738.31 | -2070738.20 | -2070738.09 | 0.1651 | 0.0283 |
| Mercury | -10373-01-08 18:43 J | -2067307.84 | -2067307.72 | -2067307.61 | 0.1655 | 0.0175 |
| Mercury | -10372-12-13 20:24 J | -2066602.65 | -2066602.65 | -2066602.64 | 0.1642 | 0.1639 |
| Mercury | -10364-05-31 06:00 J | -2063877.35 | -2063877.25 | -2063877.14 | 0.1659 | 0.0611 |
| Mercury | -10362-05-06 08:09 J | -2063172.24 | -2063172.16 | -2063172.09 | 0.1645 | 0.1209 |
| Venus | -10360-11-08 22:19 J | -2062254.74 | -2062254.57 | -2062254.40 | 0.1712 | 0.0105 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -10356-12-18 15:07 J | -2060754.03 | -2060753.87 | -2060753.70 | 0.1871 | 0.0552 |
| Venus | -10355-06-24 06:28 J | -2060566.39 | -2060566.23 | -2060566.07 | 0.1805 | 0.0774 |
| Mercury | -10355-10-21 17:16 J | -2060446.86 | -2060446.78 | -2060446.69 | 0.1662 | 0.1067 |
| Mercury | -10353-09-25 19:40 J | -2059741.79 | -2059741.68 | -2059741.58 | 0.1648 | 0.0775 |
| Mercury | -10346-05-10 07:26 J | -2057324.34 | -2057324.19 | -2057324.03 | 0.1865 | 0.0829 |
| Mercury | -10345-03-13 04:47 J | -2057016.34 | -2057016.30 | -2057016.26 | 0.1666 | 0.1520 |
| Mercury | -10343-02-16 06:57 J | -2056311.32 | -2056311.21 | -2056311.09 | 0.1651 | 0.0341 |
| Mercury | -10334-07-09 18:43 J | -2052880.84 | -2052880.72 | -2052880.61 | 0.1655 | 0.0123 |
| Moon | -10332-10-21 01:55 J | -2052046.57 | -2052046.42 | -2052046.28 | 0.1630 | 0.1051 |
| Earth | -10332-10-21 07:55 J | -2052046.27 | -2052046.17 | -2052046.06 | 0.1630 | 0.1320 |
| Venus | -10328-11-07 23:16 J | -2050567.66 | -2050567.53 | -2050567.40 | 0.1721 | 0.1126 |
| Venus | -10326-09-07 09:07 J | -2049899.26 | -2049899.12 | -2049898.98 | 0.1700 | 0.0991 |
| Mercury | -10325-11-29 06:00 J | -2049450.36 | -2049450.25 | -2049450.14 | 0.1658 | 0.0555 |
| Mercury | -10323-11-04 07:55 J | -2048745.24 | -2048745.17 | -2048745.09 | 0.1645 | 0.1264 |
| Venus | -10321-04-20 21:07 J | -2048211.78 | -2048211.62 | -2048211.46 | 0.1820 | 0.0803 |
| Mercury | -10316-06-18 16:19 J | -2046326.98 | -2046326.82 | -2046326.66 | 0.1871 | 0.0681 |
| Mercury | -10315-04-21 17:16 J | -2046019.87 | -2046019.78 | -2046019.69 | 0.1662 | 0.1010 |
| Mercury | -10313-03-26 19:26 J | -2045314.78 | -2045314.69 | -2045314.59 | 0.1648 | 0.0829 |
| Mercury | -10307-11-08 08:24 J | -2042897.31 | -2042897.15 | -2042896.99 | 0.1866 | 0.0707 |
| Mercury | -10306-09-12 04:47 J | -2042589.36 | -2042589.30 | -2042589.25 | 0.1666 | 0.1468 |
| Mercury | -10304-08-17 06:57 J | -2041884.32 | -2041884.21 | -2041884.10 | 0.1651 | 0.0390 |
| Mercury | -10294-01-07 18:28 J | -2038453.84 | -2038453.73 | -2038453.61 | 0.1655 | 0.0062 |
| Venus | -10294-09-06 08:38 J | -2038212.31 | -2038212.14 | -2038211.97 | 0.1709 | 0.0018 |
| Moon | -10293-04-21 10:19 J | -2037984.26 | -2037984.07 | -2037983.89 | 0.1897 | 0.1089 |
| Earth | -10293-04-21 11:45 J | -2037984.18 | -2037984.01 | -2037983.85 | 0.1897 | 0.1146 * |
| Venus | -10289-04-20 12:57 J | -2036524.12 | -2036523.96 | -2036523.79 | 0.1808 | 0.0586 |
| Mercury | -10285-05-30 06:00 J | -2035023.36 | -2035023.25 | -2035023.14 | 0.1659 | 0.0503 |
| Mercury | -10283-05-05 07:55 J | -2034318.24 | -2034318.17 | -2034318.10 | 0.1645 | 0.1314 |
| Mercury | -10277-12-17 16:47 J | -2031899.96 | -2031899.80 | -2031899.64 | 0.1871 | 0.0783 |
| Mercury | -10276-10-20 17:16 J | -2031592.87 | -2031592.78 | -2031592.68 | 0.1662 | 0.0953 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -10274-09-25 19:26 J | -2030887.78 | -2030887.69 | -2030887.59 | 0.1648 | 0.0882 |
| Mercury | -10267-05-09 09:35 J | -2028470.26 | -2028470.10 | -2028469.93 | 0.1866 | 0.0570 |
| Mercury | -10266-03-13 04:33 J | -2028162.36 | -2028162.31 | -2028162.25 | 0.1666 | 0.1413 |
| Mercury | -10264-02-15 06:57 J | -2027457.32 | -2027457.21 | -2027457.10 | 0.1651 | 0.0447 |
| Venus | -10262-09-05 08:52 J | -2026525.27 | -2026525.13 | -2026524.99 | 0.1718 | 0.0988 |
| Venus | -10260-07-04 19:40 J | -2025856.81 | -2025856.68 | -2025856.55 | 0.1697 | 0.1099 |
| Venus | -10255-02-16 02:38 J | -2024169.53 | -2024169.39 | -2024169.24 | 0.1823 | 0.1017 |
| Mercury | -10255-07-08 18:28 J | -2024026.85 | -2024026.73 | -2024026.62 | 0.1655 | 0.0016 |
| Mercury | -10246-11-29 06:00 J | -2020596.36 | -2020596.25 | -2020596.14 | 0.1658 | 0.0450 |
| Mercury | -10244-11-03 07:55 J | -2019891.23 | -2019891.17 | -2019891.11 | 0.1645 | 0.1366 |
| Mercury | -10237-06-17 18:00 J | -2017472.90 | -2017472.75 | -2017472.60 | 0.1871 | 0.0923 |
| Mercury | -10236-04-20 17:16 J | -2017165.88 | -2017165.78 | -2017165.68 | 0.1662 | 0.0899 |
| Mercury | -10234-03-26 19:26 J | -2016460.78 | -2016460.69 | -2016460.60 | 0.1648 | 0.0935 |
| Venus | -10228-07-03 18:43 J | -2014169.90 | -2014169.72 | -2014169.55 | 0.1706 | 0.0146 |
| Mercury | -10228-11-07 10:04 J | -2014043.25 | -2014043.08 | -2014042.91 | 0.1866 | 0.0474 |
| Mercury | -10227-09-11 04:33 J | -2013735.37 | -2013735.31 | -2013735.24 | 0.1666 | 0.1357 |
| Mercury | -10225-08-16 06:57 J | -2013030.32 | -2013030.21 | -2013030.10 | 0.1651 | 0.0496 |
| Venus | -10223-02-15 18:28 J | -2012481.90 | -2012481.73 | -2012481.55 | 0.1812 | 0.0385 |
| Mercury | -10218-03-30 02:52 J | -2010613.41 | -2010613.38 | -2010613.34 | 0.1861 | 0.1812 |
| Mercury | -10215-01-06 18:28 J | -2009599.84 | -2009599.73 | -2009599.62 | 0.1655 | 0.0057 |
| Mercury | -10206-05-30 05:45 J | -2006169.37 | -2006169.26 | -2006169.14 | 0.1658 | 0.0396 |
| Earth | -10206-10-18 10:47 J | -2006028.22 | -2006028.05 | -2006027.87 | 0.1625 | 0.0630 |
| Moon | -10206-10-18 14:24 J | -2006028.08 | -2006027.90 | -2006027.73 | 0.1625 | 0.0732 * |
| Mercury | -10204-05-04 07:55 J | -2005464.22 | -2005464.17 | -2005464.11 | 0.1645 | 0.1424 |
| Mercury | -10198-12-17 18:43 J | -2003045.86 | -2003045.72 | -2003045.57 | 0.1871 | 0.1039 |
| Mercury | -10197-10-19 17:16 J | -2002738.88 | -2002738.78 | -2002738.68 | 0.1662 | 0.0846 |
| Venus | -10196-07-02 18:28 J | -2002482.87 | -2002482.73 | -2002482.58 | 0.1715 | 0.0858 |
| Mercury | -10195-09-24 19:26 J | -2002033.78 | -2002033.69 | -2002033.60 | 0.1648 | 0.0988 |
| Venus | -10194-05-02 06:14 J | -2001814.36 | -2001814.24 | -2001814.12 | 0.1694 | 0.1212 |
| Venus | -10191-02-15 08:24 J | -2000794.20 | -2000794.15 | -2000794.10 | 0.1801 | 0.1709 |

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Venus | -10190-12-14 07:40 J | -2000127.31 | -2000127.18 | -2000127.05 | 0.1827 | 0.1243 |
| Mercury | -10188-05-08 11:16 J | -1999616.20 | -1999616.03 | -1999615.86 | 0.1866 | 0.0340 |
| Mercury | -10187-03-12 04:33 J | -1999308.38 | -1999308.31 | -1999308.24 | 0.1666 | 0.1302 |
| Mercury | -10185-02-15 06:57 J | -1998603.32 | -1998603.21 | -1998603.11 | 0.1651 | 0.0552 |
| Mercury | -10179-09-28 03:50 J | -1996186.41 | -1996186.34 | -1996186.27 | 0.1860 | 0.1695 |
| Mercury | -10176-07-07 18:28 J | -1995172.85 | -1995172.73 | -1995172.62 | 0.1655 | 0.0122 |
| Mercury | -10167-11-28 05:45 J | -1991742.37 | -1991742.26 | -1991742.15 | 0.1658 | 0.0339 |
| Mercury | -10165-11-02 07:40 J | -1991037.22 | -1991037.18 | -1991037.13 | 0.1645 | 0.1474 |
| Venus | -10162-05-01 05:16 J | -1990127.45 | -1990127.28 | -1990127.11 | 0.1703 | 0.0255 |
| Mercury | -10158-06-17 19:40 J | -1988618.82 | -1988618.68 | -1988618.55 | 0.1872 | 0.1153 |
| Venus | -10158-12-14 00:28 J | -1988439.66 | -1988439.48 | -1988439.31 | 0.1816 | 0.0181 |
| Mercury | -10157-04-19 17:16 J | -1988311.88 | -1988311.78 | -1988311.68 | 0.1662 | 0.0787 |
| Mercury | -10155-03-25 19:26 J | -1987606.78 | -1987606.69 | -1987606.61 | 0.1648 | 0.1044 |
| Mercury | -10149-11-06 12:14 J | -1985189.16 | -1985188.99 | -1985188.82 | 0.1866 | 0.0215 |
| Mercury | -10148-09-10 04:33 J | -1984881.39 | -1984881.31 | -1984881.24 | 0.1666 | 0.1247 |
| Mercury | -10146-08-16 06:57 J | -1984176.32 | -1984176.21 | -1984176.11 | 0.1651 | 0.0608 |
| Mercury | -10139-03-29 04:47 J | -1981759.39 | -1981759.30 | -1981759.21 | 0.1860 | 0.1570 |
| Mercury | -10136-01-05 18:14 J | -1980745.85 | -1980745.74 | -1980745.62 | 0.1654 | 0.0175 |
| Venus | -10130-04-30 04:47 J | -1978440.46 | -1978440.30 | -1978440.14 | 0.1712 | 0.0732 |
| Venus | -10128-02-26 17:02 J | -1977771.89 | -1977771.79 | -1977771.68 | 0.1691 | 0.1315 |
| Mercury | -10127-05-29 05:45 J | -1977315.37 | -1977315.26 | -1977315.15 | 0.1658 | 0.0284 |
| Earth | -10127-10-20 12:00 J | -1977171.18 | -1977171.00 | -1977170.82 | 0.1626 | 0.0553 |
| Moon | -10127-10-20 18:00 J | -1977170.91 | -1977170.75 | -1977170.59 | 0.1626 | 0.0802 * |
| Venus | -10126-12-13 14:38 J | -1976751.98 | -1976751.89 | -1976751.80 | 0.1804 | 0.1521 |
| Mercury | -10125-05-03 07:40 J | -1976610.22 | -1976610.18 | -1976610.14 | 0.1644 | 0.1527 |
| Venus | -10124-10-10 13:26 J | -1976085.05 | -1976084.94 | -1976084.84 | 0.1830 | 0.1460 |
| Mercury | -10119-12-16 20:38 J | -1974191.77 | -1974191.64 | -1974191.52 | 0.1872 | 0.1278 |
| Mercury | -10118-10-19 17:02 J | -1973884.89 | -1973884.79 | -1973884.68 | 0.1662 | 0.0738 |
| Mercury | -10116-09-23 19:12 J | -1973179.78 | -1973179.70 | -1973179.61 | 0.1648 | 0.1095 |
| Mercury | -10109-05-07 12:57 J | -1970762.13 | -1970761.96 | -1970761.79 | 0.1866 | 0.0106 |

Mercury -10108-03-11 04:33 J -1970454.39 -1970454.31 -1970454.23 0.1666 0.1188
 Mercury -10106-02-14 06:43 J -1969749.32 -1969749.22 -1969749.11 0.1651 0.0661
 Mercury -10100-09-27 05:31 J -1967332.38 -1967332.27 -1967332.16 0.1861 0.1457
 Mercury -10099-08-01 15:50 J -1967023.86 -1967023.84 -1967023.83 0.1670 0.1651
 Mercury -10097-07-06 18:14 J -1966318.85 -1966318.74 -1966318.62 0.1654 0.0226
 Venus -10096-02-25 15:21 J -1966085.02 -1966084.86 -1966084.69 0.1700 0.0375
 Venus -10092-10-10 06:00 J -1964397.43 -1964397.25 -1964397.08 0.1819 0.0039
 Mercury -10088-11-27 05:45 J -1962888.38 -1962888.26 -1962888.15 0.1658 0.0230
 Mercury -10086-11-02 07:40 J -1962183.20 -1962183.18 -1962183.15 0.1644 0.1582
 Mercury -10079-06-16 21:35 J -1959764.71 -1959764.60 -1959764.48 0.1872 0.1409
 Mercury -10078-04-19 17:02 J -1959457.89 -1959457.79 -1959457.68 0.1662 0.0681
 Mercury -10076-03-24 19:12 J -1958752.78 -1958752.70 -1958752.62 0.1648 0.1149
 Mercury -10070-11-06 13:55 J -1956335.10 -1956334.92 -1956334.75 0.1866 0.0036
 Mercury -10069-09-09 04:33 J -1956027.40 -1956027.31 -1956027.23 0.1666 0.1138
 Mercury -10067-08-15 06:43 J -1955322.32 -1955322.22 -1955322.12 0.1651 0.0712
 Venus -10064-02-24 14:24 J -1954398.06 -1954397.90 -1954397.74 0.1709 0.0603
 Venus -10063-12-25 04:04 J -1953729.43 -1953729.33 -1953729.24 0.1688 0.1421
 Mercury -10060-03-28 06:28 J -1952905.35 -1952905.23 -1952905.11 0.1861 0.1333
 Venus -10060-10-09 20:38 J -1952709.75 -1952709.64 -1952709.52 0.1808 0.1330
 Mercury -10059-01-30 15:35 J -1952596.88 -1952596.85 -1952596.82 0.1670 0.1599
 Venus -10058-08-07 17:45 J -1952042.82 -1952042.76 -1952042.69 0.1834 0.1698
 Mercury -10057-01-05 18:14 J -1951891.85 -1951891.74 -1951891.63 0.1654 0.0272
 Mercury -10048-05-28 05:45 J -1948461.38 -1948461.26 -1948461.15 0.1658 0.0178
 Moon -10048-10-22 14:09 J -1948313.95 -1948313.91 -1948313.86 0.1627 0.1571
 Mercury -10046-05-03 07:40 J -1947756.19 -1947756.18 -1947756.17 0.1644 0.1633
 Mercury -10040-12-15 22:19 J -1945337.67 -1945337.57 -1945337.47 0.1872 0.1513
 Mercury -10039-10-18 17:02 J -1945030.89 -1945030.79 -1945030.68 0.1662 0.0624
 Mercury -10037-09-22 19:12 J -1944325.78 -1944325.70 -1944325.62 0.1648 0.1203
 Venus -10032-02-23 15:07 J -1942710.92 -1942710.87 -1942710.81 0.1719 0.1625
 Venus -10031-12-24 02:09 J -1942042.57 -1942042.41 -1942042.24 0.1697 0.0485

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|---------|----------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -10030-05-07 15:07 J | -1941908.04 | -1941907.87 | -1941907.70 | 0.1867 | 0.0158 |
| Mercury | -10029-03-10 04:19 J | -1941600.40 | -1941600.32 | -1941600.23 | 0.1666 | 0.1082 |
| Mercury | -10027-02-13 06:43 J | -1940895.32 | -1940895.22 | -1940895.12 | 0.1651 | 0.0768 |
| Venus | -10026-08-07 11:02 J | -1940355.22 | -1940355.04 | -1940354.87 | 0.1823 | 0.0250 |
| Mercury | -10021-09-26 07:12 J | -1938478.32 | -1938478.20 | -1938478.07 | 0.1861 | 0.1219 |
| Mercury | -10020-07-31 15:35 J | -1938169.89 | -1938169.85 | -1938169.81 | 0.1670 | 0.1543 |
| Mercury | -10018-07-06 18:14 J | -1937464.85 | -1937464.74 | -1937464.63 | 0.1654 | 0.0326 |
| Mercury | -10009-11-26 05:31 J | -1934034.38 | -1934034.27 | -1934034.15 | 0.1658 | 0.0135 |
| Moon | -10001-10-16 12:28 J | -1931153.09 | -1931152.98 | -1931152.87 | 0.1622 | 0.1266 |
| Earth | -10001-10-16 16:47 J | -1931152.91 | -1931152.80 | -1931152.70 | 0.1622 | 0.1332 * |

10TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 10th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|-------------|-------------|-------------|--------|--------|-------|---|
| Mercury | -10000-06-15 23:31 J | -1930910.60 | -1930910.52 | -1930910.44 | 0.1872 | 0.1650 | | |
| Mercury | -9999-04-18 17:02 J | -1930603.90 | -1930603.79 | -1930603.68 | 0.1662 | 0.0570 | | |
| Venus | -9999-12-23 01:12 J | -1930355.62 | -1930355.45 | -1930355.29 | 0.1706 | 0.0486 | | |
| Mercury | -9997-03-23 19:12 J | -1929898.77 | -1929898.70 | -1929898.63 | 0.1647 | 0.1256 | | |
| Venus | -9997-10-21 15:07 J | -1929686.94 | -1929686.87 | -1929686.80 | 0.1686 | 0.1518 | | |
| Venus | -9994-08-07 02:38 J | -1928667.53 | -1928667.39 | -1928667.25 | 0.1811 | 0.1134 | | |
| Mercury | -9991-11-05 15:21 J | -1927481.03 | -1927480.86 | -1927480.69 | 0.1866 | 0.0252 | | |
| Mercury | -9990-09-09 04:19 J | -1927173.41 | -1927173.32 | -1927173.23 | 0.1666 | 0.1026 | | |
| Mercury | -9988-08-14 06:43 J | -1926468.32 | -1926468.22 | -1926468.12 | 0.1651 | 0.0820 | | |

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|---------|---------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -9981-03-27 08:24 J | -1924051.29 | -1924051.15 | -1924051.01 | 0.1861 | 0.1090 |
| Mercury | -9980-01-29 15:35 J | -1923742.90 | -1923742.85 | -1923742.80 | 0.1670 | 0.1485 |
| Mercury | -9978-01-04 18:14 J | -1923037.85 | -1923037.74 | -1923037.63 | 0.1654 | 0.0384 |
| Mercury | -9969-05-27 05:31 J | -1919607.38 | -1919607.27 | -1919607.15 | 0.1658 | 0.0079 |
| Venus | -9967-12-22 01:12 J | -1918668.53 | -1918668.45 | -1918668.37 | 0.1716 | 0.1493 |
| Venus | -9965-10-20 12:43 J | -1918000.13 | -1917999.97 | -1917999.81 | 0.1694 | 0.0596 |
| Mercury | -9961-12-15 00:14 J | -1916483.54 | -1916483.49 | -1916483.44 | 0.1872 | 0.1763 |
| Venus | -9960-06-03 16:04 J | -1916313.00 | -1916312.83 | -1916312.66 | 0.1827 | 0.0475 |
| Mercury | -9960-10-17 17:02 J | -1916176.90 | -1916176.79 | -1916176.68 | 0.1662 | 0.0518 |
| Mercury | -9958-09-22 18:57 J | -1915471.77 | -1915471.71 | -1915471.64 | 0.1647 | 0.1309 |
| Mercury | -9951-05-06 16:47 J | -1913053.97 | -1913053.80 | -1913053.64 | 0.1867 | 0.0391 |
| Mercury | -9950-03-10 04:19 J | -1912746.41 | -1912746.32 | -1912746.23 | 0.1666 | 0.0971 |
| Mercury | -9948-02-12 06:43 J | -1912041.32 | -1912041.22 | -1912041.13 | 0.1651 | 0.0876 |
| Mercury | -9942-09-26 09:07 J | -1909624.27 | -1909624.12 | -1909623.97 | 0.1861 | 0.0978 |
| Mercury | -9941-07-30 15:35 J | -1909315.91 | -1909315.85 | -1909315.79 | 0.1670 | 0.1431 |
| Mercury | -9939-07-05 18:14 J | -1908610.86 | -1908610.74 | -1908610.63 | 0.1654 | 0.0439 |
| Venus | -9933-10-19 11:16 J | -1906313.20 | -1906313.03 | -1906312.86 | 0.1703 | 0.0364 |
| Venus | -9931-08-19 01:40 J | -1905644.47 | -1905644.43 | -1905644.38 | 0.1683 | 0.1625 |
| Moon | -9930-04-24 20:09 J | -1905395.83 | -1905395.66 | -1905395.48 | 0.1899 | 0.1094 |
| Earth | -9930-04-25 04:19 J | -1905395.48 | -1905395.32 | -1905395.15 | 0.1898 | 0.1133 * |
| Mercury | -9930-11-26 05:31 J | -1905180.38 | -1905180.27 | -1905180.15 | 0.1658 | 0.0014 |
| Venus | -9928-06-03 08:09 J | -1904625.31 | -1904625.16 | -1904625.01 | 0.1815 | 0.0928 |
| Moon | -9922-10-19 10:33 J | -1902296.24 | -1902296.06 | -1902295.88 | 0.1623 | 0.0425 |
| Earth | -9922-10-19 17:02 J | -1902295.97 | -1902295.79 | -1902295.60 | 0.1623 | 0.0165 * |
| Mercury | -9920-04-17 17:02 J | -1901749.90 | -1901749.79 | -1901749.68 | 0.1662 | 0.0458 |
| Mercury | -9918-03-23 19:12 J | -1901044.77 | -1901044.70 | -1901044.64 | 0.1647 | 0.1366 |
| Mercury | -9912-11-04 17:45 J | -1898626.93 | -1898626.76 | -1898626.60 | 0.1867 | 0.0514 |
| Mercury | -9911-09-08 04:19 J | -1898319.42 | -1898319.32 | -1898319.23 | 0.1666 | 0.0916 |
| Mercury | -9909-08-13 06:43 J | -1897614.32 | -1897614.22 | -1897614.13 | 0.1650 | 0.0931 |
| Mercury | -9902-03-27 10:04 J | -1895197.23 | -1895197.08 | -1895196.93 | 0.1861 | 0.0853 |

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|---------|---------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -9901-01-29 15:35 J | -1894888.91 | -1894888.85 | -1894888.79 | 0.1670 | 0.1375 |
| Venus | -9901-10-18 11:16 J | -1894626.13 | -1894626.03 | -1894625.93 | 0.1713 | 0.1366 |
| Mercury | -9899-01-03 18:00 J | -1894183.86 | -1894183.75 | -1894183.64 | 0.1654 | 0.0490 |
| Venus | -9899-08-17 23:02 J | -1893957.70 | -1893957.54 | -1893957.38 | 0.1691 | 0.0713 |
| Venus | -9894-03-31 21:07 J | -1892270.79 | -1892270.62 | -1892270.46 | 0.1830 | 0.0703 |
| Mercury | -9890-05-27 05:31 J | -1890753.39 | -1890753.27 | -1890753.16 | 0.1658 | 0.0045 |
| Mercury | -9881-10-16 16:47 J | -1887322.91 | -1887322.80 | -1887322.68 | 0.1662 | 0.0410 |
| Mercury | -9879-09-21 18:57 J | -1886617.76 | -1886617.71 | -1886617.65 | 0.1647 | 0.1415 |
| Mercury | -9872-05-05 18:14 J | -1884199.90 | -1884199.74 | -1884199.57 | 0.1867 | 0.0621 |
| Mercury | -9871-03-09 04:19 J | -1883892.42 | -1883892.32 | -1883892.22 | 0.1666 | 0.0857 |
| Mercury | -9869-02-12 06:28 J | -1883187.32 | -1883187.23 | -1883187.14 | 0.1651 | 0.0983 |
| Venus | -9867-08-16 21:35 J | -1882270.77 | -1882270.60 | -1882270.43 | 0.1700 | 0.0247 |
| Mercury | -9863-09-25 11:02 J | -1880770.20 | -1880770.04 | -1880769.89 | 0.1862 | 0.0736 |
| Venus | -9862-03-31 14:24 J | -1880583.06 | -1880582.90 | -1880582.74 | 0.1819 | 0.0731 |
| Mercury | -9862-07-30 15:35 J | -1880461.92 | -1880461.85 | -1880461.78 | 0.1670 | 0.1321 |
| Mercury | -9860-07-04 18:00 J | -1879756.86 | -1879756.75 | -1879756.64 | 0.1654 | 0.0546 |
| Mercury | -9851-11-25 05:31 J | -1876326.39 | -1876326.27 | -1876326.16 | 0.1658 | 0.0104 |
| Moon | -9843-10-21 17:16 J | -1873438.91 | -1873438.78 | -1873438.65 | 0.1624 | 0.1190 |
| Earth | -9843-10-21 18:14 J | -1873438.88 | -1873438.74 | -1873438.60 | 0.1624 | 0.1018 * |
| Mercury | -9841-04-16 16:47 J | -1872895.91 | -1872895.80 | -1872895.68 | 0.1661 | 0.0354 |
| Mercury | -9839-03-22 18:57 J | -1872190.76 | -1872190.71 | -1872190.66 | 0.1647 | 0.1469 |
| Venus | -9835-08-15 21:07 J | -1870583.74 | -1870583.62 | -1870583.50 | 0.1709 | 0.1235 |
| Venus | -9833-06-14 10:04 J | -1869915.23 | -1869915.08 | -1869914.93 | 0.1689 | 0.0816 |
| Mercury | -9833-11-03 19:12 J | -1869772.85 | -1869772.70 | -1869772.54 | 0.1867 | 0.0746 |
| Mercury | -9832-09-07 04:04 J | -1869465.42 | -1869465.33 | -1869465.23 | 0.1666 | 0.0809 |
| Mercury | -9830-08-13 06:28 J | -1868760.32 | -1868760.23 | -1868760.14 | 0.1650 | 0.1034 |
| Venus | -9828-01-26 02:09 J | -1868228.56 | -1868228.41 | -1868228.26 | 0.1834 | 0.0927 |
| Mercury | -9823-03-26 12:00 J | -1866343.17 | -1866343.00 | -1866342.84 | 0.1861 | 0.0615 |
| Mercury | -9822-01-28 15:35 J | -1866034.93 | -1866034.85 | -1866034.78 | 0.1670 | 0.1266 |
| Mercury | -9820-01-02 18:00 J | -1865329.86 | -1865329.75 | -1865329.64 | 0.1654 | 0.0597 |

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|---------|---------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -9811-05-26 05:31 J | -1861899.39 | -1861899.27 | -1861899.16 | 0.1658 | 0.0161 |
| Mercury | -9802-10-16 16:47 J | -1858468.91 | -1858468.80 | -1858468.68 | 0.1661 | 0.0297 |
| Venus | -9801-06-13 08:09 J | -1858228.33 | -1858228.16 | -1858227.99 | 0.1697 | 0.0131 |
| Mercury | -9800-09-20 18:57 J | -1857763.75 | -1857763.71 | -1857763.67 | 0.1647 | 0.1523 |
| Venus | -9796-01-25 19:26 J | -1856540.86 | -1856540.69 | -1856540.52 | 0.1822 | 0.0516 |
| Mercury | -9793-05-04 20:24 J | -1855345.80 | -1855345.65 | -1855345.49 | 0.1867 | 0.0882 |
| Mercury | -9792-03-08 04:04 J | -1855038.43 | -1855038.33 | -1855038.22 | 0.1665 | 0.0752 |
| Mercury | -9790-02-11 06:28 J | -1854333.31 | -1854333.23 | -1854333.14 | 0.1650 | 0.1090 |
| Mercury | -9784-09-24 12:43 J | -1851916.13 | -1851915.97 | -1851915.80 | 0.1862 | 0.0496 |
| Mercury | -9783-07-29 15:21 J | -1851607.93 | -1851607.86 | -1851607.78 | 0.1670 | 0.1211 |
| Mercury | -9781-07-03 18:00 J | -1850902.86 | -1850902.75 | -1850902.65 | 0.1654 | 0.0652 |
| Mercury | -9774-02-14 05:45 J | -1848486.29 | -1848486.26 | -1848486.24 | 0.1856 | 0.1824 |
| Mercury | -9772-11-24 05:16 J | -1847472.39 | -1847472.28 | -1847472.16 | 0.1658 | 0.0217 |
| Venus | -9769-06-12 07:26 J | -1846541.32 | -1846541.19 | -1846541.06 | 0.1707 | 0.1111 |
| Venus | -9767-04-11 20:52 J | -1845872.78 | -1845872.63 | -1845872.49 | 0.1686 | 0.0926 |
| Venus | -9763-11-23 06:57 J | -1844186.35 | -1844186.21 | -1844186.08 | 0.1837 | 0.1163 |
| Mercury | -9762-04-16 16:47 J | -1844041.91 | -1844041.80 | -1844041.69 | 0.1661 | 0.0242 |
| Mercury | -9760-03-21 18:57 J | -1843336.74 | -1843336.71 | -1843336.68 | 0.1647 | 0.1576 |
| Mercury | -9754-11-03 20:52 J | -1840918.77 | -1840918.63 | -1840918.48 | 0.1867 | 0.0977 |
| Mercury | -9753-09-06 04:04 J | -1840611.43 | -1840611.33 | -1840611.22 | 0.1665 | 0.0696 |
| Mercury | -9751-08-12 06:28 J | -1839906.31 | -1839906.23 | -1839906.15 | 0.1650 | 0.1143 |
| Mercury | -9744-03-25 13:55 J | -1837489.09 | -1837488.92 | -1837488.75 | 0.1862 | 0.0366 |
| Mercury | -9743-01-27 15:21 J | -1837180.94 | -1837180.86 | -1837180.77 | 0.1669 | 0.1154 |
| Mercury | -9741-01-02 18:00 J | -1836475.85 | -1836475.75 | -1836475.65 | 0.1654 | 0.0709 |
| Venus | -9735-04-10 18:57 J | -1834185.88 | -1834185.71 | -1834185.53 | 0.1695 | 0.0037 |
| Mercury | -9735-08-15 06:28 J | -1834059.29 | -1834059.23 | -1834059.16 | 0.1856 | 0.1706 |
| Mercury | -9734-06-20 02:38 J | -1833750.41 | -1833750.39 | -1833750.36 | 0.1674 | 0.1619 |
| Mercury | -9732-05-25 05:16 J | -1833045.39 | -1833045.28 | -1833045.16 | 0.1657 | 0.0263 |
| Venus | -9731-11-23 01:12 J | -1832498.63 | -1832498.45 | -1832498.28 | 0.1826 | 0.0310 |
| Mercury | -9723-10-15 16:47 J | -1829614.92 | -1829614.80 | -1829614.69 | 0.1661 | 0.0189 |

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|---------|---------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -9721-09-19 18:43 J | -1828909.73 | -1828909.72 | -1828909.70 | 0.1647 | 0.1629 |
| Earth | -9717-10-17 23:16 J | -1827420.68 | -1827420.53 | -1827420.37 | 0.1620 | 0.0852 |
| Moon | -9717-10-18 05:02 J | -1827420.46 | -1827420.29 | -1827420.12 | 0.1621 | 0.0647 * |
| Mercury | -9714-05-04 22:19 J | -1826491.71 | -1826491.57 | -1826491.44 | 0.1868 | 0.1119 |
| Mercury | -9713-03-07 04:04 J | -1826184.43 | -1826184.33 | -1826184.22 | 0.1665 | 0.0640 |
| Mercury | -9711-02-10 06:28 J | -1825479.31 | -1825479.23 | -1825479.16 | 0.1650 | 0.1198 |
| Mercury | -9705-09-23 14:38 J | -1823062.06 | -1823061.89 | -1823061.72 | 0.1862 | 0.0261 |
| Mercury | -9704-07-28 15:21 J | -1822753.94 | -1822753.86 | -1822753.77 | 0.1670 | 0.1099 |
| Venus | -9703-04-09 17:45 J | -1822498.90 | -1822498.76 | -1822498.62 | 0.1704 | 0.0990 |
| Mercury | -9702-07-03 17:45 J | -1822048.86 | -1822048.76 | -1822048.66 | 0.1654 | 0.0760 |
| Venus | -9701-02-07 07:55 J | -1821830.30 | -1821830.17 | -1821830.03 | 0.1683 | 0.1026 |
| Venus | -9699-11-22 16:47 J | -1820810.86 | -1820810.80 | -1820810.74 | 0.1815 | 0.1690 |
| Venus | -9697-09-19 12:14 J | -1820144.11 | -1820143.99 | -1820143.88 | 0.1840 | 0.1390 |
| Mercury | -9695-02-13 07:12 J | -1819632.28 | -1819632.20 | -1819632.11 | 0.1856 | 0.1598 |
| Mercury | -9695-12-19 02:38 J | -1819323.42 | -1819323.39 | -1819323.35 | 0.1674 | 0.1560 |
| Mercury | -9693-11-23 05:16 J | -1818618.39 | -1818618.28 | -1818618.17 | 0.1658 | 0.0318 |
| Mercury | -9683-04-15 16:47 J | -1815187.92 | -1815187.80 | -1815187.69 | 0.1661 | 0.0130 |
| Mercury | -9675-11-02 23:02 J | -1812064.66 | -1812064.54 | -1812064.41 | 0.1868 | 0.1240 |
| Mercury | -9674-09-06 04:04 J | -1811757.44 | -1811757.33 | -1811757.22 | 0.1665 | 0.0586 |
| Mercury | -9672-08-11 06:14 J | -1811052.31 | -1811052.24 | -1811052.16 | 0.1650 | 0.1252 |
| Venus | -9669-02-06 05:31 J | -1810143.44 | -1810143.27 | -1810143.10 | 0.1692 | 0.0098 |
| Mercury | -9665-03-24 15:35 J | -1808635.02 | -1808634.85 | -1808634.68 | 0.1862 | 0.0133 |
| Venus | -9665-09-19 06:00 J | -1808456.42 | -1808456.25 | -1808456.07 | 0.1829 | 0.0093 |
| Mercury | -9664-01-26 15:21 J | -1808326.95 | -1808326.86 | -1808326.77 | 0.1669 | 0.1043 |
| Mercury | -9662-01-01 17:45 J | -1807621.86 | -1807621.76 | -1807621.66 | 0.1654 | 0.0813 |
| Mercury | -9656-08-14 08:24 J | -1805205.26 | -1805205.15 | -1805205.05 | 0.1856 | 0.1469 |
| Mercury | -9655-06-19 02:38 J | -1804896.44 | -1804896.39 | -1804896.34 | 0.1674 | 0.1508 |
| Mercury | -9653-05-24 05:16 J | -1804191.39 | -1804191.28 | -1804191.17 | 0.1657 | 0.0371 |
| Earth | -9646-04-24 03:50 J | -1801665.55 | -1801665.34 | -1801665.13 | 0.1902 | 0.0021 |
| Moon | -9646-04-24 05:31 J | -1801665.45 | -1801665.27 | -1801665.08 | 0.1902 | 0.0338 * |

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|---------|---------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -9644-10-14 16:33 J | -1800760.92 | -1800760.81 | -1800760.69 | 0.1661 | 0.0104 |
| Moon | -9638-10-20 23:02 J | -1798563.72 | -1798563.54 | -1798563.37 | 0.1621 | 0.0142 |
| Earth | -9638-10-20 23:45 J | -1798563.70 | -1798563.51 | -1798563.33 | 0.1621 | 0.0311 * |
| Venus | -9637-02-05 03:50 J | -1798456.49 | -1798456.34 | -1798456.19 | 0.1701 | 0.0865 |
| Venus | -9636-12-04 18:57 J | -1797787.83 | -1797787.71 | -1797787.58 | 0.1681 | 0.1129 |
| Mercury | -9635-05-03 23:45 J | -1797637.63 | -1797637.51 | -1797637.39 | 0.1868 | 0.1346 |
| Mercury | -9634-03-07 04:04 J | -1797330.44 | -1797330.33 | -1797330.22 | 0.1665 | 0.0527 |
| Venus | -9633-09-18 22:19 J | -1796768.67 | -1796768.57 | -1796768.47 | 0.1818 | 0.1488 |
| Mercury | -9632-02-09 06:14 J | -1796625.31 | -1796625.24 | -1796625.17 | 0.1650 | 0.1304 |
| Venus | -9631-07-17 16:04 J | -1796101.91 | -1796101.83 | -1796101.75 | 0.1844 | 0.1639 |
| Mercury | -9626-09-23 16:33 J | -1794207.98 | -1794207.81 | -1794207.64 | 0.1862 | 0.0019 |
| Mercury | -9625-07-27 15:21 J | -1793899.95 | -1793899.86 | -1793899.77 | 0.1669 | 0.0988 |
| Mercury | -9623-07-02 17:45 J | -1793194.85 | -1793194.76 | -1793194.66 | 0.1654 | 0.0870 |
| Mercury | -9616-02-12 09:21 J | -1790778.23 | -1790778.11 | -1790777.99 | 0.1856 | 0.1346 |
| Mercury | -9616-12-18 02:38 J | -1790469.45 | -1790469.39 | -1790469.34 | 0.1673 | 0.1450 |
| Mercury | -9614-11-23 05:16 J | -1789764.39 | -1789764.28 | -1789764.17 | 0.1657 | 0.0426 |
| Mercury | -9604-04-14 16:33 J | -1786333.92 | -1786333.81 | -1786333.69 | 0.1661 | 0.0058 |
| Venus | -9604-12-03 16:33 J | -1786100.98 | -1786100.81 | -1786100.64 | 0.1689 | 0.0207 |
| Venus | -9599-07-17 10:47 J | -1784414.23 | -1784414.05 | -1784413.88 | 0.1833 | 0.0152 |
| Mercury | -9596-11-02 00:43 J | -1783210.57 | -1783210.47 | -1783210.36 | 0.1868 | 0.1475 |
| Mercury | -9595-09-05 04:04 J | -1782903.44 | -1782903.33 | -1782903.23 | 0.1665 | 0.0481 |
| Mercury | -9593-08-10 06:14 J | -1782198.30 | -1782198.24 | -1782198.18 | 0.1650 | 0.1356 |
| Mercury | -9586-03-24 17:31 J | -1779780.95 | -1779780.77 | -1779780.60 | 0.1862 | 0.0120 |
| Mercury | -9585-01-26 15:21 J | -1779472.96 | -1779472.86 | -1779472.77 | 0.1669 | 0.0932 |
| Mercury | -9584-12-31 17:45 J | -1778767.86 | -1778767.76 | -1778767.67 | 0.1654 | 0.0922 |
| Mercury | -9577-08-13 09:50 J | -1776351.21 | -1776351.09 | -1776350.96 | 0.1857 | 0.1242 |
| Mercury | -9576-06-18 02:38 J | -1776042.45 | -1776042.39 | -1776042.33 | 0.1673 | 0.1393 |
| Mercury | -9574-05-24 05:16 J | -1775337.39 | -1775337.28 | -1775337.17 | 0.1657 | 0.0482 |
| Venus | -9572-12-02 14:38 J | -1774414.05 | -1774413.89 | -1774413.74 | 0.1698 | 0.0752 |
| Venus | -9570-10-02 06:28 J | -1773745.35 | -1773745.23 | -1773745.12 | 0.1678 | 0.1227 |

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|---------|---------------------|-------------|-------------|-------------|--------|--------|
| Venus | -9567-07-17 03:50 J | -1772726.47 | -1772726.34 | -1772726.22 | 0.1822 | 0.1281 |
| Mercury | -9565-10-13 16:33 J | -1771906.92 | -1771906.81 | -1771906.69 | 0.1661 | 0.0049 |
| Earth | -9559-10-23 00:43 J | -1769706.54 | -1769706.47 | -1769706.39 | 0.1622 | 0.1487 |
| Mercury | -9556-05-03 01:55 J | -1768783.50 | -1768783.42 | -1768783.33 | 0.1868 | 0.1610 |
| Mercury | -9555-03-06 03:50 J | -1768476.45 | -1768476.34 | -1768476.22 | 0.1665 | 0.0425 |
| Mercury | -9553-02-09 06:14 J | -1767771.30 | -1767771.24 | -1767771.18 | 0.1650 | 0.1412 |
| Mercury | -9547-09-22 18:14 J | -1765353.91 | -1765353.74 | -1765353.57 | 0.1862 | 0.0227 |
| Mercury | -9546-07-27 15:21 J | -1765045.96 | -1765045.86 | -1765045.77 | 0.1669 | 0.0878 |
| Mercury | -9544-07-01 17:45 J | -1764340.85 | -1764340.76 | -1764340.67 | 0.1653 | 0.0975 |
| Venus | -9538-10-01 03:21 J | -1762058.53 | -1762058.36 | -1762058.19 | 0.1686 | 0.0314 |
| Mercury | -9537-02-12 11:02 J | -1761924.18 | -1761924.04 | -1761923.90 | 0.1857 | 0.1110 |
| Mercury | -9537-12-17 02:24 J | -1761615.46 | -1761615.40 | -1761615.33 | 0.1673 | 0.1343 |
| Mercury | -9535-11-22 05:02 J | -1760910.39 | -1760910.29 | -1760910.18 | 0.1657 | 0.0536 |
| Venus | -9533-05-13 15:35 J | -1760372.03 | -1760371.85 | -1760371.68 | 0.1837 | 0.0380 |
| Mercury | -9525-04-13 16:33 J | -1757479.92 | -1757479.81 | -1757479.69 | 0.1661 | 0.0088 |
| Mercury | -9517-11-01 02:24 J | -1754356.46 | -1754356.40 | -1754356.33 | 0.1868 | 0.1705 |
| Mercury | -9516-09-04 03:50 J | -1754049.45 | -1754049.34 | -1754049.22 | 0.1665 | 0.0368 |
| Mercury | -9514-08-10 06:14 J | -1753344.29 | -1753344.24 | -1753344.19 | 0.1650 | 0.1465 |
| Earth | -9512-10-17 06:14 J | -1752545.31 | -1752545.24 | -1752545.18 | 0.1618 | 0.1514 |
| Mercury | -9507-03-23 19:26 J | -1750926.86 | -1750926.69 | -1750926.52 | 0.1863 | 0.0360 |
| Mercury | -9506-01-25 15:21 J | -1750618.96 | -1750618.86 | -1750618.77 | 0.1669 | 0.0823 |
| Venus | -9506-09-30 00:57 J | -1750371.62 | -1750371.46 | -1750371.30 | 0.1695 | 0.0632 |
| Mercury | -9505-12-30 17:45 J | -1749913.85 | -1749913.76 | -1749913.67 | 0.1653 | 0.1032 |
| Venus | -9504-07-29 17:16 J | -1749702.88 | -1749702.78 | -1749702.68 | 0.1676 | 0.1331 |
| Venus | -9501-05-13 08:52 J | -1748684.27 | -1748684.13 | -1748683.98 | 0.1825 | 0.1070 |
| Mercury | -9498-08-13 12:00 J | -1747497.15 | -1747497.00 | -1747496.86 | 0.1857 | 0.0992 |
| Mercury | -9497-06-17 02:24 J | -1747188.47 | -1747188.40 | -1747188.32 | 0.1673 | 0.1286 |
| Mercury | -9495-05-23 05:02 J | -1746483.39 | -1746483.29 | -1746483.18 | 0.1657 | 0.0589 |
| Mercury | -9486-10-13 16:33 J | -1743052.93 | -1743052.81 | -1743052.70 | 0.1661 | 0.0143 |
| Mercury | -9477-05-02 03:50 J | -1739929.36 | -1739929.34 | -1739929.32 | 0.1868 | 0.1846 |

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|---------|---------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -9476-03-05 03:50 J | -1739622.45 | -1739622.34 | -1739622.23 | 0.1665 | 0.0311 |
| Mercury | -9474-02-08 06:00 J | -1738917.29 | -1738917.25 | -1738917.20 | 0.1650 | 0.1519 |
| Venus | -9474-09-29 00:14 J | -1738684.54 | -1738684.49 | -1738684.44 | 0.1704 | 0.1617 |
| Venus | -9472-07-28 13:55 J | -1738016.09 | -1738015.92 | -1738015.76 | 0.1684 | 0.0428 |
| Mercury | -9468-09-21 19:55 J | -1736499.83 | -1736499.67 | -1736499.50 | 0.1863 | 0.0466 |
| Venus | -9467-03-10 20:09 J | -1736329.83 | -1736329.66 | -1736329.49 | 0.1840 | 0.0615 |
| Mercury | -9467-07-26 15:07 J | -1736191.97 | -1736191.87 | -1736191.77 | 0.1669 | 0.0768 |
| Mercury | -9465-06-30 17:31 J | -1735486.85 | -1735486.77 | -1735486.68 | 0.1653 | 0.1082 |
| Mercury | -9458-02-11 12:43 J | -1733070.12 | -1733069.97 | -1733069.82 | 0.1857 | 0.0880 |
| Mercury | -9458-12-17 02:38 J | -1732761.47 | -1732761.39 | -1732761.32 | 0.1673 | 0.1226 |
| Mercury | -9456-11-21 05:02 J | -1732056.39 | -1732056.29 | -1732056.18 | 0.1657 | 0.0645 |
| Mercury | -9446-04-13 16:33 J | -1728625.92 | -1728625.81 | -1728625.70 | 0.1661 | 0.0199 |
| Venus | -9440-07-27 11:45 J | -1726329.18 | -1726329.01 | -1726328.85 | 0.1692 | 0.0519 |
| Venus | -9438-05-27 04:47 J | -1725660.38 | -1725660.30 | -1725660.21 | 0.1674 | 0.1427 |
| Mercury | -9437-09-03 03:50 J | -1725195.45 | -1725195.34 | -1725195.23 | 0.1665 | 0.0257 |
| Venus | -9435-03-10 14:52 J | -1724642.04 | -1724641.88 | -1724641.73 | 0.1829 | 0.0864 |
| Mercury | -9435-08-09 06:00 J | -1724490.28 | -1724490.25 | -1724490.21 | 0.1650 | 0.1571 |
| Earth | -9433-10-19 06:28 J | -1723688.41 | -1723688.23 | -1723688.05 | 0.1619 | 0.0369 |
| Moon | -9433-10-19 07:40 J | -1723688.38 | -1723688.18 | -1723687.99 | 0.1619 | 0.0194 * |
| Mercury | -9428-03-22 21:07 J | -1722072.78 | -1722072.62 | -1722072.46 | 0.1863 | 0.0594 |
| Mercury | -9427-01-24 15:07 J | -1721764.97 | -1721764.87 | -1721764.76 | 0.1669 | 0.0712 |
| Mercury | -9426-12-30 17:31 J | -1721059.85 | -1721059.77 | -1721059.69 | 0.1653 | 0.1137 |
| Mercury | -9419-08-12 13:55 J | -1718643.08 | -1718642.92 | -1718642.77 | 0.1857 | 0.0753 |
| Mercury | -9418-06-17 02:24 J | -1718334.48 | -1718334.40 | -1718334.32 | 0.1673 | 0.1174 |
| Mercury | -9416-05-22 05:02 J | -1717629.39 | -1717629.29 | -1717629.19 | 0.1657 | 0.0697 |
| Mercury | -9409-11-06 13:40 J | -1714903.95 | -1714903.93 | -1714903.91 | 0.1678 | 0.1640 |
| Venus | -9408-07-26 10:19 J | -1714642.15 | -1714642.07 | -1714641.99 | 0.1701 | 0.1491 |
| Mercury | -9407-10-12 16:19 J | -1714198.93 | -1714198.82 | -1714198.70 | 0.1661 | 0.0257 |
| Venus | -9406-05-26 01:12 J | -1713973.61 | -1713973.45 | -1713973.28 | 0.1681 | 0.0529 |
| Venus | -9401-01-06 00:43 J | -1712287.62 | -1712287.47 | -1712287.31 | 0.1843 | 0.0852 |

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|---------|---------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -9397-03-04 03:50 J | -1710768.45 | -1710768.34 | -1710768.23 | 0.1665 | 0.0197 |
| Mercury | -9395-02-07 06:00 J | -1710063.26 | -1710063.25 | -1710063.23 | 0.1650 | 0.1625 |
| Mercury | -9389-09-20 22:04 J | -1707645.74 | -1707645.58 | -1707645.42 | 0.1863 | 0.0720 |
| Mercury | -9388-07-25 15:07 J | -1707337.97 | -1707337.87 | -1707337.76 | 0.1669 | 0.0656 |
| Mercury | -9386-06-30 17:31 J | -1706632.85 | -1706632.77 | -1706632.69 | 0.1653 | 0.1193 |
| Mercury | -9379-02-10 14:38 J | -1704216.05 | -1704215.89 | -1704215.73 | 0.1857 | 0.0632 |
| Mercury | -9379-12-16 02:24 J | -1703907.48 | -1703907.40 | -1703907.31 | 0.1673 | 0.1117 |
| Mercury | -9377-11-20 05:02 J | -1703202.39 | -1703202.29 | -1703202.19 | 0.1657 | 0.0750 |
| Venus | -9374-05-24 22:33 J | -1702286.73 | -1702286.56 | -1702286.39 | 0.1689 | 0.0407 |
| Venus | -9372-03-23 16:04 J | -1701617.90 | -1701617.83 | -1701617.76 | 0.1671 | 0.1524 |
| Venus | -9369-01-05 19:26 J | -1700599.85 | -1700599.69 | -1700599.52 | 0.1832 | 0.0638 |
| Mercury | -9369-05-07 13:26 J | -1700476.97 | -1700476.94 | -1700476.90 | 0.1678 | 0.1588 |
| Mercury | -9367-04-12 16:19 J | -1699771.93 | -1699771.82 | -1699771.70 | 0.1661 | 0.0310 |
| Earth | -9362-04-23 02:38 J | -1697935.55 | -1697935.39 | -1697935.23 | 0.1905 | 0.1198 |
| Moon | -9362-04-23 10:04 J | -1697935.29 | -1697935.08 | -1697934.87 | 0.1905 | 0.0683 * |
| Mercury | -9358-09-03 03:50 J | -1696341.46 | -1696341.34 | -1696341.23 | 0.1665 | 0.0154 |
| Earth | -9354-10-22 06:43 J | -1694831.39 | -1694831.22 | -1694831.06 | 0.1620 | 0.0792 |
| Moon | -9354-10-22 12:43 J | -1694831.14 | -1694830.97 | -1694830.80 | 0.1620 | 0.0650 * |
| Mercury | -9349-03-21 22:47 J | -1693218.70 | -1693218.55 | -1693218.39 | 0.1863 | 0.0832 |
| Mercury | -9348-01-23 15:07 J | -1692910.98 | -1692910.87 | -1692910.76 | 0.1669 | 0.0600 |
| Mercury | -9347-12-29 17:31 J | -1692205.84 | -1692205.77 | -1692205.70 | 0.1653 | 0.1244 |
| Venus | -9342-05-23 20:52 J | -1690599.73 | -1690599.63 | -1690599.53 | 0.1698 | 0.1371 |
| Venus | -9340-03-22 12:00 J | -1689931.16 | -1689931.00 | -1689930.84 | 0.1679 | 0.0636 |
| Mercury | -9340-08-11 15:21 J | -1689789.02 | -1689788.86 | -1689788.69 | 0.1858 | 0.0523 |
| Mercury | -9339-06-16 02:24 J | -1689480.49 | -1689480.40 | -1689480.31 | 0.1673 | 0.1060 |
| Mercury | -9337-05-21 05:02 J | -1688775.39 | -1688775.29 | -1688775.19 | 0.1657 | 0.0807 |
| Venus | -9336-11-02 05:16 J | -1688245.42 | -1688245.28 | -1688245.14 | 0.1847 | 0.1097 |
| Mercury | -9330-01-01 08:38 J | -1686359.16 | -1686359.14 | -1686359.12 | 0.1851 | 0.1828 |
| Mercury | -9330-11-06 13:26 J | -1686049.98 | -1686049.94 | -1686049.89 | 0.1677 | 0.1532 |
| Mercury | -9328-10-11 16:19 J | -1685344.93 | -1685344.82 | -1685344.71 | 0.1660 | 0.0363 |

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|---------|---------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -9318-03-04 03:50 J | -1681914.46 | -1681914.34 | -1681914.23 | 0.1664 | 0.0112 |
| Mercury | -9310-09-20 23:45 J | -1678791.66 | -1678791.51 | -1678791.36 | 0.1863 | 0.0950 |
| Mercury | -9309-07-24 15:07 J | -1678483.98 | -1678483.87 | -1678483.76 | 0.1669 | 0.0547 |
| Venus | -9308-03-21 09:35 J | -1678244.27 | -1678244.10 | -1678243.93 | 0.1687 | 0.0299 |
| Mercury | -9307-06-29 17:31 J | -1677778.84 | -1677778.77 | -1677778.70 | 0.1653 | 0.1297 |
| Venus | -9306-01-19 03:21 J | -1677575.39 | -1677575.36 | -1677575.32 | 0.1669 | 0.1622 |
| Venus | -9304-11-02 00:43 J | -1676557.64 | -1676557.47 | -1676557.29 | 0.1836 | 0.0422 |
| Mercury | -9300-02-09 16:33 J | -1675361.98 | -1675361.81 | -1675361.64 | 0.1857 | 0.0395 |
| Mercury | -9300-12-15 02:24 J | -1675053.49 | -1675053.40 | -1675053.31 | 0.1673 | 0.1009 |
| Mercury | -9298-11-20 05:02 J | -1674348.39 | -1674348.29 | -1674348.20 | 0.1657 | 0.0860 |
| Mercury | -9291-07-02 09:21 J | -1671932.17 | -1671932.11 | -1671932.05 | 0.1851 | 0.1723 |
| Mercury | -9290-05-07 13:40 J | -1671622.99 | -1671622.93 | -1671622.88 | 0.1677 | 0.1474 |
| Mercury | -9288-04-11 16:19 J | -1670917.93 | -1670917.82 | -1670917.71 | 0.1661 | 0.0415 |
| Mercury | -9279-09-02 03:50 J | -1667487.46 | -1667487.34 | -1667487.23 | 0.1664 | 0.0068 |
| Venus | -9276-03-20 07:26 J | -1666557.31 | -1666557.19 | -1666557.08 | 0.1695 | 0.1253 |
| Venus | -9274-01-17 23:31 J | -1665888.67 | -1665888.52 | -1665888.36 | 0.1676 | 0.0732 |
| Mercury | -9270-03-22 00:57 J | -1664364.60 | -1664364.46 | -1664364.32 | 0.1864 | 0.1085 |
| Venus | -9270-08-30 09:50 J | -1664203.21 | -1664203.09 | -1664202.97 | 0.1850 | 0.1338 |
| Mercury | -9269-01-23 15:07 J | -1664056.98 | -1664056.87 | -1664056.76 | 0.1668 | 0.0494 |
| Mercury | -9268-12-28 17:31 J | -1663351.84 | -1663351.77 | -1663351.71 | 0.1653 | 0.1353 |
| Mercury | -9261-08-10 17:16 J | -1660934.95 | -1660934.78 | -1660934.61 | 0.1857 | 0.0280 |
| Mercury | -9260-06-15 02:24 J | -1660626.50 | -1660626.40 | -1660626.31 | 0.1673 | 0.0954 |
| Mercury | -9258-05-21 04:47 J | -1659921.39 | -1659921.30 | -1659921.20 | 0.1657 | 0.0913 |
| Mercury | -9252-12-31 10:19 J | -1657505.16 | -1657505.07 | -1657504.99 | 0.1852 | 0.1600 |
| Mercury | -9251-11-05 13:26 J | -1657196.00 | -1657195.94 | -1657195.88 | 0.1677 | 0.1420 |
| Mercury | -9249-10-10 16:19 J | -1656490.93 | -1656490.82 | -1656490.71 | 0.1660 | 0.0468 |
| Venus | -9242-01-16 20:24 J | -1654201.82 | -1654201.65 | -1654201.48 | 0.1684 | 0.0190 |
| Mercury | -9239-03-03 03:35 J | -1653060.46 | -1653060.35 | -1653060.23 | 0.1664 | 0.0028 |
| Venus | -9238-08-30 05:16 J | -1652515.46 | -1652515.28 | -1652515.11 | 0.1839 | 0.0183 |
| Mercury | -9231-09-20 01:26 J | -1649937.57 | -1649937.44 | -1649937.31 | 0.1863 | 0.1186 |

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|---------|---------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -9230-07-24 15:07 J | -1649629.98 | -1649629.87 | -1649629.76 | 0.1669 | 0.0439 |
| Mercury | -9228-06-28 17:16 J | -1648924.83 | -1648924.78 | -1648924.72 | 0.1653 | 0.1404 |
| Moon | -9228-10-18 12:14 J | -1648813.11 | -1648812.99 | -1648812.87 | 0.1617 | 0.1166 |
| Earth | -9228-10-18 13:26 J | -1648813.08 | -1648812.94 | -1648812.79 | 0.1617 | 0.1018 * |
| Mercury | -9221-02-09 18:14 J | -1646507.91 | -1646507.74 | -1646507.57 | 0.1858 | 0.0163 |
| Mercury | -9221-12-14 02:24 J | -1646199.50 | -1646199.40 | -1646199.31 | 0.1673 | 0.0894 |
| Mercury | -9219-11-19 04:47 J | -1645494.39 | -1645494.30 | -1645494.20 | 0.1657 | 0.0969 |
| Mercury | -9212-07-01 11:16 J | -1643078.13 | -1643078.03 | -1643077.92 | 0.1852 | 0.1471 |
| Mercury | -9211-05-06 13:26 J | -1642769.00 | -1642768.94 | -1642768.88 | 0.1677 | 0.1364 |
| Venus | -9210-01-15 18:00 J | -1642514.88 | -1642514.75 | -1642514.63 | 0.1693 | 0.1133 |
| Mercury | -9209-04-10 16:19 J | -1642063.93 | -1642063.82 | -1642063.71 | 0.1660 | 0.0525 |
| Venus | -9209-11-14 10:47 J | -1641846.20 | -1641846.05 | -1641845.90 | 0.1674 | 0.0833 |
| Venus | -9206-08-29 22:47 J | -1640827.63 | -1640827.55 | -1640827.48 | 0.1828 | 0.1629 |
| Venus | -9204-06-26 13:26 J | -1640161.02 | -1640160.94 | -1640160.85 | 0.1853 | 0.1602 |
| Mercury | -9200-09-01 03:35 J | -1638633.46 | -1638633.35 | -1638633.24 | 0.1664 | 0.0072 |
| Mercury | -9191-03-21 02:38 J | -1635510.51 | -1635510.39 | -1635510.27 | 0.1864 | 0.1317 |
| Mercury | -9190-01-22 14:52 J | -1635202.99 | -1635202.88 | -1635202.76 | 0.1668 | 0.0385 |
| Mercury | -9189-12-27 17:16 J | -1634497.83 | -1634497.78 | -1634497.73 | 0.1653 | 0.1458 |
| Mercury | -9182-08-10 19:12 J | -1632080.87 | -1632080.70 | -1632080.53 | 0.1858 | 0.0038 |
| Mercury | -9181-06-14 02:09 J | -1631772.51 | -1631772.41 | -1631772.31 | 0.1673 | 0.0843 |
| Mercury | -9179-05-20 04:47 J | -1631067.39 | -1631067.30 | -1631067.21 | 0.1656 | 0.1019 |
| Venus | -9177-11-13 07:26 J | -1630159.36 | -1630159.19 | -1630159.01 | 0.1682 | 0.0092 |
| Mercury | -9173-12-30 11:45 J | -1628651.12 | -1628651.01 | -1628650.89 | 0.1852 | 0.1377 |
| Venus | -9172-06-26 09:21 J | -1628473.28 | -1628473.11 | -1628472.93 | 0.1843 | 0.0077 |
| Mercury | -9172-11-04 13:26 J | -1628342.01 | -1628341.94 | -1628341.87 | 0.1677 | 0.1307 |
| Mercury | -9170-10-10 16:04 J | -1627636.93 | -1627636.83 | -1627636.72 | 0.1660 | 0.0578 |
| Mercury | -9160-03-02 03:35 J | -1624206.46 | -1624206.35 | -1624206.23 | 0.1664 | 0.0133 |
| Mercury | -9152-09-19 03:35 J | -1621083.46 | -1621083.35 | -1621083.24 | 0.1864 | 0.1443 |
| Mercury | -9151-07-23 14:52 J | -1620775.99 | -1620775.88 | -1620775.77 | 0.1668 | 0.0328 |
| Mercury | -9149-06-27 17:16 J | -1620070.82 | -1620070.78 | -1620070.73 | 0.1653 | 0.1513 |

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|---------|---------------------|-------------|-------------|-------------|--------|----------|
| Moon | -9149-10-20 07:55 J | -1619956.36 | -1619956.17 | -1619955.99 | 0.1618 | 0.0233 |
| Earth | -9149-10-20 13:55 J | -1619956.10 | -1619955.92 | -1619955.73 | 0.1618 | 0.0124 * |
| Venus | -9145-11-12 04:47 J | -1618472.43 | -1618472.30 | -1618472.16 | 0.1690 | 0.1025 |
| Venus | -9143-09-11 22:19 J | -1617803.71 | -1617803.57 | -1617803.43 | 0.1671 | 0.0931 |
| Mercury | -9142-02-08 20:09 J | -1617653.84 | -1617653.66 | -1617653.49 | 0.1858 | 0.0089 |
| Mercury | -9142-12-14 02:09 J | -1617345.51 | -1617345.41 | -1617345.31 | 0.1673 | 0.0786 |
| Venus | -9140-06-26 03:50 J | -1616785.45 | -1616785.34 | -1616785.23 | 0.1832 | 0.1411 |
| Mercury | -9140-11-18 04:47 J | -1616640.39 | -1616640.30 | -1616640.22 | 0.1656 | 0.1072 |
| Venus | -9138-04-23 17:45 J | -1616118.77 | -1616118.76 | -1616118.75 | 0.1857 | 0.1852 |
| Mercury | -9133-06-30 12:57 J | -1614224.08 | -1614223.96 | -1614223.83 | 0.1852 | 0.1243 |
| Mercury | -9132-05-05 13:26 J | -1613915.02 | -1613914.94 | -1613914.87 | 0.1677 | 0.1253 |
| Mercury | -9130-04-10 16:04 J | -1613209.93 | -1613209.83 | -1613209.72 | 0.1660 | 0.0634 |
| Mercury | -9121-08-31 03:35 J | -1609779.47 | -1609779.35 | -1609779.24 | 0.1664 | 0.0186 |
| Mercury | -9112-03-20 04:19 J | -1606656.41 | -1606656.32 | -1606656.23 | 0.1864 | 0.1549 |
| Mercury | -9111-01-21 14:52 J | -1606348.99 | -1606348.88 | -1606348.77 | 0.1668 | 0.0271 |
| Venus | -9111-09-10 18:28 J | -1606116.90 | -1606116.73 | -1606116.56 | 0.1679 | 0.0032 |
| Mercury | -9110-12-27 17:16 J | -1605643.82 | -1605643.78 | -1605643.75 | 0.1653 | 0.1563 |
| Venus | -9106-04-23 13:55 J | -1604431.10 | -1604430.92 | -1604430.75 | 0.1846 | 0.0303 |
| Mercury | -9103-08-09 20:52 J | -1603226.80 | -1603226.63 | -1603226.46 | 0.1858 | 0.0195 |
| Mercury | -9102-06-14 02:09 J | -1602918.51 | -1602918.41 | -1602918.31 | 0.1672 | 0.0730 |
| Mercury | -9100-05-19 04:47 J | -1602213.38 | -1602213.30 | -1602213.22 | 0.1656 | 0.1129 |
| Mercury | -9094-12-30 13:55 J | -1599797.05 | -1599796.92 | -1599796.78 | 0.1852 | 0.1122 |
| Mercury | -9093-11-03 13:26 J | -1599488.02 | -1599487.94 | -1599487.87 | 0.1677 | 0.1199 |
| Mercury | -9091-10-09 16:04 J | -1598782.93 | -1598782.83 | -1598782.72 | 0.1660 | 0.0685 |
| Mercury | -9083-03-27 00:28 J | -1596057.49 | -1596057.48 | -1596057.47 | 0.1682 | 0.1669 |
| Mercury | -9081-03-01 03:35 J | -1595352.47 | -1595352.35 | -1595352.24 | 0.1664 | 0.0243 |
| Venus | -9079-09-09 15:21 J | -1594430.01 | -1594429.86 | -1594429.72 | 0.1687 | 0.0904 |
| Venus | -9077-07-09 09:21 J | -1593761.24 | -1593761.11 | -1593760.98 | 0.1669 | 0.1033 |
| Venus | -9074-04-23 08:38 J | -1592743.27 | -1592743.14 | -1592743.00 | 0.1835 | 0.1189 |
| Mercury | -9073-09-18 05:16 J | -1592229.36 | -1592229.28 | -1592229.21 | 0.1864 | 0.1671 |

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|---------|---------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -9072-07-22 14:52 J | -1591922.00 | -1591921.88 | -1591921.77 | 0.1668 | 0.0219 |
| Mercury | -9070-06-27 17:16 J | -1591216.80 | -1591216.78 | -1591216.76 | 0.1653 | 0.1616 |
| Moon | -9070-10-23 11:16 J | -1591099.18 | -1591099.03 | -1591098.88 | 0.1618 | 0.1037 |
| Earth | -9070-10-23 13:55 J | -1591099.03 | -1591098.92 | -1591098.81 | 0.1618 | 0.1271 * |
| Mercury | -9063-02-07 21:50 J | -1588799.76 | -1588799.59 | -1588799.42 | 0.1858 | 0.0324 |
| Mercury | -9063-12-13 02:09 J | -1588491.52 | -1588491.41 | -1588491.31 | 0.1673 | 0.0677 |
| Mercury | -9061-11-17 04:33 J | -1587786.38 | -1587786.31 | -1587786.23 | 0.1656 | 0.1181 |
| Mercury | -9054-06-30 14:38 J | -1585370.03 | -1585369.89 | -1585369.75 | 0.1852 | 0.1017 |
| Mercury | -9053-05-04 13:26 J | -1585061.03 | -1585060.94 | -1585060.86 | 0.1677 | 0.1140 |
| Mercury | -9051-04-09 16:04 J | -1584355.93 | -1584355.83 | -1584355.73 | 0.1660 | 0.0739 |
| Venus | -9045-07-08 05:16 J | -1582074.45 | -1582074.28 | -1582074.11 | 0.1676 | 0.0138 |
| Mercury | -9044-09-25 00:28 J | -1581630.51 | -1581630.48 | -1581630.45 | 0.1681 | 0.1615 |
| Mercury | -9042-08-31 03:35 J | -1580925.47 | -1580925.35 | -1580925.24 | 0.1664 | 0.0299 |
| Venus | -9040-02-17 18:00 J | -1580388.92 | -1580388.75 | -1580388.59 | 0.1850 | 0.0554 |
| Mercury | -9033-03-19 06:28 J | -1577802.27 | -1577802.23 | -1577802.19 | 0.1864 | 0.1806 |
| Mercury | -9032-01-20 14:52 J | -1577495.00 | -1577494.88 | -1577494.77 | 0.1668 | 0.0166 |
| Mercury | -9024-08-08 22:47 J | -1574372.72 | -1574372.55 | -1574372.38 | 0.1858 | 0.0438 |
| Mercury | -9023-06-13 02:09 J | -1574064.52 | -1574064.41 | -1574064.31 | 0.1672 | 0.0624 |
| Moon | -9023-10-18 00:00 J | -1573937.54 | -1573937.50 | -1573937.46 | 0.1616 | 0.1571 |
| Mercury | -9021-05-18 04:33 J | -1573359.38 | -1573359.31 | -1573359.23 | 0.1656 | 0.1234 |
| Mercury | -9015-12-29 15:35 J | -1570943.00 | -1570942.85 | -1570942.70 | 0.1852 | 0.0895 |
| Mercury | -9014-11-03 13:12 J | -1570634.03 | -1570633.95 | -1570633.86 | 0.1677 | 0.1089 |
| Venus | -9013-07-07 02:24 J | -1570387.55 | -1570387.40 | -1570387.25 | 0.1684 | 0.0796 |
| Mercury | -9012-10-08 16:04 J | -1569928.93 | -1569928.83 | -1569928.73 | 0.1660 | 0.0792 |
| Venus | -9011-05-06 21:07 J | -1569718.74 | -1569718.62 | -1569718.49 | 0.1667 | 0.1128 |
| Venus | -9008-02-17 13:55 J | -1568701.07 | -1568700.92 | -1568700.77 | 0.1839 | 0.0970 |
| Mercury | -9004-03-26 00:28 J | -1567203.52 | -1567203.48 | -1567203.44 | 0.1682 | 0.1559 |
| Mercury | -9002-03-01 03:21 J | -1566498.47 | -1566498.36 | -1566498.25 | 0.1664 | 0.0346 |

9TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 9th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|---|-------------|-------------|-------------|--------|--------|---|
| Moon | -8999-04-25 19:55 J | | -1565346.87 | -1565346.67 | -1565346.47 | 0.1906 | 0.0951 | |
| Earth | -8999-04-25 20:24 J | | -1565346.81 | -1565346.65 | -1565346.49 | 0.1906 | 0.1191 | * |
| Mercury | -8993-07-21 14:52 J | | -1563068.00 | -1563067.88 | -1563067.77 | 0.1668 | 0.0120 | |
| Mercury | -8984-02-06 23:31 J | | -1559945.68 | -1559945.52 | -1559945.35 | 0.1859 | 0.0556 | |
| Mercury | -8984-12-12 02:09 J | | -1559637.52 | -1559637.41 | -1559637.31 | 0.1672 | 0.0566 | |
| Mercury | -8982-11-17 04:33 J | | -1558932.38 | -1558932.31 | -1558932.24 | 0.1656 | 0.1288 | |
| Venus | -8979-05-05 16:47 J | | -1558031.97 | -1558031.80 | -1558031.63 | 0.1674 | 0.0241 | |
| Mercury | -8975-06-29 16:47 J | | -1556515.96 | -1556515.80 | -1556515.65 | 0.1852 | 0.0767 | |
| Venus | -8975-12-15 22:04 J | | -1556346.74 | -1556346.58 | -1556346.42 | 0.1853 | 0.0802 | |
| Mercury | -8974-05-04 13:12 J | | -1556207.04 | -1556206.95 | -1556206.86 | 0.1677 | 0.1033 | |
| Mercury | -8972-04-08 16:04 J | | -1555501.93 | -1555501.83 | -1555501.74 | 0.1660 | 0.0847 | |
| Mercury | -8965-09-24 00:28 J | | -1552776.53 | -1552776.48 | -1552776.43 | 0.1681 | 0.1504 | |
| Mercury | -8963-08-30 03:21 J | | -1552071.47 | -1552071.36 | -1552071.25 | 0.1664 | 0.0398 | |
| Mercury | -8953-01-20 14:38 J | | -1548641.00 | -1548640.89 | -1548640.77 | 0.1668 | 0.0081 | |
| Venus | -8947-05-04 13:26 J | | -1546345.10 | -1546344.94 | -1546344.78 | 0.1682 | 0.0685 | |
| Venus | -8945-03-03 08:24 J | | -1545676.26 | -1545676.15 | -1545676.03 | 0.1664 | 0.1226 | |
| Mercury | -8945-08-08 00:28 J | | -1545518.64 | -1545518.48 | -1545518.32 | 0.1859 | 0.0676 | |
| Mercury | -8944-06-12 01:55 J | | -1545210.53 | -1545210.42 | -1545210.31 | 0.1672 | 0.0513 | |
| Earth | -8944-10-19 20:38 J | | -1545080.81 | -1545080.64 | -1545080.46 | 0.1616 | 0.0530 | |
| Moon | -8944-10-20 03:21 J | | -1545080.53 | -1545080.36 | -1545080.19 | 0.1616 | 0.0613 | * |

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|---------|---------------------|-------------|-------------|-------------|--------|----------|
| Venus | -8943-12-15 18:14 J | -1544658.90 | -1544658.74 | -1544658.58 | 0.1842 | 0.0734 |
| Mercury | -8942-05-18 04:33 J | -1544505.38 | -1544505.31 | -1544505.25 | 0.1656 | 0.1339 |
| Mercury | -8936-12-28 17:16 J | -1542088.94 | -1542088.78 | -1542088.62 | 0.1853 | 0.0673 |
| Mercury | -8935-11-02 13:12 J | -1541780.04 | -1541779.95 | -1541779.85 | 0.1677 | 0.0975 |
| Mercury | -8933-10-07 15:50 J | -1541074.93 | -1541074.84 | -1541074.74 | 0.1660 | 0.0900 |
| Mercury | -8925-03-25 00:28 J | -1538349.54 | -1538349.48 | -1538349.43 | 0.1681 | 0.1448 |
| Mercury | -8923-02-28 03:21 J | -1537644.47 | -1537644.36 | -1537644.25 | 0.1664 | 0.0457 |
| Venus | -8915-05-03 11:02 J | -1534658.08 | -1534658.04 | -1534658.00 | 0.1690 | 0.1635 |
| Mercury | -8914-07-21 14:38 J | -1534214.00 | -1534213.89 | -1534213.77 | 0.1668 | 0.0008 |
| Venus | -8913-03-02 03:50 J | -1533989.51 | -1533989.34 | -1533989.17 | 0.1671 | 0.0346 |
| Venus | -8909-10-12 02:09 J | -1532304.55 | -1532304.41 | -1532304.27 | 0.1856 | 0.1059 |
| Mercury | -8905-02-07 01:26 J | -1531091.59 | -1531091.44 | -1531091.28 | 0.1859 | 0.0793 |
| Mercury | -8905-12-11 01:55 J | -1530783.53 | -1530783.42 | -1530783.31 | 0.1672 | 0.0457 |
| Mercury | -8903-11-16 04:33 J | -1530078.37 | -1530078.31 | -1530078.25 | 0.1656 | 0.1392 |
| Mercury | -8896-06-28 18:28 J | -1527661.90 | -1527661.73 | -1527661.57 | 0.1853 | 0.0536 |
| Mercury | -8895-05-03 13:12 J | -1527353.05 | -1527352.95 | -1527352.86 | 0.1677 | 0.0922 |
| Mercury | -8893-04-07 15:50 J | -1526647.93 | -1526647.84 | -1526647.74 | 0.1660 | 0.0954 |
| Mercury | -8886-09-24 00:14 J | -1523922.55 | -1523922.49 | -1523922.42 | 0.1681 | 0.1394 |
| Mercury | -8884-08-29 03:21 J | -1523217.47 | -1523217.36 | -1523217.25 | 0.1664 | 0.0508 |
| Venus | -8881-03-01 00:28 J | -1522302.64 | -1522302.48 | -1522302.32 | 0.1679 | 0.0578 |
| Venus | -8880-12-29 20:09 J | -1521633.76 | -1521633.66 | -1521633.56 | 0.1662 | 0.1322 |
| Venus | -8877-10-11 23:02 J | -1520616.71 | -1520616.54 | -1520616.37 | 0.1846 | 0.0504 |
| Mercury | -8874-01-19 14:38 J | -1519787.00 | -1519786.89 | -1519786.77 | 0.1668 | 0.0058 |
| Mercury | -8866-08-08 02:24 J | -1516664.55 | -1516664.40 | -1516664.25 | 0.1859 | 0.0912 |
| Mercury | -8865-06-11 01:55 J | -1516356.53 | -1516356.42 | -1516356.31 | 0.1672 | 0.0401 |
| Earth | -8865-10-21 20:52 J | -1516223.80 | -1516223.63 | -1516223.46 | 0.1616 | 0.0606 |
| Moon | -8865-10-21 23:16 J | -1516223.68 | -1516223.53 | -1516223.38 | 0.1616 | 0.0820 * |
| Mercury | -8863-05-17 04:33 J | -1515651.37 | -1515651.31 | -1515651.26 | 0.1656 | 0.1449 |
| Mercury | -8857-12-27 19:12 J | -1513234.86 | -1513234.70 | -1513234.53 | 0.1853 | 0.0421 |
| Mercury | -8856-11-01 13:12 J | -1512926.05 | -1512925.95 | -1512925.86 | 0.1677 | 0.0868 |

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|---------|---------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -8854-10-07 15:50 J | -1512220.93 | -1512220.84 | -1512220.75 | 0.1660 | 0.1006 |
| Venus | -8849-02-28 21:35 J | -1510615.67 | -1510615.60 | -1510615.53 | 0.1688 | 0.1519 |
| Venus | -8848-12-28 15:35 J | -1509947.02 | -1509946.85 | -1509946.69 | 0.1669 | 0.0440 |
| Mercury | -8847-05-19 12:28 J | -1509805.04 | -1509804.98 | -1509804.92 | 0.1847 | 0.1722 |
| Mercury | -8846-03-25 00:14 J | -1509495.56 | -1509495.49 | -1509495.42 | 0.1681 | 0.1338 |
| Mercury | -8844-02-27 03:07 J | -1508790.47 | -1508790.37 | -1508790.26 | 0.1664 | 0.0564 |
| Venus | -8843-08-09 06:14 J | -1508262.36 | -1508262.24 | -1508262.11 | 0.1859 | 0.1314 |
| Mercury | -8835-07-20 14:38 J | -1505360.01 | -1505359.89 | -1505359.78 | 0.1668 | 0.0112 |
| Mercury | -8826-02-06 03:21 J | -1502237.51 | -1502237.36 | -1502237.22 | 0.1859 | 0.1031 |
| Mercury | -8826-12-11 01:55 J | -1501929.53 | -1501929.42 | -1501929.31 | 0.1672 | 0.0349 |
| Mercury | -8824-11-15 04:19 J | -1501224.36 | -1501224.32 | -1501224.27 | 0.1656 | 0.1499 |
| Mercury | -8817-06-27 19:55 J | -1498807.84 | -1498807.67 | -1498807.50 | 0.1853 | 0.0314 |
| Mercury | -8816-05-02 13:12 J | -1498499.05 | -1498498.95 | -1498498.85 | 0.1676 | 0.0809 |
| Venus | -8816-12-27 11:45 J | -1498260.18 | -1498260.01 | -1498259.85 | 0.1677 | 0.0471 |
| Mercury | -8814-04-07 15:50 J | -1497793.93 | -1497793.84 | -1497793.75 | 0.1660 | 0.1060 |
| Venus | -8814-10-27 07:55 J | -1497591.26 | -1497591.17 | -1497591.08 | 0.1660 | 0.1411 |
| Venus | -8811-08-09 02:52 J | -1496574.55 | -1496574.38 | -1496574.20 | 0.1849 | 0.0257 |
| Mercury | -8808-11-17 13:12 J | -1495378.03 | -1495377.95 | -1495377.86 | 0.1847 | 0.1606 |
| Mercury | -8807-09-23 00:14 J | -1495068.56 | -1495068.49 | -1495068.42 | 0.1681 | 0.1283 |
| Mercury | -8805-08-28 03:21 J | -1494363.47 | -1494363.36 | -1494363.26 | 0.1663 | 0.0619 |
| Mercury | -8795-01-18 14:38 J | -1490933.01 | -1490932.89 | -1490932.78 | 0.1668 | 0.0174 |
| Mercury | -8787-08-07 04:04 J | -1487810.46 | -1487810.33 | -1487810.19 | 0.1859 | 0.1149 |
| Mercury | -8786-06-11 01:55 J | -1487502.54 | -1487502.42 | -1487502.31 | 0.1672 | 0.0299 |
| Moon | -8786-10-24 16:33 J | -1487366.86 | -1487366.81 | -1487366.75 | 0.1617 | 0.1522 |
| Mercury | -8784-05-16 04:19 J | -1486797.36 | -1486797.32 | -1486797.28 | 0.1656 | 0.1551 |
| Venus | -8784-12-26 08:24 J | -1486573.25 | -1486573.15 | -1486573.06 | 0.1685 | 0.1401 |
| Venus | -8782-10-26 02:52 J | -1485904.54 | -1485904.38 | -1485904.22 | 0.1667 | 0.0538 |
| Venus | -8779-08-08 21:50 J | -1484886.65 | -1484886.59 | -1484886.54 | 0.1839 | 0.1746 |
| Mercury | -8778-12-27 20:52 J | -1484380.80 | -1484380.63 | -1484380.46 | 0.1853 | 0.0192 |
| Venus | -8777-06-05 09:21 J | -1484220.20 | -1484220.11 | -1484220.02 | 0.1863 | 0.1592 |

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|---------|---------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -8777-10-31 12:57 J | -1484072.06 | -1484071.96 | -1484071.85 | 0.1677 | 0.0760 |
| Mercury | -8775-10-06 15:50 J | -1483366.93 | -1483366.84 | -1483366.76 | 0.1660 | 0.1113 |
| Mercury | -8768-05-18 14:09 J | -1480951.01 | -1480950.91 | -1480950.81 | 0.1847 | 0.1493 |
| Mercury | -8767-03-24 00:14 J | -1480641.57 | -1480641.49 | -1480641.41 | 0.1681 | 0.1225 |
| Mercury | -8765-02-27 03:07 J | -1479936.47 | -1479936.37 | -1479936.26 | 0.1664 | 0.0669 |
| Mercury | -8756-07-19 14:38 J | -1476506.01 | -1476505.89 | -1476505.78 | 0.1668 | 0.0228 |
| Venus | -8750-10-24 23:02 J | -1474217.71 | -1474217.54 | -1474217.38 | 0.1674 | 0.0368 |
| Venus | -8748-08-23 19:12 J | -1473548.77 | -1473548.70 | -1473548.63 | 0.1658 | 0.1510 |
| Mercury | -8747-02-05 05:02 J | -1473383.42 | -1473383.29 | -1473383.17 | 0.1860 | 0.1265 |
| Mercury | -8747-12-10 01:40 J | -1473075.54 | -1473075.43 | -1473075.31 | 0.1672 | 0.0248 |
| Venus | -8745-06-05 06:43 J | -1472532.40 | -1472532.22 | -1472532.04 | 0.1853 | 0.0004 |
| Mercury | -8745-11-14 04:19 J | -1472370.34 | -1472370.32 | -1472370.30 | 0.1656 | 0.1605 |
| Moon | -8739-10-18 22:19 J | -1470205.71 | -1470205.57 | -1470205.44 | 0.1615 | 0.1090 |
| Earth | -8739-10-19 04:33 J | -1470205.44 | -1470205.31 | -1470205.19 | 0.1615 | 0.1174 * |
| Mercury | -8738-06-27 22:04 J | -1469953.75 | -1469953.58 | -1469953.41 | 0.1853 | 0.0065 |
| Mercury | -8737-05-01 12:57 J | -1469645.06 | -1469644.96 | -1469644.85 | 0.1676 | 0.0703 |
| Mercury | -8735-04-06 15:50 J | -1468939.92 | -1468939.84 | -1468939.76 | 0.1659 | 0.1168 |
| Mercury | -8729-11-16 14:52 J | -1466523.99 | -1466523.88 | -1466523.77 | 0.1847 | 0.1379 |
| Mercury | -8728-09-22 00:14 J | -1466214.57 | -1466214.49 | -1466214.41 | 0.1681 | 0.1173 |
| Mercury | -8726-08-28 03:07 J | -1465509.47 | -1465509.37 | -1465509.27 | 0.1663 | 0.0721 |
| Mercury | -8718-02-12 11:16 J | -1462784.05 | -1462784.03 | -1462784.01 | 0.1686 | 0.1648 |
| Venus | -8718-10-23 19:26 J | -1462530.79 | -1462530.69 | -1462530.58 | 0.1682 | 0.1295 |
| Mercury | -8716-01-17 14:24 J | -1462079.01 | -1462078.90 | -1462078.79 | 0.1667 | 0.0273 |
| Venus | -8716-08-22 14:24 J | -1461862.06 | -1461861.90 | -1461861.74 | 0.1664 | 0.0637 |
| Moon | -8715-04-24 09:21 J | -1461617.30 | -1461617.11 | -1461616.92 | 0.1908 | 0.0279 |
| Earth | -8715-04-24 16:19 J | -1461617.03 | -1461616.82 | -1461616.61 | 0.1908 | 0.0086 * |
| Venus | -8713-06-05 02:24 J | -1460844.50 | -1460844.40 | -1460844.30 | 0.1842 | 0.1515 |
| Venus | -8711-04-02 13:12 J | -1460177.96 | -1460177.95 | -1460177.93 | 0.1866 | 0.1856 |
| Mercury | -8708-08-06 06:00 J | -1458956.37 | -1458956.25 | -1458956.14 | 0.1859 | 0.1384 |
| Mercury | -8707-06-10 01:40 J | -1458648.54 | -1458648.43 | -1458648.31 | 0.1672 | 0.0187 |

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|---------|---------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -8699-12-26 22:33 J | -1455526.73 | -1455526.56 | -1455526.39 | 0.1853 | 0.0040 |
| Mercury | -8698-10-31 12:57 J | -1455218.06 | -1455217.96 | -1455217.85 | 0.1676 | 0.0646 |
| Mercury | -8696-10-05 15:35 J | -1454512.92 | -1454512.85 | -1454512.77 | 0.1660 | 0.1220 |
| Mercury | -8689-05-17 16:04 J | -1452096.96 | -1452096.83 | -1452096.71 | 0.1847 | 0.1251 |
| Mercury | -8688-03-23 00:14 J | -1451787.58 | -1451787.49 | -1451787.41 | 0.1681 | 0.1117 |
| Mercury | -8686-02-26 03:07 J | -1451082.47 | -1451082.37 | -1451082.27 | 0.1663 | 0.0778 |
| Venus | -8684-08-21 09:50 J | -1450175.26 | -1450175.09 | -1450174.92 | 0.1672 | 0.0259 |
| Venus | -8682-06-21 07:12 J | -1449506.24 | -1449506.20 | -1449506.16 | 0.1655 | 0.1598 |
| Venus | -8679-04-02 10:33 J | -1448490.23 | -1448490.06 | -1448489.88 | 0.1856 | 0.0264 |
| Mercury | -8679-08-13 11:16 J | -1448357.07 | -1448357.03 | -1448357.00 | 0.1686 | 0.1594 |
| Mercury | -8677-07-18 14:24 J | -1447652.01 | -1447651.90 | -1447651.79 | 0.1667 | 0.0325 |
| Mercury | -8668-02-04 06:43 J | -1444529.31 | -1444529.22 | -1444529.12 | 0.1860 | 0.1503 |
| Mercury | -8668-12-09 01:40 J | -1444221.54 | -1444221.43 | -1444221.31 | 0.1672 | 0.0130 |
| Moon | -8660-10-21 03:07 J | -1441348.56 | -1441348.37 | -1441348.17 | 0.1615 | 0.0193 |
| Earth | -8660-10-21 04:19 J | -1441348.51 | -1441348.32 | -1441348.14 | 0.1615 | 0.0047 * |
| Mercury | -8659-06-26 23:45 J | -1441099.68 | -1441099.51 | -1441099.34 | 0.1854 | 0.0169 |
| Mercury | -8658-05-01 12:57 J | -1440791.07 | -1440790.96 | -1440790.85 | 0.1676 | 0.0593 |
| Mercury | -8656-04-05 15:35 J | -1440085.92 | -1440085.85 | -1440085.78 | 0.1659 | 0.1272 |
| Venus | -8652-08-20 06:00 J | -1438488.37 | -1438488.25 | -1438488.13 | 0.1679 | 0.1176 |
| Venus | -8650-06-20 01:55 J | -1437819.58 | -1437819.42 | -1437819.27 | 0.1662 | 0.0736 |
| Mercury | -8650-11-16 16:33 J | -1437669.94 | -1437669.81 | -1437669.68 | 0.1847 | 0.1155 |
| Mercury | -8649-09-21 00:00 J | -1437360.58 | -1437360.50 | -1437360.41 | 0.1681 | 0.1063 |
| Venus | -8647-04-02 06:43 J | -1436802.34 | -1436802.22 | -1436802.09 | 0.1845 | 0.1280 |
| Mercury | -8647-08-27 02:52 J | -1436655.47 | -1436655.38 | -1436655.28 | 0.1663 | 0.0830 |
| Mercury | -8639-02-11 11:16 J | -1433930.08 | -1433930.03 | -1433929.99 | 0.1685 | 0.1534 |
| Mercury | -8637-01-17 14:24 J | -1433225.01 | -1433224.90 | -1433224.79 | 0.1667 | 0.0382 |
| Mercury | -8629-08-05 07:40 J | -1430102.26 | -1430102.18 | -1430102.09 | 0.1860 | 0.1624 |
| Mercury | -8628-06-09 01:40 J | -1429794.54 | -1429794.43 | -1429794.32 | 0.1672 | 0.0074 |
| Mercury | -8620-12-26 00:28 J | -1426672.65 | -1426672.48 | -1426672.31 | 0.1854 | 0.0282 |
| Mercury | -8619-10-30 12:57 J | -1426364.07 | -1426363.96 | -1426363.86 | 0.1676 | 0.0541 |

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|---------|---------------------|-------------|-------------|-------------|--------|----------|
| Venus | -8618-06-18 21:07 J | -1426132.79 | -1426132.62 | -1426132.45 | 0.1669 | 0.0151 |
| Mercury | -8617-10-04 15:35 J | -1425658.92 | -1425658.85 | -1425658.79 | 0.1659 | 0.1324 |
| Venus | -8613-01-28 14:09 J | -1424448.08 | -1424447.91 | -1424447.74 | 0.1859 | 0.0523 |
| Mercury | -8610-05-17 17:45 J | -1423242.91 | -1423242.76 | -1423242.62 | 0.1847 | 0.1028 |
| Mercury | -8609-03-22 00:00 J | -1422933.59 | -1422933.50 | -1422933.41 | 0.1681 | 0.1007 |
| Mercury | -8607-02-25 02:52 J | -1422228.47 | -1422228.38 | -1422228.28 | 0.1663 | 0.0884 |
| Mercury | -8600-08-12 11:02 J | -1419503.09 | -1419503.04 | -1419502.98 | 0.1686 | 0.1484 |
| Mercury | -8598-07-18 14:24 J | -1418798.01 | -1418797.90 | -1418797.79 | 0.1667 | 0.0437 |
| Mercury | -8589-02-04 08:38 J | -1415675.20 | -1415675.14 | -1415675.08 | 0.1860 | 0.1736 |
| Mercury | -8589-12-08 01:40 J | -1415367.55 | -1415367.43 | -1415367.32 | 0.1672 | 0.0043 |
| Venus | -8586-06-17 17:31 J | -1414445.90 | -1414445.77 | -1414445.64 | 0.1677 | 0.1073 |
| Venus | -8584-04-16 13:40 J | -1413777.08 | -1413776.93 | -1413776.78 | 0.1660 | 0.0830 |
| Venus | -8581-01-28 11:31 J | -1412760.16 | -1412760.02 | -1412759.87 | 0.1849 | 0.1049 |
| Earth | -8581-10-23 03:50 J | -1412491.48 | -1412491.34 | -1412491.21 | 0.1615 | 0.1081 |
| Moon | -8581-10-23 09:35 J | -1412491.21 | -1412491.10 | -1412490.99 | 0.1616 | 0.1322 * |
| Mercury | -8580-06-26 01:12 J | -1412245.62 | -1412245.45 | -1412245.28 | 0.1854 | 0.0391 |
| Mercury | -8579-04-30 12:57 J | -1411937.07 | -1411936.96 | -1411936.85 | 0.1676 | 0.0482 |
| Mercury | -8577-04-04 15:35 J | -1411231.91 | -1411231.85 | -1411231.79 | 0.1659 | 0.1379 |
| Mercury | -8571-11-15 18:28 J | -1408815.87 | -1408815.73 | -1408815.58 | 0.1848 | 0.0910 |
| Mercury | -8570-09-21 00:00 J | -1408506.59 | -1408506.50 | -1408506.41 | 0.1681 | 0.0952 |
| Mercury | -8568-08-26 02:52 J | -1407801.47 | -1407801.38 | -1407801.28 | 0.1663 | 0.0939 |
| Mercury | -8560-02-10 11:02 J | -1405076.10 | -1405076.04 | -1405075.98 | 0.1685 | 0.1426 |
| Mercury | -8558-01-16 14:09 J | -1404371.01 | -1404370.91 | -1404370.80 | 0.1667 | 0.0491 |
| Venus | -8552-04-15 08:38 J | -1402090.31 | -1402090.14 | -1402089.96 | 0.1667 | 0.0070 |
| Mercury | -8550-08-05 09:35 J | -1401248.11 | -1401248.10 | -1401248.10 | 0.1860 | 0.1856 |
| Mercury | -8549-06-08 01:26 J | -1400940.55 | -1400940.44 | -1400940.32 | 0.1672 | 0.0075 |
| Venus | -8548-11-24 18:14 J | -1400405.90 | -1400405.74 | -1400405.58 | 0.1862 | 0.0784 |
| Mercury | -8541-12-25 02:09 J | -1397818.57 | -1397818.41 | -1397818.24 | 0.1854 | 0.0516 |
| Mercury | -8540-10-29 12:43 J | -1397510.08 | -1397509.97 | -1397509.86 | 0.1676 | 0.0433 |
| Mercury | -8538-10-04 15:21 J | -1396804.91 | -1396804.86 | -1396804.80 | 0.1659 | 0.1432 |

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|---------|---------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -8531-05-16 19:12 J | -1394388.85 | -1394388.70 | -1394388.54 | 0.1848 | 0.0802 |
| Mercury | -8530-03-22 00:00 J | -1394079.60 | -1394079.50 | -1394079.40 | 0.1681 | 0.0895 |
| Mercury | -8528-02-24 02:52 J | -1393374.47 | -1393374.38 | -1393374.29 | 0.1663 | 0.0989 |
| Mercury | -8521-08-11 11:02 J | -1390649.10 | -1390649.04 | -1390648.97 | 0.1685 | 0.1370 |
| Venus | -8520-04-14 04:33 J | -1390403.45 | -1390403.31 | -1390403.17 | 0.1674 | 0.0963 |
| Mercury | -8519-07-17 14:09 J | -1389944.02 | -1389943.91 | -1389943.80 | 0.1667 | 0.0544 |
| Venus | -8518-02-12 01:12 J | -1389734.59 | -1389734.45 | -1389734.31 | 0.1658 | 0.0926 |
| Venus | -8516-11-24 15:35 J | -1388718.01 | -1388717.85 | -1388717.69 | 0.1852 | 0.0800 |
| Mercury | -8510-12-08 01:26 J | -1386513.55 | -1386513.44 | -1386513.32 | 0.1671 | 0.0111 |
| Mercury | -8501-06-25 03:21 J | -1383391.52 | -1383391.36 | -1383391.20 | 0.1854 | 0.0641 |
| Mercury | -8500-04-29 12:43 J | -1383083.08 | -1383082.97 | -1383082.86 | 0.1676 | 0.0375 |
| Mercury | -8498-04-04 15:21 J | -1382377.90 | -1382377.86 | -1382377.81 | 0.1659 | 0.1485 |
| Mercury | -8492-11-14 20:09 J | -1379961.82 | -1379961.66 | -1379961.50 | 0.1848 | 0.0684 |
| Mercury | -8491-09-20 00:00 J | -1379652.60 | -1379652.50 | -1379652.40 | 0.1680 | 0.0844 |
| Mercury | -8489-08-25 02:52 J | -1378947.47 | -1378947.38 | -1378947.29 | 0.1663 | 0.1042 |
| Venus | -8486-02-10 19:55 J | -1378047.85 | -1378047.67 | -1378047.50 | 0.1665 | 0.0061 |
| Venus | -8482-09-21 21:35 J | -1376363.75 | -1376363.60 | -1376363.46 | 0.1865 | 0.1055 |
| Mercury | -8481-02-10 11:02 J | -1376222.11 | -1376222.04 | -1376221.97 | 0.1685 | 0.1316 |
| Mercury | -8479-01-15 14:09 J | -1375517.02 | -1375516.91 | -1375516.80 | 0.1667 | 0.0595 |
| Mercury | -8470-06-08 01:26 J | -1372086.55 | -1372086.44 | -1372086.32 | 0.1672 | 0.0144 |
| Mercury | -8462-12-25 03:50 J | -1368964.50 | -1368964.34 | -1368964.18 | 0.1854 | 0.0738 |
| Mercury | -8461-10-28 12:43 J | -1368656.08 | -1368655.97 | -1368655.85 | 0.1676 | 0.0319 |
| Mercury | -8459-10-03 15:21 J | -1367950.90 | -1367950.86 | -1367950.82 | 0.1659 | 0.1537 |
| Earth | -8455-10-20 11:45 J | -1366473.18 | -1366473.01 | -1366472.84 | 0.1615 | 0.0683 |
| Moon | -8455-10-20 12:00 J | -1366473.16 | -1366473.00 | -1366472.84 | 0.1615 | 0.0559 * |
| Venus | -8454-02-09 15:50 J | -1366360.98 | -1366360.84 | -1366360.69 | 0.1672 | 0.0860 |
| Venus | -8453-12-09 12:57 J | -1365692.09 | -1365691.96 | -1365691.83 | 0.1656 | 0.1022 |
| Mercury | -8452-05-15 21:21 J | -1365534.78 | -1365534.61 | -1365534.45 | 0.1848 | 0.0556 |
| Mercury | -8451-03-20 23:45 J | -1365225.61 | -1365225.51 | -1365225.40 | 0.1680 | 0.0790 |
| Venus | -8450-09-21 19:55 J | -1364675.84 | -1364675.67 | -1364675.50 | 0.1855 | 0.0558 |

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|---------|---------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -8449-02-24 02:52 J | -1364520.47 | -1364520.38 | -1364520.30 | 0.1663 | 0.1098 |
| Mercury | -8442-08-11 11:02 J | -1361795.12 | -1361795.04 | -1361794.97 | 0.1685 | 0.1261 |
| Mercury | -8440-07-16 14:09 J | -1361090.02 | -1361089.91 | -1361089.81 | 0.1667 | 0.0648 |
| Earth | -8431-04-23 10:47 J | -1357887.19 | -1357887.05 | -1357886.90 | 0.1909 | 0.1389 |
| Moon | -8431-04-23 20:52 J | -1357886.81 | -1357886.63 | -1357886.46 | 0.1909 | 0.0989 |
| Mercury | -8431-12-07 01:26 J | -1357659.55 | -1357659.44 | -1357659.33 | 0.1671 | 0.0196 |
| Mercury | -8422-06-25 05:02 J | -1354537.44 | -1354537.29 | -1354537.14 | 0.1854 | 0.0870 |
| Mercury | -8421-04-28 12:43 J | -1354229.08 | -1354228.97 | -1354228.86 | 0.1676 | 0.0267 |
| Venus | -8421-12-08 07:40 J | -1354005.35 | -1354005.18 | -1354005.01 | 0.1662 | 0.0150 |
| Mercury | -8419-04-03 15:21 J | -1353523.89 | -1353523.86 | -1353523.83 | 0.1659 | 0.1589 |
| Venus | -8416-07-19 01:12 J | -1352321.57 | -1352321.45 | -1352321.32 | 0.1868 | 0.1322 |
| Mercury | -8413-11-13 21:50 J | -1351107.76 | -1351107.59 | -1351107.43 | 0.1848 | 0.0462 |
| Mercury | -8412-09-18 23:45 J | -1350798.61 | -1350798.51 | -1350798.40 | 0.1680 | 0.0734 |
| Mercury | -8410-08-25 02:38 J | -1350093.47 | -1350093.39 | -1350093.30 | 0.1663 | 0.1149 |
| Mercury | -8403-04-05 15:21 J | -1347677.91 | -1347677.86 | -1347677.80 | 0.1842 | 0.1729 |
| Mercury | -8402-02-09 11:02 J | -1347368.12 | -1347368.04 | -1347367.96 | 0.1685 | 0.1202 |
| Mercury | -8400-01-14 14:09 J | -1346663.01 | -1346662.91 | -1346662.81 | 0.1667 | 0.0705 |
| Mercury | -8393-07-01 22:04 J | -1343937.59 | -1343937.58 | -1343937.58 | 0.1690 | 0.1686 |
| Mercury | -8391-06-07 01:26 J | -1343232.55 | -1343232.44 | -1343232.33 | 0.1671 | 0.0250 |
| Venus | -8389-12-07 03:07 J | -1342318.52 | -1342318.37 | -1342318.21 | 0.1670 | 0.0755 |
| Venus | -8387-10-07 00:57 J | -1341649.59 | -1341649.46 | -1341649.33 | 0.1654 | 0.1111 |
| Venus | -8384-07-18 23:16 J | -1340633.71 | -1340633.53 | -1340633.36 | 0.1859 | 0.0293 |
| Mercury | -8383-12-24 05:45 J | -1340110.40 | -1340110.26 | -1340110.11 | 0.1854 | 0.0983 |
| Mercury | -8382-10-28 12:43 J | -1339802.09 | -1339801.97 | -1339801.86 | 0.1676 | 0.0220 |
| Mercury | -8380-10-02 15:21 J | -1339096.88 | -1339096.86 | -1339096.85 | 0.1659 | 0.1641 |
| Moon | -8376-10-22 06:28 J | -1337616.41 | -1337616.23 | -1337616.05 | 0.1615 | 0.0213 |
| Earth | -8376-10-22 11:45 J | -1337616.19 | -1337616.01 | -1337615.83 | 0.1615 | 0.0456 * |
| Mercury | -8373-05-14 23:02 J | -1336680.71 | -1336680.54 | -1336680.37 | 0.1848 | 0.0330 |
| Mercury | -8372-03-19 23:45 J | -1336371.61 | -1336371.51 | -1336371.40 | 0.1680 | 0.0678 |
| Mercury | -8370-02-23 02:38 J | -1335666.47 | -1335666.39 | -1335666.31 | 0.1663 | 0.1203 |

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|---------|---------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -8364-10-04 16:19 J | -1333250.90 | -1333250.82 | -1333250.74 | 0.1842 | 0.1619 |
| Mercury | -8363-08-10 10:47 J | -1332941.13 | -1332941.05 | -1332940.96 | 0.1685 | 0.1153 |
| Mercury | -8361-07-15 13:55 J | -1332236.02 | -1332235.92 | -1332235.81 | 0.1667 | 0.0758 |
| Venus | -8357-12-05 23:16 J | -1330631.54 | -1330631.53 | -1330631.52 | 0.1677 | 0.1673 |
| Venus | -8355-10-05 19:26 J | -1329962.86 | -1329962.69 | -1329962.52 | 0.1660 | 0.0249 |
| Mercury | -8354-12-31 22:04 J | -1329510.61 | -1329510.58 | -1329510.55 | 0.1690 | 0.1626 |
| Venus | -8352-07-18 19:26 J | -1328945.71 | -1328945.69 | -1328945.67 | 0.1848 | 0.1832 |
| Mercury | -8352-12-06 01:26 J | -1328805.56 | -1328805.44 | -1328805.33 | 0.1671 | 0.0307 |
| Venus | -8350-05-16 04:04 J | -1328279.42 | -1328279.33 | -1328279.24 | 0.1871 | 0.1609 |
| Mercury | -8343-06-24 06:28 J | -1325683.36 | -1325683.23 | -1325683.09 | 0.1855 | 0.1098 |
| Mercury | -8342-04-28 12:43 J | -1325375.09 | -1325374.97 | -1325374.86 | 0.1676 | 0.0155 |
| Mercury | -8334-11-13 23:45 J | -1322253.68 | -1322253.51 | -1322253.34 | 0.1848 | 0.0217 |
| Mercury | -8333-09-17 23:45 J | -1321944.62 | -1321944.51 | -1321944.40 | 0.1680 | 0.0623 |
| Mercury | -8331-08-24 02:38 J | -1321239.46 | -1321239.39 | -1321239.31 | 0.1663 | 0.1257 |
| Mercury | -8324-04-04 17:16 J | -1318823.88 | -1318823.78 | -1318823.69 | 0.1842 | 0.1500 |
| Mercury | -8323-02-08 10:47 J | -1318514.13 | -1318514.05 | -1318513.96 | 0.1685 | 0.1096 |
| Venus | -8323-10-04 14:38 J | -1318276.04 | -1318275.89 | -1318275.73 | 0.1667 | 0.0651 |
| Mercury | -8321-01-14 13:55 J | -1317809.02 | -1317808.92 | -1317808.82 | 0.1667 | 0.0809 |
| Venus | -8321-08-03 12:14 J | -1317607.10 | -1317606.99 | -1317606.87 | 0.1652 | 0.1211 |
| Venus | -8318-05-16 02:38 J | -1316591.57 | -1316591.39 | -1316591.21 | 0.1862 | 0.0032 |
| Mercury | -8314-07-01 21:50 J | -1315083.62 | -1315083.59 | -1315083.55 | 0.1690 | 0.1576 |
| Mercury | -8312-06-06 01:26 J | -1314378.56 | -1314378.44 | -1314378.33 | 0.1671 | 0.0363 |
| Mercury | -8304-12-23 07:40 J | -1311256.31 | -1311256.18 | -1311256.06 | 0.1855 | 0.1218 |
| Mercury | -8303-10-27 12:28 J | -1310948.09 | -1310947.98 | -1310947.86 | 0.1676 | 0.0108 |
| Earth | -8297-10-24 11:02 J | -1308759.08 | -1308759.04 | -1308758.99 | 0.1615 | 0.1568 |
| Mercury | -8294-05-15 00:28 J | -1307826.65 | -1307826.48 | -1307826.31 | 0.1848 | 0.0110 |
| Mercury | -8293-03-18 23:45 J | -1307517.62 | -1307517.51 | -1307517.40 | 0.1680 | 0.0565 |
| Mercury | -8291-02-22 02:38 J | -1306812.46 | -1306812.39 | -1306812.32 | 0.1663 | 0.1308 |
| Venus | -8291-10-03 10:33 J | -1306589.11 | -1306589.06 | -1306589.00 | 0.1675 | 0.1567 |
| Venus | -8289-08-02 06:57 J | -1305920.38 | -1305920.21 | -1305920.04 | 0.1658 | 0.0343 |

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|---------|---------------------|-------------|-------------|-------------|--------|----------|
| Venus | -8286-05-15 23:45 J | -1304903.60 | -1304903.51 | -1304903.42 | 0.1852 | 0.1595 |
| Mercury | -8285-10-03 18:00 J | -1304396.86 | -1304396.75 | -1304396.64 | 0.1842 | 0.1391 |
| Mercury | -8284-08-09 10:47 J | -1304087.14 | -1304087.05 | -1304086.96 | 0.1685 | 0.1040 |
| Mercury | -8282-07-15 13:55 J | -1303382.01 | -1303381.92 | -1303381.82 | 0.1667 | 0.0866 |
| Mercury | -8275-12-30 21:50 J | -1300656.63 | -1300656.59 | -1300656.54 | 0.1690 | 0.1519 |
| Mercury | -8273-12-05 01:12 J | -1299951.56 | -1299951.45 | -1299951.34 | 0.1671 | 0.0416 |
| Mercury | -8264-06-23 08:38 J | -1296829.26 | -1296829.14 | -1296829.02 | 0.1855 | 0.1341 |
| Mercury | -8263-04-27 12:28 J | -1296521.09 | -1296520.98 | -1296520.86 | 0.1675 | 0.0055 |
| Venus | -8257-08-01 01:55 J | -1294233.58 | -1294233.42 | -1294233.26 | 0.1665 | 0.0544 |
| Venus | -8255-06-01 00:43 J | -1293564.58 | -1293564.47 | -1293564.37 | 0.1650 | 0.1296 |
| Mercury | -8255-11-13 01:26 J | -1293399.61 | -1293399.44 | -1293399.27 | 0.1849 | 0.0018 |
| Mercury | -8254-09-17 23:45 J | -1293090.62 | -1293090.51 | -1293090.40 | 0.1680 | 0.0517 |
| Venus | -8252-03-12 06:28 J | -1292549.41 | -1292549.23 | -1292549.06 | 0.1865 | 0.0244 |
| Mercury | -8252-08-23 02:38 J | -1292385.46 | -1292385.39 | -1292385.33 | 0.1662 | 0.1361 |
| Moon | -8250-10-19 18:57 J | -1291597.80 | -1291597.71 | -1291597.61 | 0.1614 | 0.1408 |
| Earth | -8250-10-19 19:12 J | -1291597.80 | -1291597.70 | -1291597.59 | 0.1614 | 0.1310 * |
| Mercury | -8245-04-03 18:57 J | -1289969.83 | -1289969.71 | -1289969.59 | 0.1842 | 0.1270 |
| Mercury | -8244-02-07 10:47 J | -1289660.14 | -1289660.05 | -1289659.96 | 0.1685 | 0.0984 |
| Mercury | -8242-01-13 13:55 J | -1288955.02 | -1288954.92 | -1288954.83 | 0.1667 | 0.0917 |
| Mercury | -8235-06-30 21:50 J | -1286229.64 | -1286229.59 | -1286229.53 | 0.1690 | 0.1461 |
| Mercury | -8233-06-05 01:12 J | -1285524.56 | -1285524.45 | -1285524.34 | 0.1671 | 0.0467 |
| Venus | -8225-07-30 21:21 J | -1282546.69 | -1282546.61 | -1282546.53 | 0.1672 | 0.1451 |
| Mercury | -8225-12-22 09:07 J | -1282402.22 | -1282402.12 | -1282402.01 | 0.1855 | 0.1442 |
| Mercury | -8224-10-26 12:28 J | -1282094.09 | -1282093.98 | -1282093.86 | 0.1675 | 0.0014 |
| Venus | -8223-05-30 18:43 J | -1281877.88 | -1281877.72 | -1281877.55 | 0.1656 | 0.0438 |
| Venus | -8220-03-12 03:50 J | -1280861.46 | -1280861.34 | -1280861.22 | 0.1855 | 0.1348 |
| Mercury | -8215-05-14 02:38 J | -1278972.56 | -1278972.39 | -1278972.22 | 0.1849 | 0.0143 |
| Mercury | -8214-03-18 23:45 J | -1278663.62 | -1278663.51 | -1278663.40 | 0.1680 | 0.0461 |
| Mercury | -8212-02-21 02:38 J | -1277958.45 | -1277958.39 | -1277958.34 | 0.1662 | 0.1417 |
| Mercury | -8206-10-03 19:40 J | -1275542.81 | -1275542.68 | -1275542.55 | 0.1842 | 0.1159 |

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| Mercury | -8205-08-08 10:47 J | -1275233.14 | -1275233.05 | -1275232.95 | 0.1685 | 0.0929 |
| Mercury | -8203-07-14 13:55 J | -1274528.01 | -1274527.92 | -1274527.83 | 0.1667 | 0.0970 |
| Mercury | -8196-12-29 21:50 J | -1271802.65 | -1271802.59 | -1271802.53 | 0.1690 | 0.1407 |
| Mercury | -8194-12-05 01:12 J | -1271097.56 | -1271097.45 | -1271097.34 | 0.1671 | 0.0519 |
| Venus | -8191-05-29 13:26 J | -1270191.11 | -1270190.94 | -1270190.77 | 0.1663 | 0.0441 |
| Venus | -8189-03-28 12:28 J | -1269522.07 | -1269521.98 | -1269521.89 | 0.1648 | 0.1387 |
| Venus | -8186-01-07 09:21 J | -1268507.28 | -1268507.11 | -1268506.94 | 0.1868 | 0.0517 |
| Mercury | -8185-06-22 10:19 J | -1267975.16 | -1267975.07 | -1267974.98 | 0.1855 | 0.1575 |
| Mercury | -8184-04-26 12:28 J | -1267667.10 | -1267666.98 | -1267666.87 | 0.1675 | 0.0070 |
| Mercury | -8176-11-12 03:07 J | -1264545.54 | -1264545.37 | -1264545.20 | 0.1849 | 0.0238 |
| Mercury | -8175-09-16 23:45 J | -1264236.63 | -1264236.51 | -1264236.40 | 0.1680 | 0.0406 |
| Mercury | -8173-08-22 02:24 J | -1263531.45 | -1263531.40 | -1263531.35 | 0.1662 | 0.1467 |
| Earth | -8171-10-21 19:12 J | -1262740.88 | -1262740.70 | -1262740.51 | 0.1614 | 0.0186 |
| Moon | -8171-10-22 01:12 J | -1262740.64 | -1262740.45 | -1262740.26 | 0.1614 | 0.0022 * |
| Mercury | -8166-04-03 20:38 J | -1261115.78 | -1261115.64 | -1261115.50 | 0.1843 | 0.1039 |
| Mercury | -8165-02-07 10:47 J | -1260806.15 | -1260806.05 | -1260805.95 | 0.1684 | 0.0871 |
| Mercury | -8163-01-12 13:55 J | -1260101.01 | -1260100.92 | -1260100.83 | 0.1666 | 0.1027 |
| Venus | -8159-05-28 09:07 J | -1258504.22 | -1258504.12 | -1258504.02 | 0.1670 | 0.1351 |
| Venus | -8157-03-27 06:43 J | -1257835.39 | -1257835.22 | -1257835.06 | 0.1654 | 0.0532 |
| Mercury | -8156-06-29 21:50 J | -1257375.66 | -1257375.59 | -1257375.53 | 0.1689 | 0.1353 |
| Venus | -8154-01-07 08:09 J | -1256819.30 | -1256819.16 | -1256819.02 | 0.1858 | 0.1105 |
| Mercury | -8154-06-05 01:12 J | -1256670.56 | -1256670.45 | -1256670.34 | 0.1671 | 0.0574 |
| Mercury | -8146-12-22 11:16 J | -1253548.10 | -1253548.03 | -1253547.97 | 0.1855 | 0.1688 |
| Mercury | -8145-10-25 12:28 J | -1253240.10 | -1253239.98 | -1253239.87 | 0.1675 | 0.0127 |
| Mercury | -8136-05-13 04:19 J | -1250118.49 | -1250118.32 | -1250118.15 | 0.1849 | 0.0371 |
| Mercury | -8135-03-17 23:31 J | -1249809.63 | -1249809.52 | -1249809.40 | 0.1680 | 0.0351 |
| Mercury | -8133-02-21 02:24 J | -1249104.44 | -1249104.40 | -1249104.36 | 0.1662 | 0.1521 |
| Mercury | -8127-10-02 21:21 J | -1246688.75 | -1246688.61 | -1246688.46 | 0.1842 | 0.0933 |
| Mercury | -8126-08-08 10:47 J | -1246379.15 | -1246379.05 | -1246378.95 | 0.1685 | 0.0821 |
| Venus | -8125-03-26 01:12 J | -1246148.62 | -1246148.45 | -1246148.28 | 0.1660 | 0.0345 |

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|---------|---------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -8124-07-13 13:40 J | -1245674.01 | -1245673.93 | -1245673.84 | 0.1666 | 0.1077 |
| Venus | -8123-01-24 00:43 J | -1245479.55 | -1245479.47 | -1245479.40 | 0.1646 | 0.1471 |
| Venus | -8121-11-03 13:12 J | -1244465.11 | -1244464.95 | -1244464.79 | 0.1871 | 0.0788 |
| Mercury | -8117-12-28 21:50 J | -1242948.66 | -1242948.59 | -1242948.52 | 0.1689 | 0.1292 |
| Mercury | -8115-12-04 01:12 J | -1242243.56 | -1242243.45 | -1242243.35 | 0.1671 | 0.0629 |
| Mercury | -8106-06-22 12:00 J | -1239121.03 | -1239121.00 | -1239120.96 | 0.1856 | 0.1804 |
| Mercury | -8105-04-25 12:28 J | -1238813.10 | -1238812.98 | -1238812.87 | 0.1675 | 0.0179 |
| Mercury | -8097-11-11 05:16 J | -1235691.45 | -1235691.28 | -1235691.12 | 0.1849 | 0.0488 |
| Mercury | -8096-09-15 23:31 J | -1235382.63 | -1235382.52 | -1235382.41 | 0.1680 | 0.0295 |
| Mercury | -8094-08-22 02:24 J | -1234677.43 | -1234677.40 | -1234677.37 | 0.1662 | 0.1574 |
| Venus | -8093-03-24 20:24 J | -1234461.77 | -1234461.65 | -1234461.54 | 0.1667 | 0.1245 |
| Earth | -8092-10-23 19:12 J | -1233883.85 | -1233883.70 | -1233883.55 | 0.1614 | 0.0946 |
| Moon | -8092-10-23 22:47 J | -1233883.71 | -1233883.55 | -1233883.40 | 0.1614 | 0.0807 * |
| Venus | -8091-01-22 18:28 J | -1233792.89 | -1233792.73 | -1233792.57 | 0.1652 | 0.0624 |
| Venus | -8089-11-03 11:45 J | -1232777.16 | -1232777.01 | -1232776.85 | 0.1861 | 0.0846 |
| Mercury | -8087-04-02 22:19 J | -1232261.72 | -1232261.57 | -1232261.41 | 0.1843 | 0.0812 |
| Mercury | -8086-02-06 10:47 J | -1231952.16 | -1231952.05 | -1231951.95 | 0.1684 | 0.0764 |
| Mercury | -8084-01-11 13:40 J | -1231247.01 | -1231246.93 | -1231246.84 | 0.1666 | 0.1131 |
| Mercury | -8077-06-28 21:50 J | -1228521.67 | -1228521.59 | -1228521.52 | 0.1689 | 0.1242 |
| Mercury | -8075-06-04 01:12 J | -1227816.56 | -1227816.45 | -1227816.35 | 0.1671 | 0.0685 |
| Earth | -8068-04-26 01:40 J | -1225298.62 | -1225298.43 | -1225298.25 | 0.1910 | 0.0924 |
| Moon | -8068-04-26 08:38 J | -1225298.35 | -1225298.14 | -1225297.93 | 0.1910 | 0.0776 * |
| Mercury | -8066-10-25 12:14 J | -1224386.10 | -1224385.99 | -1224385.87 | 0.1675 | 0.0226 |
| Venus | -8059-01-21 12:43 J | -1222106.14 | -1222105.97 | -1222105.80 | 0.1658 | 0.0246 |
| Venus | -8058-11-21 12:43 J | -1221437.02 | -1221436.97 | -1221436.92 | 0.1644 | 0.1558 |
| Mercury | -8057-05-12 05:45 J | -1221264.42 | -1221264.26 | -1221264.09 | 0.1849 | 0.0594 |
| Mercury | -8056-03-16 23:31 J | -1220955.63 | -1220955.52 | -1220955.41 | 0.1680 | 0.0237 |
| Venus | -8055-08-31 16:04 J | -1220422.98 | -1220422.83 | -1220422.69 | 0.1874 | 0.1072 |
| Mercury | -8054-02-20 02:24 J | -1220250.42 | -1220250.40 | -1220250.38 | 0.1662 | 0.1626 |
| Mercury | -8048-10-01 23:16 J | -1217834.69 | -1217834.53 | -1217834.37 | 0.1843 | 0.0696 |

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|---------|---------------------|-------------|-------------|-------------|--------|--------|
| Mercury | -8047-08-07 10:47 J | -1217525.16 | -1217525.05 | -1217524.95 | 0.1684 | 0.0709 |
| Mercury | -8045-07-12 13:40 J | -1216820.01 | -1216819.93 | -1216819.85 | 0.1666 | 0.1187 |
| Mercury | -8038-12-28 21:35 J | -1214094.68 | -1214094.60 | -1214094.51 | 0.1689 | 0.1186 |
| Mercury | -8036-12-03 00:57 J | -1213389.56 | -1213389.46 | -1213389.35 | 0.1670 | 0.0737 |
| Mercury | -8028-05-20 08:38 J | -1210664.15 | -1210664.14 | -1210664.12 | 0.1694 | 0.1670 |
| Venus | -8027-01-20 08:09 J | -1210419.29 | -1210419.16 | -1210419.04 | 0.1665 | 0.1146 |
| Mercury | -8026-04-25 12:14 J | -1209959.10 | -1209958.99 | -1209958.88 | 0.1675 | 0.0279 |
| Venus | -8026-11-20 06:28 J | -1209750.39 | -1209750.23 | -1209750.08 | 0.1650 | 0.0717 |
| Venus | -8023-08-31 15:35 J | -1208735.01 | -1208734.85 | -1208734.68 | 0.1865 | 0.0592 |
| Mercury | -8018-11-11 06:57 J | -1206837.37 | -1206837.21 | -1206837.06 | 0.1850 | 0.0716 |
| Mercury | -8017-09-14 23:31 J | -1206528.64 | -1206528.52 | -1206528.41 | 0.1680 | 0.0186 |
| Mercury | -8008-04-02 00:14 J | -1203407.65 | -1203407.49 | -1203407.33 | 0.1843 | 0.0579 |
| Mercury | -8007-02-05 10:33 J | -1203098.16 | -1203098.06 | -1203097.95 | 0.1684 | 0.0654 |
| Mercury | -8005-01-11 13:40 J | -1202393.01 | -1202392.93 | -1202392.86 | 0.1666 | 0.1237 |

8TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 8th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|-------------|-------------|-------------|--------|--------|-------|---|
| Mercury | -7998-06-28 21:50 J | -1199667.68 | -1199667.59 | -1199667.51 | 0.1689 | 0.1128 | | |
| Mercury | -7996-06-03 00:57 J | -1198962.56 | -1198962.46 | -1198962.36 | 0.1671 | 0.0790 | | |
| Venus | -7994-11-19 00:43 J | -1198063.64 | -1198063.47 | -1198063.30 | 0.1656 | 0.0153 | | |
| Venus | -7989-06-27 19:26 J | -1196380.81 | -1196380.69 | -1196380.57 | 0.1877 | 0.1353 | | |
| Mercury | -7989-11-18 08:38 J | -1196237.17 | -1196237.14 | -1196237.11 | 0.1694 | 0.1613 | | |

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|---------|---------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -7987-10-24 12:14 J | -1195532.10 | -1195531.99 | -1195531.88 | 0.1675 | 0.0335 |
| Mercury | -7978-05-12 08:09 J | -1192410.32 | -1192410.16 | -1192410.01 | 0.1850 | 0.0847 |
| Mercury | -7977-03-15 23:31 J | -1192101.64 | -1192101.52 | -1192101.41 | 0.1679 | 0.0134 |
| Mercury | -7969-10-01 00:57 J | -1188980.62 | -1188980.46 | -1188980.29 | 0.1843 | 0.0468 |
| Mercury | -7968-08-06 10:33 J | -1188671.16 | -1188671.06 | -1188670.95 | 0.1684 | 0.0599 |
| Mercury | -7966-07-12 13:40 J | -1187966.00 | -1187965.93 | -1187965.86 | 0.1666 | 0.1290 |
| Moon | -7966-10-20 21:07 J | -1187865.77 | -1187865.62 | -1187865.48 | 0.1614 | 0.0974 |
| Earth | -7966-10-21 03:21 J | -1187865.52 | -1187865.36 | -1187865.20 | 0.1614 | 0.0801 * |
| Venus | -7962-11-17 19:40 J | -1186376.82 | -1186376.68 | -1186376.55 | 0.1663 | 0.1045 |
| Venus | -7960-09-16 18:28 J | -1185707.88 | -1185707.73 | -1185707.58 | 0.1648 | 0.0808 |
| Mercury | -7959-02-20 18:43 J | -1185550.77 | -1185550.72 | -1185550.66 | 0.1837 | 0.1725 |
| Mercury | -7959-12-27 21:35 J | -1185240.69 | -1185240.60 | -1185240.51 | 0.1689 | 0.1075 |
| Venus | -7957-06-27 18:43 J | -1184692.89 | -1184692.72 | -1184692.54 | 0.1868 | 0.0313 |
| Mercury | -7957-12-02 00:57 J | -1184535.56 | -1184535.46 | -1184535.36 | 0.1670 | 0.0842 |
| Mercury | -7949-05-19 08:38 J | -1181810.18 | -1181810.14 | -1181810.10 | 0.1694 | 0.1556 |
| Mercury | -7947-04-24 12:14 J | -1181105.10 | -1181104.99 | -1181104.88 | 0.1675 | 0.0388 |
| Mercury | -7939-11-10 08:24 J | -1177983.29 | -1177983.15 | -1177983.00 | 0.1850 | 0.0938 |
| Mercury | -7938-09-14 23:31 J | -1177674.64 | -1177674.52 | -1177674.41 | 0.1679 | 0.0080 |
| Mercury | -7929-04-01 02:09 J | -1174553.58 | -1174553.41 | -1174553.24 | 0.1844 | 0.0345 |
| Mercury | -7928-02-04 10:33 J | -1174244.17 | -1174244.06 | -1174243.95 | 0.1684 | 0.0541 |
| Venus | -7928-09-15 12:28 J | -1174021.16 | -1174020.98 | -1174020.81 | 0.1654 | 0.0069 |
| Mercury | -7926-01-10 13:40 J | -1173539.00 | -1173538.93 | -1173538.87 | 0.1666 | 0.1347 |
| Venus | -7923-04-24 21:50 J | -1172338.67 | -1172338.59 | -1172338.50 | 0.1880 | 0.1648 |
| Mercury | -7920-08-21 19:40 J | -1171123.76 | -1171123.68 | -1171123.60 | 0.1837 | 0.1611 |
| Mercury | -7919-06-27 21:35 J | -1170813.69 | -1170813.60 | -1170813.51 | 0.1689 | 0.1019 |
| Mercury | -7917-06-02 00:57 J | -1170108.56 | -1170108.46 | -1170108.37 | 0.1670 | 0.0897 |
| Mercury | -7910-11-18 08:38 J | -1167383.19 | -1167383.14 | -1167383.09 | 0.1694 | 0.1500 |
| Mercury | -7908-10-23 12:14 J | -1166678.10 | -1166677.99 | -1166677.88 | 0.1675 | 0.0445 |
| Mercury | -7899-05-11 09:35 J | -1163556.23 | -1163556.10 | -1163555.96 | 0.1850 | 0.1074 |
| Mercury | -7898-03-15 23:16 J | -1163247.64 | -1163247.53 | -1163247.41 | 0.1679 | 0.0071 |

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|---------|---------------------|-------------|-------------|-------------|--------|----------|
| Venus | -7896-09-14 07:12 J | -1162334.34 | -1162334.20 | -1162334.06 | 0.1661 | 0.0942 |
| Venus | -7894-07-15 06:14 J | -1161665.39 | -1161665.24 | -1161665.10 | 0.1646 | 0.0904 |
| Venus | -7891-04-24 21:50 J | -1160650.76 | -1160650.59 | -1160650.41 | 0.1871 | 0.0063 |
| Mercury | -7890-10-01 02:52 J | -1160126.55 | -1160126.38 | -1160126.21 | 0.1843 | 0.0243 |
| Mercury | -7889-08-05 10:33 J | -1159817.17 | -1159817.06 | -1159816.95 | 0.1684 | 0.0488 |
| Mercury | -7887-07-11 13:26 J | -1159112.00 | -1159111.94 | -1159111.88 | 0.1666 | 0.1398 |
| Moon | -7887-10-22 23:16 J | -1159008.71 | -1159008.53 | -1159008.34 | 0.1614 | 0.0464 |
| Earth | -7887-10-23 03:21 J | -1159008.54 | -1159008.36 | -1159008.18 | 0.1614 | 0.0323 * |
| Mercury | -7880-02-19 20:24 J | -1156696.75 | -1156696.65 | -1156696.56 | 0.1837 | 0.1506 |
| Mercury | -7880-12-26 21:35 J | -1156386.69 | -1156386.60 | -1156386.50 | 0.1689 | 0.0959 |
| Mercury | -7878-12-02 00:57 J | -1155681.56 | -1155681.46 | -1155681.37 | 0.1670 | 0.0953 |
| Mercury | -7870-05-19 08:38 J | -1152956.20 | -1152956.14 | -1152956.08 | 0.1694 | 0.1445 |
| Mercury | -7868-04-23 12:14 J | -1152251.10 | -1152250.99 | -1152250.88 | 0.1674 | 0.0500 |
| Venus | -7862-07-14 00:14 J | -1149978.66 | -1149978.49 | -1149978.32 | 0.1652 | 0.0040 |
| Mercury | -7860-11-09 10:33 J | -1149129.19 | -1149129.06 | -1149128.93 | 0.1850 | 0.1189 |
| Venus | -7859-04-24 20:24 J | -1148962.73 | -1148962.65 | -1148962.57 | 0.1861 | 0.1655 |
| Mercury | -7859-09-13 23:16 J | -1148820.64 | -1148820.53 | -1148820.41 | 0.1679 | 0.0041 |
| Mercury | -7850-04-01 03:50 J | -1145699.51 | -1145699.34 | -1145699.17 | 0.1844 | 0.0114 |
| Mercury | -7849-02-04 10:33 J | -1145390.17 | -1145390.06 | -1145389.95 | 0.1684 | 0.0431 |
| Mercury | -7847-01-09 13:26 J | -1144684.99 | -1144684.94 | -1144684.88 | 0.1666 | 0.1452 |
| Mercury | -7841-08-20 21:21 J | -1142269.72 | -1142269.61 | -1142269.50 | 0.1837 | 0.1383 |
| Mercury | -7840-06-26 21:35 J | -1141959.70 | -1141959.60 | -1141959.51 | 0.1689 | 0.0908 |
| Mercury | -7838-06-02 00:57 J | -1141254.55 | -1141254.46 | -1141254.37 | 0.1670 | 0.1006 |
| Mercury | -7831-11-17 08:38 J | -1138529.20 | -1138529.14 | -1138529.08 | 0.1694 | 0.1388 |
| Venus | -7830-07-12 18:43 J | -1138291.87 | -1138291.72 | -1138291.57 | 0.1658 | 0.0840 |
| Mercury | -7829-10-22 12:00 J | -1137824.11 | -1137824.00 | -1137823.89 | 0.1675 | 0.0549 |
| Venus | -7828-05-11 18:43 J | -1137622.86 | -1137622.72 | -1137622.58 | 0.1644 | 0.0988 |
| Venus | -7825-02-20 01:12 J | -1136608.63 | -1136608.45 | -1136608.27 | 0.1874 | 0.0240 |
| Mercury | -7820-05-10 11:16 J | -1134702.15 | -1134702.03 | -1134701.91 | 0.1850 | 0.1296 |
| Mercury | -7819-03-14 23:16 J | -1134393.64 | -1134393.53 | -1134393.41 | 0.1679 | 0.0114 |

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|---------|---------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -7811-09-30 04:47 J | -1131272.47 | -1131272.30 | -1131272.13 | 0.1844 | 0.0029 |
| Mercury | -7810-08-05 10:33 J | -1130963.17 | -1130963.06 | -1130962.95 | 0.1684 | 0.0379 |
| Mercury | -7808-07-10 13:26 J | -1130257.98 | -1130257.94 | -1130257.89 | 0.1666 | 0.1508 |
| Earth | -7808-10-25 03:21 J | -1130151.44 | -1130151.36 | -1130151.28 | 0.1614 | 0.1449 |
| Moon | -7808-10-25 06:43 J | -1130151.33 | -1130151.22 | -1130151.10 | 0.1614 | 0.1297 * |
| Mercury | -7801-02-19 22:19 J | -1127842.69 | -1127842.57 | -1127842.45 | 0.1837 | 0.1267 |
| Mercury | -7801-12-25 21:35 J | -1127532.70 | -1127532.60 | -1127532.50 | 0.1689 | 0.0851 |
| Mercury | -7799-12-01 00:43 J | -1126827.56 | -1126827.47 | -1126827.38 | 0.1670 | 0.1057 |
| Venus | -7796-05-10 12:14 J | -1125936.16 | -1125935.99 | -1125935.81 | 0.1650 | 0.0140 |
| Venus | -7793-02-20 00:00 J | -1124920.62 | -1124920.50 | -1124920.39 | 0.1864 | 0.1396 |
| Mercury | -7791-05-18 08:38 J | -1124102.21 | -1124102.14 | -1124102.07 | 0.1694 | 0.1334 |
| Mercury | -7789-04-22 12:00 J | -1123397.10 | -1123397.00 | -1123396.89 | 0.1674 | 0.0606 |
| Moon | -7784-04-24 10:33 J | -1121569.24 | -1121569.06 | -1121568.88 | 0.1910 | 0.0937 |
| Earth | -7784-04-24 21:07 J | -1121568.82 | -1121568.62 | -1121568.41 | 0.1910 | 0.0332 |
| Mercury | -7781-11-08 12:28 J | -1120275.09 | -1120274.98 | -1120274.88 | 0.1850 | 0.1421 |
| Mercury | -7780-09-12 23:16 J | -1119966.64 | -1119966.53 | -1119966.42 | 0.1679 | 0.0144 |
| Mercury | -7771-03-31 05:31 J | -1116845.44 | -1116845.27 | -1116845.10 | 0.1844 | 0.0117 |
| Mercury | -7770-02-03 10:33 J | -1116536.18 | -1116536.06 | -1116535.95 | 0.1684 | 0.0327 |
| Mercury | -7768-01-08 13:26 J | -1115830.98 | -1115830.94 | -1115830.90 | 0.1666 | 0.1557 |
| Venus | -7764-05-09 06:28 J | -1114249.38 | -1114249.23 | -1114249.07 | 0.1656 | 0.0739 |
| Venus | -7762-03-09 06:28 J | -1113580.35 | -1113580.23 | -1113580.10 | 0.1642 | 0.1079 |
| Mercury | -7762-08-20 22:47 J | -1113415.68 | -1113415.55 | -1113415.41 | 0.1837 | 0.1167 |
| Mercury | -7761-06-25 21:35 J | -1113105.70 | -1113105.60 | -1113105.50 | 0.1689 | 0.0794 |
| Earth | -7761-10-19 12:00 J | -1112990.09 | -1112990.00 | -1112989.91 | 0.1615 | 0.1406 |
| Moon | -7761-10-19 18:14 J | -1112989.85 | -1112989.74 | -1112989.62 | 0.1615 | 0.1260 |
| Venus | -7760-12-17 04:04 J | -1112566.50 | -1112566.33 | -1112566.16 | 0.1877 | 0.0527 |
| Mercury | -7759-06-01 00:43 J | -1112400.55 | -1112400.47 | -1112400.38 | 0.1670 | 0.1113 |
| Mercury | -7752-11-16 08:38 J | -1109675.22 | -1109675.14 | -1109675.07 | 0.1694 | 0.1279 |
| Mercury | -7750-10-22 12:00 J | -1108970.10 | -1108970.00 | -1108969.89 | 0.1674 | 0.0661 |
| Mercury | -7741-05-09 13:26 J | -1105848.03 | -1105847.94 | -1105847.85 | 0.1851 | 0.1548 |

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|---------|---------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -7740-03-13 23:16 J | -1105539.64 | -1105539.53 | -1105539.42 | 0.1679 | 0.0200 |
| Venus | -7732-05-08 01:26 J | -1102562.46 | -1102562.44 | -1102562.41 | 0.1663 | 0.1640 |
| Mercury | -7732-09-29 06:28 J | -1102418.40 | -1102418.23 | -1102418.06 | 0.1844 | 0.0232 |
| Mercury | -7731-08-04 10:19 J | -1102109.18 | -1102109.07 | -1102108.95 | 0.1684 | 0.0271 |
| Venus | -7730-03-08 00:14 J | -1101893.66 | -1101893.49 | -1101893.32 | 0.1648 | 0.0229 |
| Mercury | -7729-07-09 13:26 J | -1101403.97 | -1101403.94 | -1101403.92 | 0.1666 | 0.1609 |
| Venus | -7728-12-17 04:04 J | -1100878.47 | -1100878.33 | -1100878.19 | 0.1867 | 0.1144 |
| Mercury | -7722-02-19 00:00 J | -1098988.64 | -1098988.50 | -1098988.36 | 0.1837 | 0.1039 |
| Mercury | -7722-12-25 21:35 J | -1098678.71 | -1098678.60 | -1098678.50 | 0.1689 | 0.0743 |
| Mercury | -7720-11-30 00:43 J | -1097973.55 | -1097973.47 | -1097973.39 | 0.1670 | 0.1165 |
| Mercury | -7712-05-17 08:38 J | -1095248.22 | -1095248.14 | -1095248.07 | 0.1694 | 0.1220 |
| Mercury | -7710-04-22 12:00 J | -1094543.10 | -1094543.00 | -1094542.90 | 0.1674 | 0.0713 |
| Mercury | -7702-11-08 13:55 J | -1091421.00 | -1091420.92 | -1091420.84 | 0.1851 | 0.1641 |
| Mercury | -7701-09-11 23:16 J | -1091112.64 | -1091112.53 | -1091112.42 | 0.1679 | 0.0256 |
| Venus | -7698-03-06 18:14 J | -1090206.89 | -1090206.74 | -1090206.58 | 0.1654 | 0.0646 |
| Venus | -7696-01-03 19:12 J | -1089537.82 | -1089537.70 | -1089537.58 | 0.1641 | 0.1161 |
| Venus | -7694-10-14 07:26 J | -1088524.35 | -1088524.19 | -1088524.03 | 0.1879 | 0.0808 |
| Mercury | -7692-03-30 07:26 J | -1087991.35 | -1087991.19 | -1087991.02 | 0.1845 | 0.0359 |
| Mercury | -7691-02-02 10:19 J | -1087682.18 | -1087682.07 | -1087681.95 | 0.1683 | 0.0214 |
| Mercury | -7683-08-20 00:57 J | -1084561.61 | -1084561.46 | -1084561.31 | 0.1837 | 0.0924 |
| Mercury | -7682-06-25 21:21 J | -1084251.71 | -1084251.61 | -1084251.50 | 0.1688 | 0.0687 |
| Earth | -7682-10-22 11:45 J | -1084133.20 | -1084133.01 | -1084132.83 | 0.1614 | 0.0284 |
| Moon | -7682-10-22 14:09 J | -1084133.08 | -1084132.91 | -1084132.74 | 0.1614 | 0.0387 * |
| Mercury | -7680-05-31 00:43 J | -1083546.55 | -1083546.47 | -1083546.40 | 0.1670 | 0.1219 |
| Mercury | -7673-11-15 08:24 J | -1080821.23 | -1080821.15 | -1080821.06 | 0.1694 | 0.1167 |
| Mercury | -7671-10-21 12:00 J | -1080116.10 | -1080116.00 | -1080115.90 | 0.1674 | 0.0767 |
| Venus | -7666-03-05 12:57 J | -1078520.02 | -1078519.96 | -1078519.90 | 0.1661 | 0.1535 |
| Venus | -7664-01-02 12:28 J | -1077851.15 | -1077850.98 | -1077850.81 | 0.1646 | 0.0317 |
| Mercury | -7663-04-07 19:26 J | -1077390.71 | -1077390.69 | -1077390.67 | 0.1699 | 0.1655 |
| Mercury | -7662-05-09 15:07 J | -1076993.91 | -1076993.87 | -1076993.82 | 0.1851 | 0.1778 |

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|---------|---------------------|-------------|-------------|-------------|--------|----------|
| Venus | -7662-10-14 07:26 J | -1076836.35 | -1076836.19 | -1076836.03 | 0.1870 | 0.0874 |
| Mercury | -7661-03-12 23:16 J | -1076685.65 | -1076685.53 | -1076685.42 | 0.1679 | 0.0313 |
| Mercury | -7653-09-28 08:09 J | -1073564.32 | -1073564.16 | -1073563.99 | 0.1844 | 0.0460 |
| Mercury | -7652-08-03 10:19 J | -1073255.18 | -1073255.07 | -1073254.95 | 0.1684 | 0.0157 |
| Mercury | -7643-02-18 01:40 J | -1070134.58 | -1070134.43 | -1070134.28 | 0.1838 | 0.0818 |
| Mercury | -7643-12-24 21:35 J | -1069824.71 | -1069824.60 | -1069824.50 | 0.1688 | 0.0627 |
| Mercury | -7641-11-29 00:43 J | -1069119.54 | -1069119.47 | -1069119.40 | 0.1670 | 0.1274 |
| Mercury | -7633-05-16 08:24 J | -1066394.23 | -1066394.15 | -1066394.06 | 0.1693 | 0.1111 |
| Venus | -7632-01-01 06:00 J | -1066164.41 | -1066164.25 | -1066164.08 | 0.1652 | 0.0546 |
| Mercury | -7631-04-21 12:00 J | -1065689.10 | -1065689.00 | -1065688.90 | 0.1674 | 0.0824 |
| Venus | -7631-11-01 07:26 J | -1065495.30 | -1065495.19 | -1065495.08 | 0.1639 | 0.1245 |
| Venus | -7628-08-10 10:04 J | -1064482.23 | -1064482.08 | -1064481.94 | 0.1882 | 0.1106 |
| Mercury | -7624-10-06 19:26 J | -1062963.73 | -1062963.69 | -1062963.66 | 0.1699 | 0.1599 |
| Mercury | -7622-09-11 23:02 J | -1062258.65 | -1062258.54 | -1062258.42 | 0.1679 | 0.0368 |
| Mercury | -7613-03-29 09:07 J | -1059137.28 | -1059137.12 | -1059136.95 | 0.1845 | 0.0587 |
| Mercury | -7612-02-01 10:19 J | -1058828.18 | -1058828.07 | -1058827.96 | 0.1683 | 0.0100 |
| Mercury | -7604-08-19 02:38 J | -1055707.54 | -1055707.39 | -1055707.23 | 0.1838 | 0.0697 |
| Mercury | -7603-06-24 21:21 J | -1055397.72 | -1055397.61 | -1055397.50 | 0.1688 | 0.0575 |
| Moon | -7603-10-24 06:57 J | -1055276.35 | -1055276.21 | -1055276.06 | 0.1614 | 0.0957 |
| Earth | -7603-10-24 11:45 J | -1055276.17 | -1055276.01 | -1055275.85 | 0.1614 | 0.0835 * |
| Mercury | -7601-05-30 00:28 J | -1054692.54 | -1054692.48 | -1054692.41 | 0.1670 | 0.1327 |
| Venus | -7601-12-31 00:57 J | -1054477.54 | -1054477.46 | -1054477.38 | 0.1659 | 0.1438 |
| Venus | -7599-10-31 00:43 J | -1053808.64 | -1053808.47 | -1053808.31 | 0.1644 | 0.0407 |
| Venus | -7596-08-10 10:47 J | -1052794.21 | -1052794.05 | -1052793.88 | 0.1873 | 0.0608 |
| Mercury | -7594-11-15 08:24 J | -1051967.24 | -1051967.15 | -1051967.06 | 0.1693 | 0.1053 |
| Mercury | -7592-10-20 11:45 J | -1051262.10 | -1051262.01 | -1051261.91 | 0.1674 | 0.0876 |
| Mercury | -7584-04-06 19:26 J | -1048536.74 | -1048536.69 | -1048536.65 | 0.1698 | 0.1539 |
| Mercury | -7582-03-12 23:16 J | -1047831.64 | -1047831.53 | -1047831.42 | 0.1679 | 0.0425 |
| Mercury | -7574-09-28 10:04 J | -1044710.23 | -1044710.08 | -1044709.92 | 0.1845 | 0.0704 |
| Mercury | -7573-08-02 10:19 J | -1044401.19 | -1044401.07 | -1044400.96 | 0.1683 | 0.0052 |

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|---------|---------------------|-------------|-------------|-------------|--------|--------|
| Venus | -7567-10-29 18:28 J | -1042121.90 | -1042121.73 | -1042121.57 | 0.1650 | 0.0458 |
| Venus | -7565-08-28 19:55 J | -1041452.77 | -1041452.67 | -1041452.57 | 0.1637 | 0.1331 |
| Mercury | -7564-02-17 03:36 J | -1041280.51 | -1041280.35 | -1041280.19 | 0.1838 | 0.0580 |
| Mercury | -7564-12-23 21:21 J | -1040970.72 | -1040970.61 | -1040970.50 | 0.1688 | 0.0518 |
| Venus | -7562-06-07 12:57 J | -1040440.07 | -1040439.96 | -1040439.84 | 0.1885 | 0.1398 |
| Mercury | -7562-11-29 00:28 J | -1040265.54 | -1040265.48 | -1040265.41 | 0.1670 | 0.1378 |
| Mercury | -7555-07-09 21:21 J | -1037850.62 | -1037850.61 | -1037850.59 | 0.1831 | 0.1823 |
| Mercury | -7554-05-16 08:23 J | -1037540.24 | -1037540.15 | -1037540.06 | 0.1693 | 0.0998 |
| Mercury | -7552-04-20 11:45 J | -1036835.10 | -1036835.01 | -1036834.91 | 0.1674 | 0.0932 |
| Mercury | -7545-10-05 19:12 J | -1034109.75 | -1034109.70 | -1034109.64 | 0.1699 | 0.1488 |
| Mercury | -7543-09-10 23:02 J | -1033404.65 | -1033404.54 | -1033404.43 | 0.1679 | 0.0472 |
| Venus | -7535-10-28 12:43 J | -1030435.07 | -1030434.97 | -1030434.87 | 0.1657 | 0.1340 |
| Mercury | -7534-03-29 11:02 J | -1030283.20 | -1030283.04 | -1030282.89 | 0.1845 | 0.0812 |
| Mercury | -7533-02-01 10:19 J | -1029974.19 | -1029974.07 | -1029973.96 | 0.1683 | 0.0047 |
| Venus | -7533-08-27 12:43 J | -1029766.13 | -1029765.97 | -1029765.80 | 0.1642 | 0.0497 |
| Venus | -7530-06-07 13:40 J | -1028752.11 | -1028751.93 | -1028751.76 | 0.1876 | 0.0316 |
| Mercury | -7525-08-18 04:19 J | -1026853.48 | -1026853.32 | -1026853.15 | 0.1838 | 0.0474 |
| Mercury | -7524-06-23 21:21 J | -1026543.72 | -1026543.61 | -1026543.50 | 0.1688 | 0.0461 |
| Mercury | -7522-05-30 00:28 J | -1025838.53 | -1025838.48 | -1025838.42 | 0.1670 | 0.1436 |
| Mercury | -7515-01-07 22:19 J | -1023423.62 | -1023423.57 | -1023423.51 | 0.1831 | 0.1708 |
| Mercury | -7515-11-14 08:23 J | -1023113.25 | -1023113.15 | -1023113.06 | 0.1693 | 0.0943 |
| Mercury | -7513-10-19 11:45 J | -1022408.10 | -1022408.01 | -1022407.92 | 0.1674 | 0.0985 |
| Mercury | -7505-04-05 19:12 J | -1019682.75 | -1019682.70 | -1019682.63 | 0.1698 | 0.1431 |
| Mercury | -7503-03-11 23:02 J | -1018977.65 | -1018977.54 | -1018977.43 | 0.1678 | 0.0526 |
| Venus | -7501-08-26 06:00 J | -1018079.42 | -1018079.25 | -1018079.08 | 0.1648 | 0.0359 |
| Earth | -7500-04-23 16:19 J | -1017838.93 | -1017838.82 | -1017838.70 | 0.1909 | 0.1586 |
| Moon | -7500-04-23 23:45 J | -1017838.62 | -1017838.51 | -1017838.40 | 0.1909 | 0.1566 |
| Venus | -7499-06-26 07:55 J | -1017410.25 | -1017410.17 | -1017410.08 | 0.1636 | 0.1419 |
| Venus | -7496-04-03 15:21 J | -1016397.93 | -1016397.86 | -1016397.79 | 0.1887 | 0.1704 |
| Mercury | -7495-09-27 11:45 J | -1015856.15 | -1015856.01 | -1015855.86 | 0.1845 | 0.0929 |

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|---------|---------------------|-------------|-------------|-------------|--------|----------|
| Mercury | -7494-08-02 10:19 J | -1015547.19 | -1015547.07 | -1015546.96 | 0.1683 | 0.0091 |
| Mercury | -7485-02-17 05:31 J | -1012426.44 | -1012426.27 | -1012426.10 | 0.1838 | 0.0349 |
| Mercury | -7485-12-22 21:21 J | -1012116.72 | -1012116.61 | -1012116.50 | 0.1688 | 0.0408 |
| Mercury | -7483-11-28 00:28 J | -1011411.53 | -1011411.48 | -1011411.43 | 0.1669 | 0.1485 |
| Moon | -7477-10-20 18:57 J | -1009257.88 | -1009257.71 | -1009257.54 | 0.1615 | 0.0814 |
| Earth | -7477-10-20 20:23 J | -1009257.80 | -1009257.65 | -1009257.50 | 0.1615 | 0.0888 * |
| Mercury | -7476-07-08 23:02 J | -1008996.62 | -1008996.54 | -1008996.46 | 0.1831 | 0.1608 |
| Mercury | -7475-05-15 08:23 J | -1008686.25 | -1008686.15 | -1008686.05 | 0.1693 | 0.0884 |
| Mercury | -7473-04-19 11:45 J | -1007981.10 | -1007981.01 | -1007980.92 | 0.1674 | 0.1037 |
| Venus | -7469-08-25 00:14 J | -1006392.60 | -1006392.49 | -1006392.37 | 0.1655 | 0.1239 |
| Venus | -7467-06-25 00:43 J | -1005723.63 | -1005723.47 | -1005723.31 | 0.1641 | 0.0591 |
| Mercury | -7466-10-05 19:12 J | -1005255.76 | -1005255.70 | -1005255.63 | 0.1698 | 0.1374 |
| Venus | -7464-04-03 16:33 J | -1004709.99 | -1004709.81 | -1004709.63 | 0.1879 | 0.0032 |
| Mercury | -7464-09-09 23:02 J | -1004550.65 | -1004550.54 | -1004550.43 | 0.1678 | 0.0583 |
| Mercury | -7455-03-28 12:57 J | -1001429.10 | -1001428.96 | -1001428.82 | 0.1845 | 0.1059 |
| Mercury | -7454-01-31 10:04 J | -1001120.19 | -1001120.08 | -1001119.96 | 0.1683 | 0.0137 |
| Mercury | -7446-08-18 06:14 J | -997999.41 | -997999.24 | -997999.07 | 0.1838 | 0.0238 |
| Mercury | -7445-06-22 21:21 J | -997689.72 | -997689.61 | -997689.50 | 0.1688 | 0.0354 |
| Mercury | -7443-05-29 00:28 J | -996984.52 | -996984.48 | -996984.44 | 0.1669 | 0.1538 |
| Mercury | -7436-01-07 00:00 J | -994569.60 | -994569.50 | -994569.40 | 0.1832 | 0.1490 |
| Mercury | -7436-11-13 08:23 J | -994259.25 | -994259.15 | -994259.05 | 0.1693 | 0.0834 |
| Venus | -7435-06-23 18:14 J | -994036.91 | -994036.74 | -994036.57 | 0.1646 | 0.0269 |
| Mercury | -7434-10-19 11:45 J | -993554.10 | -993554.01 | -993553.93 | 0.1674 | 0.1089 |
| Venus | -7433-04-22 20:38 J | -993367.70 | -993367.64 | -993367.58 | 0.1634 | 0.1504 |
| Venus | -7432-04-03 16:19 J | -993021.90 | -993021.82 | -993021.75 | 0.1870 | 0.1697 |
| Mercury | -7426-04-05 19:12 J | -990828.77 | -990828.70 | -990828.63 | 0.1698 | 0.1318 |
| Mercury | -7424-03-10 23:02 J | -990123.65 | -990123.54 | -990123.44 | 0.1678 | 0.0635 |
| Mercury | -7416-09-26 13:40 J | -987002.07 | -987001.93 | -987001.80 | 0.1845 | 0.1156 |
| Mercury | -7415-08-01 10:04 J | -986693.19 | -986693.08 | -986692.96 | 0.1683 | 0.0178 |
| Mercury | -7406-02-16 06:57 J | -983572.38 | -983572.21 | -983572.03 | 0.1839 | 0.0135 |

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|---------|---------------------|------------|------------|------------|--------|----------|
| Mercury | -7406-12-22 21:21 J | -983262.72 | -983262.61 | -983262.50 | 0.1688 | 0.0295 |
| Mercury | -7404-11-27 00:28 J | -982557.51 | -982557.48 | -982557.45 | 0.1669 | 0.1593 |
| Venus | -7403-06-22 12:14 J | -982350.11 | -982349.99 | -982349.87 | 0.1652 | 0.1141 |
| Venus | -7401-04-21 13:12 J | -981681.10 | -981680.95 | -981680.79 | 0.1639 | 0.0676 |
| Venus | -7398-01-29 19:26 J | -980667.87 | -980667.69 | -980667.52 | 0.1882 | 0.0262 |
| Earth | -7398-10-23 19:55 J | -980400.85 | -980400.67 | -980400.48 | 0.1614 | 0.0230 |
| Moon | -7398-10-24 00:57 J | -980400.65 | -980400.46 | -980400.26 | 0.1614 | 0.0125 * |
| Mercury | -7397-07-08 01:12 J | -980142.57 | -980142.45 | -980142.34 | 0.1832 | 0.1366 |
| Mercury | -7396-05-14 08:23 J | -979832.26 | -979832.15 | -979832.05 | 0.1693 | 0.0779 |
| Mercury | -7394-04-19 11:45 J | -979127.09 | -979127.01 | -979126.93 | 0.1673 | 0.1146 |
| Mercury | -7387-10-04 19:12 J | -976401.77 | -976401.70 | -976401.62 | 0.1698 | 0.1262 |
| Mercury | -7385-09-08 23:02 J | -975696.65 | -975696.54 | -975696.44 | 0.1678 | 0.0691 |
| Mercury | -7376-03-27 14:38 J | -972575.01 | -972574.89 | -972574.77 | 0.1846 | 0.1282 |
| Mercury | -7375-01-30 10:04 J | -972266.19 | -972266.08 | -972265.96 | 0.1683 | 0.0230 |
| Venus | -7369-04-20 06:28 J | -969994.40 | -969994.23 | -969994.06 | 0.1644 | 0.0176 |
| Venus | -7367-02-18 08:52 J | -969325.16 | -969325.13 | -969325.09 | 0.1633 | 0.1588 |
| Mercury | -7367-08-17 08:09 J | -969145.33 | -969145.16 | -969144.99 | 0.1839 | 0.0036 |
| Venus | -7366-01-29 19:26 J | -968979.81 | -968979.69 | -968979.58 | 0.1873 | 0.1424 |
| Mercury | -7366-06-22 21:07 J | -968835.73 | -968835.62 | -968835.50 | 0.1688 | 0.0250 |
| Mercury | -7364-05-28 00:14 J | -968130.50 | -968130.49 | -968130.47 | 0.1669 | 0.1646 |
| Mercury | -7357-01-07 01:26 J | -965715.56 | -965715.44 | -965715.31 | 0.1832 | 0.1274 |
| Mercury | -7357-11-12 08:23 J | -965405.26 | -965405.15 | -965405.05 | 0.1693 | 0.0719 |
| Mercury | -7355-10-18 11:45 J | -964700.09 | -964700.01 | -964699.94 | 0.1674 | 0.1198 |
| Mercury | -7347-04-04 19:12 J | -961974.78 | -961974.70 | -961974.62 | 0.1698 | 0.1204 |
| Mercury | -7345-03-09 23:02 J | -961269.64 | -961269.54 | -961269.44 | 0.1678 | 0.0747 |
| Mercury | -7338-08-26 06:00 J | -958544.25 | -958544.25 | -958544.24 | 0.1703 | 0.1700 |
| Venus | -7337-04-19 00:00 J | -958307.63 | -958307.50 | -958307.36 | 0.1650 | 0.1042 |
| Mercury | -7337-09-25 15:36 J | -958147.96 | -958147.85 | -958147.74 | 0.1846 | 0.1401 |
| Mercury | -7336-07-31 10:04 J | -957839.19 | -957839.08 | -957838.97 | 0.1683 | 0.0281 |
| Venus | -7335-02-17 01:12 J | -957638.60 | -957638.45 | -957638.30 | 0.1637 | 0.0766 |

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|---------|---------------------|------------|------------|------------|--------|----------|
| Venus | -7333-11-25 21:50 J | -956625.76 | -956625.59 | -956625.42 | 0.1885 | 0.0562 |
| Mercury | -7327-02-15 08:52 J | -954718.30 | -954718.13 | -954717.95 | 0.1839 | 0.0117 |
| Mercury | -7327-12-21 21:07 J | -954408.73 | -954408.62 | -954408.50 | 0.1688 | 0.0199 |
| Earth | -7319-10-25 19:55 J | -951543.77 | -951543.67 | -951543.57 | 0.1614 | 0.1349 |
| Moon | -7319-10-26 01:12 J | -951543.47 | -951543.45 | -951543.42 | 0.1614 | 0.1591 |
| Mercury | -7318-07-08 02:38 J | -951288.52 | -951288.39 | -951288.25 | 0.1832 | 0.1146 |
| Mercury | -7317-05-13 08:09 J | -950978.26 | -950978.16 | -950978.05 | 0.1693 | 0.0666 |
| Mercury | -7315-04-18 11:45 J | -950273.09 | -950273.01 | -950272.94 | 0.1673 | 0.1253 |
| Mercury | -7308-10-03 19:12 J | -947547.78 | -947547.70 | -947547.62 | 0.1698 | 0.1151 |
| Mercury | -7306-09-08 22:47 J | -946842.65 | -946842.55 | -946842.45 | 0.1678 | 0.0796 |
| Venus | -7303-02-15 18:28 J | -945951.90 | -945951.73 | -945951.55 | 0.1643 | 0.0092 |
| Venus | -7301-11-25 23:02 J | -944937.67 | -944937.54 | -944937.40 | 0.1876 | 0.1160 |
| Mercury | -7298-02-24 06:00 J | -944117.27 | -944117.25 | -944117.22 | 0.1703 | 0.1640 |
| Mercury | -7297-03-26 16:19 J | -943720.92 | -943720.82 | -943720.72 | 0.1846 | 0.1507 |
| Mercury | -7296-01-29 10:04 J | -943412.19 | -943412.08 | -943411.97 | 0.1683 | 0.0338 |
| Mercury | -7288-08-16 09:50 J | -940291.26 | -940291.09 | -940290.92 | 0.1839 | 0.0220 |
| Mercury | -7287-06-21 21:07 J | -939981.73 | -939981.62 | -939981.50 | 0.1687 | 0.0144 |
| Mercury | -7278-01-06 03:36 J | -936861.49 | -936861.35 | -936861.21 | 0.1832 | 0.1032 |
| Mercury | -7278-11-12 08:09 J | -936551.26 | -936551.16 | -936551.05 | 0.1693 | 0.0610 |
| Mercury | -7276-10-17 11:31 J | -935846.09 | -935846.02 | -935845.95 | 0.1673 | 0.1305 |
| Earth | -7272-10-20 04:47 J | -934382.37 | -934382.30 | -934382.23 | 0.1616 | 0.1486 |
| Moon | -7272-10-20 06:14 J | -934382.28 | -934382.24 | -934382.19 | 0.1616 | 0.1544 * |
| Venus | -7271-02-14 12:00 J | -934265.14 | -934265.00 | -934264.86 | 0.1648 | 0.0949 |
| Venus | -7270-12-15 13:55 J | -933596.06 | -933595.92 | -933595.77 | 0.1636 | 0.0849 |
| Mercury | -7268-04-03 19:12 J | -933120.79 | -933120.70 | -933120.62 | 0.1698 | 0.1094 |
| Venus | -7267-09-23 00:43 J | -932583.63 | -932583.47 | -932583.31 | 0.1887 | 0.0856 |
| Mercury | -7266-03-09 22:47 J | -932415.65 | -932415.55 | -932415.45 | 0.1678 | 0.0851 |
| Mercury | -7259-08-25 06:00 J | -929690.29 | -929690.25 | -929690.21 | 0.1703 | 0.1588 |
| Mercury | -7258-09-25 17:16 J | -929293.86 | -929293.78 | -929293.70 | 0.1846 | 0.1627 |
| Mercury | -7257-07-30 10:04 J | -928985.19 | -928985.08 | -928984.97 | 0.1683 | 0.0392 |

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|---------|---------------------|------------|------------|------------|--------|----------|
| Mercury | -7248-02-14 10:47 J | -925864.22 | -925864.05 | -925863.88 | 0.1839 | 0.0338 |
| Mercury | -7248-12-20 21:07 J | -925554.73 | -925554.62 | -925554.50 | 0.1688 | 0.0081 |
| Mercury | -7239-07-07 04:19 J | -922434.47 | -922434.32 | -922434.18 | 0.1832 | 0.0932 |
| Mercury | -7238-05-13 08:09 J | -922124.27 | -922124.16 | -922124.05 | 0.1693 | 0.0552 |
| Venus | -7238-12-14 06:57 J | -921909.39 | -921909.21 | -921909.04 | 0.1641 | 0.0044 |
| Mercury | -7236-04-17 11:31 J | -921419.08 | -921419.02 | -921418.95 | 0.1673 | 0.1358 |
| Venus | -7235-09-23 01:55 J | -920895.58 | -920895.42 | -920895.26 | 0.1879 | 0.0874 |
| Mercury | -7229-10-02 19:12 J | -918693.79 | -918693.70 | -918693.61 | 0.1698 | 0.1039 |
| Mercury | -7227-09-07 22:47 J | -917988.64 | -917988.55 | -917988.45 | 0.1678 | 0.0908 |
| Mercury | -7219-02-23 06:00 J | -915263.30 | -915263.25 | -915263.20 | 0.1703 | 0.1529 |
| Mercury | -7218-03-26 18:28 J | -914866.78 | -914866.73 | -914866.68 | 0.1846 | 0.1754 |
| Mercury | -7217-01-29 10:04 J | -914558.19 | -914558.08 | -914557.97 | 0.1682 | 0.0449 |
| Mercury | -7209-08-15 11:31 J | -911437.18 | -911437.02 | -911436.85 | 0.1839 | 0.0452 |
| Mercury | -7208-06-20 21:07 J | -911127.73 | -911127.62 | -911127.51 | 0.1687 | 0.0024 |
| Venus | -7206-12-13 00:00 J | -910222.65 | -910222.50 | -910222.35 | 0.1646 | 0.0850 |
| Venus | -7204-10-12 02:23 J | -909553.54 | -909553.40 | -909553.26 | 0.1634 | 0.0934 |
| Venus | -7201-07-20 02:52 J | -908541.51 | -908541.38 | -908541.24 | 0.1890 | 0.1167 |
| Mercury | -7199-01-05 05:16 J | -908007.43 | -908007.28 | -908007.13 | 0.1833 | 0.0811 |
| Mercury | -7199-11-11 08:09 J | -907697.27 | -907697.16 | -907697.05 | 0.1693 | 0.0500 |
| Mercury | -7197-10-16 11:31 J | -906992.08 | -906992.02 | -906991.96 | 0.1673 | 0.1410 |
| Moon | -7193-10-21 23:45 J | -905525.69 | -905525.51 | -905525.33 | 0.1616 | 0.0303 |
| Earth | -7193-10-22 04:33 J | -905525.49 | -905525.31 | -905525.12 | 0.1615 | 0.0373 * |
| Mercury | -7189-04-02 19:12 J | -904266.80 | -904266.70 | -904266.61 | 0.1698 | 0.0982 |
| Mercury | -7187-03-08 22:47 J | -903561.64 | -903561.55 | -903561.46 | 0.1678 | 0.0959 |
| Mercury | -7180-08-24 06:00 J | -900836.30 | -900836.25 | -900836.19 | 0.1703 | 0.1472 |
| Mercury | -7178-07-30 09:50 J | -900131.19 | -900131.09 | -900130.98 | 0.1683 | 0.0505 |
| Venus | -7172-10-10 19:12 J | -897866.87 | -897866.70 | -897866.53 | 0.1639 | 0.0097 |
| Mercury | -7169-02-14 12:28 J | -897010.15 | -897009.98 | -897009.82 | 0.1840 | 0.0563 |
| Venus | -7169-07-20 05:02 J | -896853.46 | -896853.29 | -896853.12 | 0.1882 | 0.0593 |
| Mercury | -7169-12-19 21:07 J | -896700.73 | -896700.62 | -896700.51 | 0.1687 | 0.0035 |

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|---------|---------------------|------------|------------|------------|--------|----------|
| Mercury | -7160-07-06 06:14 J | -893580.39 | -893580.24 | -893580.08 | 0.1833 | 0.0690 |
| Mercury | -7159-05-12 08:09 J | -893270.27 | -893270.16 | -893270.05 | 0.1692 | 0.0444 |
| Mercury | -7157-04-16 11:31 J | -892565.07 | -892565.02 | -892564.97 | 0.1673 | 0.1465 |
| Mercury | -7150-10-02 18:57 J | -889839.80 | -889839.71 | -889839.61 | 0.1698 | 0.0930 |
| Mercury | -7148-09-06 22:47 J | -889134.64 | -889134.55 | -889134.46 | 0.1678 | 0.1013 |
| Mercury | -7140-02-22 06:00 J | -886409.31 | -886409.25 | -886409.19 | 0.1703 | 0.1419 |
| Venus | -7140-10-09 12:28 J | -886180.13 | -886179.98 | -886179.83 | 0.1645 | 0.0761 |
| Mercury | -7138-01-28 09:50 J | -885704.20 | -885704.09 | -885703.98 | 0.1682 | 0.0554 |
| Venus | -7138-08-09 14:38 J | -885511.02 | -885510.89 | -885510.75 | 0.1633 | 0.1022 |
| Earth | -7137-04-26 08:52 J | -885250.32 | -885250.13 | -885249.94 | 0.1909 | 0.0814 |
| Moon | -7137-04-26 19:26 J | -885249.87 | -885249.69 | -885249.52 | 0.1909 | 0.1016 |
| Venus | -7135-05-17 05:31 J | -884499.38 | -884499.27 | -884499.16 | 0.1892 | 0.1470 |
| Mercury | -7130-08-15 13:26 J | -882583.10 | -882582.94 | -882582.78 | 0.1840 | 0.0680 |
| Mercury | -7129-06-19 21:07 J | -882273.74 | -882273.62 | -882273.51 | 0.1687 | 0.0096 |
| Mercury | -7120-01-04 06:43 J | -879153.38 | -879153.22 | -879153.06 | 0.1833 | 0.0597 |
| Mercury | -7120-11-10 08:09 J | -878843.27 | -878843.16 | -878843.05 | 0.1692 | 0.0387 |
| Mercury | -7118-10-16 11:31 J | -878138.07 | -878138.02 | -878137.98 | 0.1673 | 0.1517 |
| Moon | -7114-10-24 23:31 J | -876668.70 | -876668.52 | -876668.33 | 0.1615 | 0.0541 |
| Earth | -7114-10-25 04:19 J | -876668.48 | -876668.32 | -876668.15 | 0.1615 | 0.0745 * |
| Mercury | -7111-05-27 01:12 J | -875723.47 | -875723.45 | -875723.42 | 0.1826 | 0.1802 |
| Mercury | -7110-04-02 18:57 J | -875412.80 | -875412.71 | -875412.61 | 0.1697 | 0.0873 |
| Mercury | -7108-03-07 22:47 J | -874707.64 | -874707.55 | -874707.47 | 0.1677 | 0.1070 |
| Venus | -7108-10-08 06:14 J | -874493.26 | -874493.24 | -874493.22 | 0.1651 | 0.1635 |
| Venus | -7106-08-08 07:12 J | -873824.37 | -873824.20 | -873824.03 | 0.1637 | 0.0189 |
| Venus | -7103-05-17 07:12 J | -872811.37 | -872811.20 | -872811.02 | 0.1884 | 0.0294 |
| Mercury | -7101-08-23 06:00 J | -871982.32 | -871982.25 | -871982.19 | 0.1703 | 0.1364 |
| Mercury | -7099-07-29 09:50 J | -871277.20 | -871277.09 | -871276.98 | 0.1682 | 0.0606 |
| Mercury | -7090-02-13 14:09 J | -868156.06 | -868155.91 | -868155.75 | 0.1840 | 0.0797 |
| Mercury | -7090-12-19 21:07 J | -867846.74 | -867846.62 | -867846.51 | 0.1687 | 0.0152 |
| Mercury | -7081-07-05 07:55 J | -864726.33 | -864726.17 | -864726.00 | 0.1833 | 0.0468 |

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|---------|---------------------|------------|------------|------------|--------|--------|
| Mercury | -7080-05-11 07:55 J | -864416.28 | -864416.17 | -864416.05 | 0.1692 | 0.0342 |
| Mercury | -7078-04-16 11:31 J | -863711.06 | -863711.02 | -863710.99 | 0.1673 | 0.1571 |
| Venus | -7074-08-07 00:00 J | -862137.66 | -862137.50 | -862137.34 | 0.1643 | 0.0661 |
| Venus | -7072-06-06 03:07 J | -861468.49 | -861468.37 | -861468.24 | 0.1631 | 0.1107 |
| Mercury | -7072-11-25 01:55 J | -861296.48 | -861296.42 | -861296.37 | 0.1826 | 0.1706 |
| Mercury | -7071-10-01 18:57 J | -860985.81 | -860985.71 | -860985.61 | 0.1698 | 0.0817 |
| Venus | -7069-03-13 07:40 J | -860457.24 | -860457.18 | -860457.13 | 0.1894 | 0.1788 |
| Mercury | -7069-09-05 22:33 J | -860280.64 | -860280.56 | -860280.47 | 0.1678 | 0.1118 |
| Mercury | -7061-02-22 06:00 J | -857555.32 | -857555.25 | -857555.18 | 0.1703 | 0.1302 |
| Mercury | -7059-01-27 09:50 J | -856850.19 | -856850.09 | -856849.98 | 0.1682 | 0.0664 |
| Mercury | -7051-08-14 15:07 J | -853729.02 | -853728.87 | -853728.72 | 0.1840 | 0.0908 |
| Mercury | -7050-06-19 21:07 J | -853419.74 | -853419.62 | -853419.51 | 0.1687 | 0.0207 |
| Venus | -7042-08-05 17:45 J | -850450.82 | -850450.76 | -850450.70 | 0.1649 | 0.1535 |
| Mercury | -7041-01-04 08:52 J | -850299.30 | -850299.13 | -850298.96 | 0.1833 | 0.0358 |
| Mercury | -7041-11-09 07:55 J | -849989.28 | -849989.17 | -849989.06 | 0.1692 | 0.0281 |
| Venus | -7040-06-04 19:26 J | -849781.86 | -849781.69 | -849781.52 | 0.1636 | 0.0280 |
| Mercury | -7039-10-15 11:16 J | -849284.05 | -849284.03 | -849284.00 | 0.1673 | 0.1622 |
| Venus | -7037-03-13 09:50 J | -848769.26 | -848769.09 | -848768.91 | 0.1887 | 0.0036 |
| Mercury | -7032-05-26 02:52 J | -846869.46 | -846869.38 | -846869.30 | 0.1826 | 0.1584 |
| Mercury | -7031-04-01 18:57 J | -846558.81 | -846558.71 | -846558.61 | 0.1697 | 0.0761 |
| Mercury | -7029-03-06 22:33 J | -845853.64 | -845853.56 | -845853.48 | 0.1677 | 0.1173 |
| Mercury | -7022-08-23 05:45 J | -843128.33 | -843128.26 | -843128.18 | 0.1703 | 0.1254 |
| Mercury | -7020-07-28 09:50 J | -842423.20 | -842423.09 | -842422.99 | 0.1682 | 0.0715 |
| Mercury | -7011-02-12 16:04 J | -839301.98 | -839301.83 | -839301.69 | 0.1840 | 0.1021 |
| Mercury | -7011-12-18 20:52 J | -838992.74 | -838992.63 | -838992.51 | 0.1687 | 0.0251 |
| Venus | -7008-06-03 12:28 J | -838095.14 | -838094.98 | -838094.82 | 0.1641 | 0.0575 |
| Venus | -7006-04-03 15:50 J | -837425.96 | -837425.84 | -837425.73 | 0.1630 | 0.1192 |
| Venus | -7005-03-13 10:33 J | -837081.13 | -837081.06 | -837080.98 | 0.1878 | 0.1707 |
| Mercury | -7002-07-05 09:36 J | -835872.27 | -835872.10 | -835871.93 | 0.1833 | 0.0258 |
| Mercury | -7001-05-10 07:55 J | -835562.28 | -835562.17 | -835562.05 | 0.1692 | 0.0228 |

7TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 7th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|---|------------|------------|------------|--------|--------|---|
| Mercury | -6993-11-24 03:50 J | | -832442.44 | -832442.34 | -832442.24 | 0.1827 | 0.1472 | |
| Mercury | -6992-09-30 18:57 J | | -832131.81 | -832131.71 | -832131.61 | 0.1697 | 0.0706 | |
| Mercury | -6990-09-05 22:33 J | | -831426.64 | -831426.56 | -831426.48 | 0.1677 | 0.1228 | |
| Earth | -6988-10-21 12:43 J | | -830650.11 | -830649.97 | -830649.82 | 0.1617 | 0.0973 | |
| Moon | -6988-10-21 18:57 J | | -830649.86 | -830649.71 | -830649.56 | 0.1617 | 0.0947 | * |
| Mercury | -6982-02-21 05:45 J | | -828701.34 | -828701.26 | -828701.17 | 0.1702 | 0.1196 | |
| Mercury | -6980-01-26 09:50 J | | -827996.19 | -827996.09 | -827995.99 | 0.1682 | 0.0770 | |
| Venus | -6976-06-02 06:00 J | | -826408.33 | -826408.25 | -826408.17 | 0.1647 | 0.1440 | |
| Venus | -6974-04-02 07:55 J | | -825739.33 | -825739.17 | -825739.00 | 0.1634 | 0.0366 | |
| Mercury | -6973-07-13 16:33 J | | -825270.82 | -825270.81 | -825270.80 | 0.1708 | 0.1695 | |
| Mercury | -6972-08-13 16:47 J | | -824874.93 | -824874.80 | -824874.66 | 0.1840 | 0.1137 | |
| Venus | -6971-01-08 12:14 J | | -824727.17 | -824726.99 | -824726.81 | 0.1889 | 0.0315 | |
| Mercury | -6971-06-18 20:52 J | | -824565.74 | -824565.63 | -824565.52 | 0.1687 | 0.0304 | |
| Mercury | -6962-01-03 10:33 J | | -821445.23 | -821445.06 | -821444.89 | 0.1833 | 0.0133 | |
| Mercury | -6962-11-09 07:55 J | | -821135.28 | -821135.17 | -821135.06 | 0.1692 | 0.0170 | |
| Mercury | -6953-05-25 04:33 J | | -818015.42 | -818015.31 | -818015.20 | 0.1826 | 0.1367 | |
| Mercury | -6952-03-31 18:57 J | | -817704.82 | -817704.71 | -817704.60 | 0.1697 | 0.0649 | |
| Mercury | -6950-03-06 22:33 J | | -816999.63 | -816999.56 | -816999.49 | 0.1677 | 0.1279 | |
| Mercury | -6943-08-22 05:45 J | | -814274.34 | -814274.26 | -814274.17 | 0.1702 | 0.1139 | |

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|---------|---------------------|------------|------------|------------|--------|----------|
| Venus | -6942-04-01 00:43 J | -814052.64 | -814052.47 | -814052.31 | 0.1639 | 0.0482 |
| Mercury | -6941-07-27 09:36 J | -813569.19 | -813569.10 | -813569.00 | 0.1682 | 0.0826 |
| Venus | -6940-01-29 04:19 J | -813383.43 | -813383.32 | -813383.22 | 0.1628 | 0.1276 |
| Venus | -6939-01-08 13:12 J | -813039.06 | -813038.95 | -813038.83 | 0.1881 | 0.1420 |
| Mercury | -6933-01-12 16:33 J | -810843.84 | -810843.81 | -810843.78 | 0.1708 | 0.1637 |
| Mercury | -6932-02-11 17:45 J | -810447.88 | -810447.76 | -810447.63 | 0.1841 | 0.1252 |
| Mercury | -6932-12-17 20:52 J | -810138.74 | -810138.63 | -810138.52 | 0.1687 | 0.0361 |
| Mercury | -6923-07-04 11:31 J | -807018.19 | -807018.02 | -807017.85 | 0.1834 | 0.0015 |
| Mercury | -6922-05-10 07:55 J | -806708.29 | -806708.17 | -806708.06 | 0.1692 | 0.0116 |
| Mercury | -6914-11-24 05:16 J | -803588.40 | -803588.28 | -803588.16 | 0.1827 | 0.1258 |
| Mercury | -6913-09-29 18:57 J | -803277.82 | -803277.71 | -803277.61 | 0.1697 | 0.0599 |
| Mercury | -6911-09-04 22:19 J | -802572.63 | -802572.57 | -802572.50 | 0.1677 | 0.1332 |
| Venus | -6910-03-30 17:45 J | -802365.85 | -802365.76 | -802365.66 | 0.1645 | 0.1341 |
| Earth | -6909-10-23 12:14 J | -801793.18 | -801792.99 | -801792.81 | 0.1616 | 0.0134 |
| Moon | -6909-10-23 16:47 J | -801792.98 | -801792.80 | -801792.63 | 0.1616 | 0.0316 * |
| Venus | -6908-01-27 20:09 J | -801696.83 | -801696.66 | -801696.50 | 0.1633 | 0.0454 |
| Venus | -6906-11-05 14:23 J | -800685.06 | -800684.90 | -800684.73 | 0.1892 | 0.0629 |
| Mercury | -6903-02-20 05:45 J | -799847.35 | -799847.26 | -799847.17 | 0.1702 | 0.1085 |
| Mercury | -6901-01-26 09:36 J | -799142.19 | -799142.10 | -799142.00 | 0.1682 | 0.0877 |
| Mercury | -6894-07-13 16:33 J | -796416.85 | -796416.81 | -796416.77 | 0.1708 | 0.1579 |
| Mercury | -6893-08-12 18:43 J | -796020.84 | -796020.72 | -796020.61 | 0.1840 | 0.1365 |
| Mercury | -6892-06-17 20:52 J | -795711.74 | -795711.63 | -795711.52 | 0.1687 | 0.0415 |
| Mercury | -6883-01-02 12:00 J | -792591.17 | -792591.00 | -792590.83 | 0.1834 | 0.0079 |
| Mercury | -6883-11-08 07:55 J | -792281.29 | -792281.17 | -792281.06 | 0.1692 | 0.0059 |
| Venus | -6876-01-26 12:57 J | -790010.12 | -790009.96 | -790009.79 | 0.1638 | 0.0393 |
| Venus | -6875-11-26 16:47 J | -789340.90 | -789340.80 | -789340.71 | 0.1627 | 0.1363 |
| Mercury | -6874-05-25 06:28 J | -789161.36 | -789161.23 | -789161.10 | 0.1827 | 0.1135 |
| Venus | -6874-11-05 16:47 J | -788996.94 | -788996.80 | -788996.66 | 0.1884 | 0.1140 |
| Mercury | -6873-03-30 18:57 J | -788850.82 | -788850.71 | -788850.61 | 0.1697 | 0.0544 |
| Mercury | -6871-03-05 22:33 J | -788145.63 | -788145.56 | -788145.50 | 0.1677 | 0.1388 |

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|---------|---------------------|------------|------------|------------|--------|----------|
| Mercury | -6864-08-21 05:45 J | -785420.35 | -785420.26 | -785420.17 | 0.1702 | 0.1029 |
| Mercury | -6862-07-27 09:36 J | -784715.19 | -784715.10 | -784715.00 | 0.1682 | 0.0929 |
| Mercury | -6854-01-11 16:33 J | -781989.86 | -781989.81 | -781989.76 | 0.1708 | 0.1525 |
| Mercury | -6853-02-11 19:26 J | -781593.79 | -781593.69 | -781593.59 | 0.1841 | 0.1478 |
| Moon | -6853-04-24 19:40 J | -781520.88 | -781520.68 | -781520.48 | 0.1907 | 0.0879 |
| Earth | -6853-04-25 02:38 J | -781520.59 | -781520.39 | -781520.19 | 0.1908 | 0.0457 * |
| Mercury | -6853-12-16 20:52 J | -781284.74 | -781284.63 | -781284.52 | 0.1687 | 0.0470 |
| Venus | -6844-01-25 06:00 J | -778323.36 | -778323.25 | -778323.14 | 0.1643 | 0.1250 |
| Mercury | -6844-07-03 13:12 J | -778164.12 | -778163.95 | -778163.78 | 0.1834 | 0.0209 |
| Mercury | -6843-05-09 07:40 J | -777854.29 | -777854.18 | -777854.06 | 0.1692 | 0.0063 |
| Venus | -6843-11-25 08:52 J | -777654.29 | -777654.13 | -777653.97 | 0.1631 | 0.0537 |
| Venus | -6840-09-01 16:47 J | -776642.95 | -776642.80 | -776642.65 | 0.1894 | 0.0938 |
| Mercury | -6835-11-23 06:57 J | -774734.35 | -774734.21 | -774734.07 | 0.1827 | 0.1041 |
| Mercury | -6834-09-29 18:43 J | -774423.82 | -774423.72 | -774423.61 | 0.1697 | 0.0490 |
| Mercury | -6832-09-03 22:19 J | -773718.63 | -773718.57 | -773718.51 | 0.1677 | 0.1437 |
| Moon | -6830-10-26 10:19 J | -772936.20 | -772936.07 | -772935.94 | 0.1615 | 0.1072 |
| Earth | -6830-10-26 12:14 J | -772936.10 | -772935.99 | -772935.87 | 0.1615 | 0.1256 * |
| Mercury | -6824-02-19 05:45 J | -770993.35 | -770993.26 | -770993.17 | 0.1702 | 0.0969 |
| Mercury | -6822-01-25 09:36 J | -770288.19 | -770288.10 | -770288.01 | 0.1682 | 0.0986 |
| Mercury | -6815-07-12 16:33 J | -767562.87 | -767562.81 | -767562.76 | 0.1708 | 0.1470 |
| Mercury | -6814-08-12 20:23 J | -767166.73 | -767166.65 | -767166.57 | 0.1841 | 0.1594 |
| Mercury | -6813-06-16 20:38 J | -766857.74 | -766857.64 | -766857.53 | 0.1686 | 0.0524 |
| Venus | -6811-11-24 01:12 J | -765967.61 | -765967.45 | -765967.28 | 0.1636 | 0.0305 |
| Venus | -6809-09-23 05:31 J | -765298.34 | -765298.27 | -765298.19 | 0.1626 | 0.1443 |
| Venus | -6808-09-01 18:57 J | -764954.87 | -764954.71 | -764954.55 | 0.1886 | 0.0840 |
| Mercury | -6804-01-01 13:55 J | -763737.09 | -763736.92 | -763736.75 | 0.1834 | 0.0321 |
| Mercury | -6804-11-07 07:40 J | -763427.29 | -763427.18 | -763427.06 | 0.1692 | 0.0067 |
| Mercury | -6795-05-24 08:09 J | -760307.31 | -760307.16 | -760307.02 | 0.1827 | 0.0918 |
| Mercury | -6794-03-30 18:43 J | -759996.83 | -759996.72 | -759996.61 | 0.1697 | 0.0432 |
| Mercury | -6792-03-04 22:19 J | -759291.62 | -759291.57 | -759291.52 | 0.1677 | 0.1491 |

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|---------|---------------------|------------|------------|------------|--------|--------|
| Mercury | -6785-08-20 05:45 J | -756566.36 | -756566.26 | -756566.17 | 0.1702 | 0.0921 |
| Mercury | -6783-07-26 09:36 J | -755861.19 | -755861.10 | -755861.01 | 0.1682 | 0.1036 |
| Moon | -6783-10-20 14:23 J | -755774.92 | -755774.90 | -755774.87 | 0.1619 | 0.1605 |
| Earth | -6783-10-20 20:38 J | -755774.67 | -755774.64 | -755774.62 | 0.1619 | 0.1595 |
| Venus | -6779-11-22 18:00 J | -754280.87 | -754280.75 | -754280.63 | 0.1641 | 0.1153 |
| Venus | -6777-09-21 21:21 J | -753611.77 | -753611.61 | -753611.45 | 0.1630 | 0.0625 |
| Mercury | -6775-01-10 16:33 J | -753135.87 | -753135.81 | -753135.75 | 0.1707 | 0.1410 |
| Mercury | -6774-02-10 21:07 J | -752739.68 | -752739.62 | -752739.55 | 0.1841 | 0.1703 |
| Venus | -6774-06-29 18:28 J | -752600.86 | -752600.73 | -752600.59 | 0.1896 | 0.1265 |
| Mercury | -6774-12-16 20:38 J | -752430.75 | -752430.64 | -752430.53 | 0.1687 | 0.0575 |
| Mercury | -6765-07-02 14:38 J | -749310.05 | -749309.89 | -749309.72 | 0.1834 | 0.0427 |
| Mercury | -6764-05-08 07:55 J | -749000.29 | -749000.17 | -749000.06 | 0.1691 | 0.0128 |
| Mercury | -6756-11-22 08:52 J | -745880.28 | -745880.13 | -745879.98 | 0.1827 | 0.0806 |
| Mercury | -6755-09-28 18:43 J | -745569.83 | -745569.72 | -745569.61 | 0.1697 | 0.0377 |
| Mercury | -6753-09-02 22:19 J | -744864.61 | -744864.57 | -744864.53 | 0.1677 | 0.1545 |
| Mercury | -6745-02-19 05:45 J | -742139.36 | -742139.26 | -742139.17 | 0.1702 | 0.0864 |
| Venus | -6745-09-20 13:40 J | -741925.10 | -741924.93 | -741924.76 | 0.1634 | 0.0210 |
| Mercury | -6743-01-24 09:36 J | -741434.19 | -741434.10 | -741434.02 | 0.1681 | 0.1091 |
| Venus | -6743-07-21 17:31 J | -741255.82 | -741255.77 | -741255.71 | 0.1624 | 0.1534 |
| Venus | -6742-06-29 21:36 J | -740912.77 | -740912.60 | -740912.43 | 0.1889 | 0.0543 |
| Mercury | -6736-07-11 16:33 J | -738708.88 | -738708.81 | -738708.75 | 0.1707 | 0.1360 |
| Mercury | -6735-08-11 22:04 J | -738312.60 | -738312.58 | -738312.55 | 0.1841 | 0.1821 |
| Mercury | -6734-06-16 20:38 J | -738003.75 | -738003.64 | -738003.53 | 0.1686 | 0.0628 |
| Mercury | -6725-01-01 15:36 J | -734883.01 | -734882.85 | -734882.68 | 0.1834 | 0.0546 |
| Mercury | -6725-11-06 07:40 J | -734573.29 | -734573.18 | -734573.07 | 0.1692 | 0.0156 |
| Mercury | -6716-05-23 09:36 J | -731453.26 | -731453.10 | -731452.94 | 0.1827 | 0.0704 |
| Mercury | -6715-03-29 18:43 J | -731142.83 | -731142.72 | -731142.61 | 0.1697 | 0.0320 |
| Mercury | -6713-03-03 22:19 J | -730437.61 | -730437.57 | -730437.54 | 0.1677 | 0.1596 |
| Venus | -6713-09-19 06:28 J | -730238.36 | -730238.23 | -730238.10 | 0.1639 | 0.1063 |
| Venus | -6711-07-20 09:36 J | -729569.25 | -729569.10 | -729568.94 | 0.1628 | 0.0713 |

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|---------|---------------------|------------|------------|------------|--------|----------|
| Venus | -6708-04-25 20:52 J | -728558.73 | -728558.63 | -728558.53 | 0.1898 | 0.1578 |
| Mercury | -6706-08-20 05:45 J | -727712.36 | -727712.26 | -727712.16 | 0.1702 | 0.0808 |
| Mercury | -6704-07-25 09:36 J | -727007.19 | -727007.10 | -727007.02 | 0.1682 | 0.1146 |
| Moon | -6704-10-22 16:19 J | -726918.00 | -726917.82 | -726917.64 | 0.1618 | 0.0618 |
| Earth | -6704-10-22 20:38 J | -726917.82 | -726917.64 | -726917.46 | 0.1618 | 0.0463 * |
| Mercury | -6696-01-09 16:33 J | -724281.89 | -724281.81 | -724281.74 | 0.1707 | 0.1302 |
| Mercury | -6695-12-15 20:38 J | -723576.74 | -723576.64 | -723576.54 | 0.1686 | 0.0683 |
| Mercury | -6686-07-02 16:47 J | -720455.96 | -720455.80 | -720455.64 | 0.1834 | 0.0662 |
| Mercury | -6685-05-07 07:40 J | -720146.29 | -720146.18 | -720146.07 | 0.1691 | 0.0212 |
| Venus | -6679-07-19 01:55 J | -717882.60 | -717882.42 | -717882.25 | 0.1633 | 0.0124 |
| Venus | -6677-05-18 06:43 J | -717213.24 | -717213.22 | -717213.20 | 0.1623 | 0.1611 |
| Mercury | -6677-11-21 10:33 J | -717026.23 | -717026.06 | -717025.90 | 0.1828 | 0.0593 |
| Venus | -6676-04-25 23:45 J | -716870.69 | -716870.51 | -716870.34 | 0.1892 | 0.0233 |
| Mercury | -6676-09-27 18:43 J | -716715.84 | -716715.72 | -716715.61 | 0.1697 | 0.0270 |
| Mercury | -6674-09-02 22:04 J | -716010.59 | -716010.58 | -716010.56 | 0.1677 | 0.1648 |
| Mercury | -6667-04-13 05:02 J | -713596.32 | -713596.29 | -713596.26 | 0.1820 | 0.1787 |
| Mercury | -6666-02-18 05:31 J | -713285.37 | -713285.27 | -713285.16 | 0.1702 | 0.0753 |
| Mercury | -6664-01-23 09:21 J | -712580.19 | -712580.11 | -712580.03 | 0.1681 | 0.1197 |
| Mercury | -6657-07-10 16:33 J | -709854.89 | -709854.81 | -709854.74 | 0.1707 | 0.1244 |
| Mercury | -6655-06-15 20:38 J | -709149.75 | -709149.64 | -709149.54 | 0.1686 | 0.0737 |
| Venus | -6647-07-17 18:14 J | -706195.88 | -706195.74 | -706195.60 | 0.1637 | 0.0966 |
| Mercury | -6647-12-31 17:16 J | -706028.94 | -706028.78 | -706028.63 | 0.1835 | 0.0756 |
| Mercury | -6646-11-06 07:40 J | -705719.29 | -705719.18 | -705719.07 | 0.1691 | 0.0269 |
| Venus | -6645-05-16 22:19 J | -705526.72 | -705526.57 | -705526.42 | 0.1627 | 0.0798 |
| Mercury | -6637-05-22 11:31 J | -702599.18 | -702599.02 | -702598.85 | 0.1828 | 0.0468 |
| Mercury | -6636-03-28 18:43 J | -702288.84 | -702288.72 | -702288.61 | 0.1696 | 0.0213 |
| Mercury | -6628-10-12 05:45 J | -699169.33 | -699169.26 | -699169.20 | 0.1821 | 0.1685 |
| Mercury | -6627-08-19 05:31 J | -698858.37 | -698858.27 | -698858.16 | 0.1702 | 0.0697 |
| Mercury | -6625-07-24 09:21 J | -698153.18 | -698153.11 | -698153.03 | 0.1681 | 0.1248 |
| Earth | -6625-10-24 19:40 J | -698060.84 | -698060.68 | -698060.51 | 0.1617 | 0.0644 |

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|---------|---------------------|------------|------------|------------|--------|----------|
| Moon | -6625-10-24 23:31 J | -698060.69 | -698060.52 | -698060.35 | 0.1617 | 0.0792 * |
| Mercury | -6617-01-09 16:19 J | -695427.90 | -695427.82 | -695427.74 | 0.1707 | 0.1192 |
| Mercury | -6616-12-14 20:23 J | -694722.75 | -694722.65 | -694722.55 | 0.1686 | 0.0791 |
| Venus | -6613-05-15 14:09 J | -693840.08 | -693839.91 | -693839.74 | 0.1631 | 0.0039 |
| Venus | -6610-02-21 01:55 J | -692828.60 | -692828.42 | -692828.24 | 0.1894 | 0.0083 |
| Mercury | -6608-06-01 03:07 J | -691997.38 | -691997.37 | -691997.36 | 0.1713 | 0.1693 |
| Mercury | -6607-07-01 18:28 J | -691601.88 | -691601.73 | -691601.58 | 0.1835 | 0.0887 |
| Mercury | -6606-05-07 07:40 J | -691292.30 | -691292.18 | -691292.07 | 0.1691 | 0.0325 |
| Mercury | -6598-11-21 12:00 J | -688172.16 | -688172.00 | -688171.83 | 0.1828 | 0.0377 |
| Mercury | -6597-09-26 18:43 J | -687861.84 | -687861.72 | -687861.61 | 0.1697 | 0.0165 |
| Mercury | -6588-04-12 06:28 J | -684742.31 | -684742.23 | -684742.14 | 0.1821 | 0.1575 |
| Mercury | -6587-02-17 05:31 J | -684431.37 | -684431.27 | -684431.16 | 0.1701 | 0.0639 |
| Mercury | -6585-01-23 09:21 J | -683726.18 | -683726.11 | -683726.04 | 0.1681 | 0.1305 |
| Venus | -6581-05-14 06:57 J | -682153.36 | -682153.21 | -682153.07 | 0.1636 | 0.0879 |
| Venus | -6579-03-14 10:47 J | -681484.19 | -681484.05 | -681483.90 | 0.1626 | 0.0885 |
| Venus | -6578-02-21 03:36 J | -681140.43 | -681140.35 | -681140.27 | 0.1886 | 0.1681 |
| Mercury | -6578-07-10 16:19 J | -681000.90 | -681000.82 | -681000.73 | 0.1707 | 0.1136 |
| Mercury | -6576-06-14 20:23 J | -680295.75 | -680295.65 | -680295.55 | 0.1686 | 0.0844 |
| Earth | -6569-04-23 20:52 J | -677790.72 | -677790.63 | -677790.54 | 0.1905 | 0.1691 |
| Mercury | -6569-11-30 03:07 J | -677570.40 | -677570.37 | -677570.34 | 0.1713 | 0.1635 |
| Mercury | -6568-12-30 19:12 J | -677174.84 | -677174.70 | -677174.56 | 0.1835 | 0.0994 |
| Mercury | -6567-11-05 07:26 J | -676865.30 | -676865.19 | -676865.07 | 0.1691 | 0.0378 |
| Mercury | -6558-05-22 13:12 J | -673745.12 | -673744.95 | -673744.78 | 0.1828 | 0.0252 |
| Mercury | -6557-03-27 18:28 J | -673434.84 | -673434.73 | -673434.61 | 0.1696 | 0.0121 |
| Mercury | -6549-10-11 07:26 J | -670315.29 | -670315.19 | -670315.09 | 0.1821 | 0.1467 |
| Mercury | -6548-08-18 05:31 J | -670004.38 | -670004.27 | -670004.17 | 0.1702 | 0.0591 |
| Venus | -6547-03-13 02:38 J | -669797.56 | -669797.39 | -669797.21 | 0.1630 | 0.0072 |
| Mercury | -6546-07-24 09:21 J | -669299.18 | -669299.11 | -669299.05 | 0.1681 | 0.1355 |
| Venus | -6545-12-18 03:50 J | -668786.51 | -668786.34 | -668786.16 | 0.1896 | 0.0402 |
| Mercury | -6538-01-08 16:19 J | -666573.90 | -666573.82 | -666573.73 | 0.1707 | 0.1077 |

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|---------|---------------------|------------|------------|------------|--------|----------|
| Mercury | -6537-12-13 20:23 J | -665868.74 | -665868.65 | -665868.55 | 0.1686 | 0.0897 |
| Mercury | -6529-05-31 03:07 J | -663143.41 | -663143.37 | -663143.33 | 0.1712 | 0.1580 |
| Mercury | -6528-06-30 19:55 J | -662747.80 | -662747.67 | -662747.53 | 0.1835 | 0.1102 |
| Mercury | -6527-05-06 07:40 J | -662438.30 | -662438.18 | -662438.07 | 0.1691 | 0.0437 |
| Mercury | -6519-11-20 14:09 J | -659318.09 | -659317.91 | -659317.74 | 0.1828 | 0.0146 |
| Mercury | -6518-09-26 18:28 J | -659007.84 | -659007.73 | -659007.61 | 0.1696 | 0.0051 |
| Venus | -6515-03-11 18:57 J | -658110.86 | -658110.71 | -658110.56 | 0.1634 | 0.0785 |
| Venus | -6513-01-09 23:31 J | -657441.65 | -657441.52 | -657441.38 | 0.1624 | 0.0968 |
| Venus | -6513-12-18 06:00 J | -657098.37 | -657098.25 | -657098.13 | 0.1889 | 0.1381 |
| Mercury | -6509-04-11 08:09 J | -655888.27 | -655888.16 | -655888.04 | 0.1821 | 0.1354 |
| Mercury | -6508-02-16 05:31 J | -655577.38 | -655577.27 | -655577.16 | 0.1701 | 0.0531 |
| Mercury | -6506-01-22 09:21 J | -654872.17 | -654872.11 | -654872.05 | 0.1681 | 0.1409 |
| Mercury | -6499-07-09 16:19 J | -652146.91 | -652146.82 | -652146.73 | 0.1707 | 0.1025 |
| Earth | -6499-10-22 03:50 J | -652042.48 | -652042.34 | -652042.20 | 0.1621 | 0.1083 |
| Moon | -6499-10-22 06:28 J | -652042.36 | -652042.23 | -652042.10 | 0.1621 | 0.1030 * |
| Mercury | -6497-06-13 20:23 J | -651441.74 | -651441.65 | -651441.56 | 0.1686 | 0.0950 |
| Earth | -6490-04-28 16:47 J | -648931.84 | -648931.80 | -648931.75 | 0.1907 | 0.1856 |
| Mercury | -6490-11-30 03:07 J | -648716.42 | -648716.37 | -648716.32 | 0.1713 | 0.1524 |
| Mercury | -6489-12-29 20:52 J | -648320.75 | -648320.63 | -648320.50 | 0.1835 | 0.1219 |
| Mercury | -6488-11-04 07:26 J | -648011.30 | -648011.19 | -648011.08 | 0.1691 | 0.0481 |
| Venus | -6481-01-08 15:07 J | -645755.04 | -645754.87 | -645754.70 | 0.1628 | 0.0146 |
| Mercury | -6479-05-21 14:38 J | -644891.06 | -644890.89 | -644890.72 | 0.1828 | 0.0049 |
| Venus | -6479-10-15 05:45 J | -644744.42 | -644744.26 | -644744.09 | 0.1899 | 0.0726 |
| Mercury | -6478-03-27 18:28 J | -644580.84 | -644580.73 | -644580.61 | 0.1696 | 0.0034 |
| Mercury | -6470-10-11 09:07 J | -641461.25 | -641461.12 | -641461.00 | 0.1821 | 0.1249 |
| Mercury | -6469-08-17 05:31 J | -641150.38 | -641150.27 | -641150.16 | 0.1701 | 0.0476 |
| Mercury | -6467-07-23 09:21 J | -640445.17 | -640445.11 | -640445.06 | 0.1681 | 0.1465 |
| Mercury | -6459-01-07 16:19 J | -637719.92 | -637719.82 | -637719.73 | 0.1707 | 0.0968 |
| Mercury | -6458-12-13 20:23 J | -637014.74 | -637014.65 | -637014.56 | 0.1686 | 0.1004 |
| Mercury | -6450-05-31 03:07 J | -634289.43 | -634289.37 | -634289.32 | 0.1712 | 0.1469 |

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|---------|---------------------|------------|------------|------------|--------|----------|
| Venus | -6449-01-07 07:40 J | -634068.34 | -634068.18 | -634068.03 | 0.1633 | 0.0699 |
| Mercury | -6449-06-29 21:50 J | -633893.70 | -633893.59 | -633893.47 | 0.1835 | 0.1337 |
| Mercury | -6448-05-05 07:26 J | -633584.30 | -633584.19 | -633584.08 | 0.1691 | 0.0537 |
| Venus | -6448-11-06 12:14 J | -633399.12 | -633398.99 | -633398.86 | 0.1623 | 0.1052 |
| Venus | -6447-10-15 09:07 J | -633056.26 | -633056.12 | -633055.97 | 0.1891 | 0.1090 |
| Mercury | -6440-11-19 15:36 J | -630464.02 | -630463.85 | -630463.68 | 0.1828 | 0.0082 |
| Mercury | -6439-09-25 18:28 J | -630153.85 | -630153.73 | -630153.62 | 0.1696 | 0.0062 |
| Mercury | -6430-04-11 10:04 J | -627034.22 | -627034.08 | -627033.95 | 0.1821 | 0.1133 |
| Mercury | -6429-02-16 05:16 J | -626723.39 | -626723.28 | -626723.17 | 0.1701 | 0.0424 |
| Mercury | -6427-01-21 09:07 J | -626018.16 | -626018.12 | -626018.07 | 0.1681 | 0.1514 |
| Mercury | -6420-07-08 16:19 J | -623292.92 | -623292.82 | -623292.72 | 0.1707 | 0.0910 |
| Moon | -6420-10-24 00:14 J | -623185.66 | -623185.49 | -623185.31 | 0.1619 | 0.0119 |
| Earth | -6420-10-24 04:04 J | -623185.51 | -623185.33 | -623185.14 | 0.1619 | 0.0059 * |
| Mercury | -6418-06-13 20:09 J | -622587.74 | -622587.66 | -622587.57 | 0.1686 | 0.1059 |
| Venus | -6417-01-06 00:14 J | -622381.54 | -622381.49 | -622381.44 | 0.1638 | 0.1550 |
| Venus | -6416-11-05 04:04 J | -621712.50 | -621712.33 | -621712.16 | 0.1627 | 0.0229 |
| Venus | -6413-08-11 07:55 J | -620702.32 | -620702.17 | -620702.03 | 0.1900 | 0.1048 |
| Mercury | -6411-11-29 03:07 J | -619862.44 | -619862.37 | -619862.31 | 0.1712 | 0.1413 |
| Mercury | -6410-12-29 22:33 J | -619466.67 | -619466.56 | -619466.46 | 0.1836 | 0.1436 |
| Mercury | -6409-11-03 07:26 J | -619157.30 | -619157.19 | -619157.08 | 0.1691 | 0.0593 |
| Mercury | -6400-05-20 16:47 J | -616036.97 | -616036.80 | -616036.63 | 0.1829 | 0.0204 |
| Mercury | -6399-03-26 18:28 J | -615726.85 | -615726.73 | -615726.62 | 0.1696 | 0.0122 |
| Mercury | -6391-10-10 10:47 J | -612607.19 | -612607.05 | -612606.91 | 0.1821 | 0.1030 |
| Mercury | -6390-08-17 05:16 J | -612296.39 | -612296.28 | -612296.17 | 0.1701 | 0.0369 |
| Mercury | -6388-07-22 09:07 J | -611591.16 | -611591.12 | -611591.08 | 0.1681 | 0.1566 |
| Venus | -6384-11-03 20:09 J | -610025.82 | -610025.66 | -610025.50 | 0.1631 | 0.0611 |
| Venus | -6382-09-04 00:57 J | -609356.58 | -609356.46 | -609356.34 | 0.1622 | 0.1134 |
| Venus | -6381-08-11 11:02 J | -609014.20 | -609014.04 | -609013.88 | 0.1894 | 0.0775 |
| Mercury | -6380-01-06 16:19 J | -608865.92 | -608865.82 | -608865.73 | 0.1707 | 0.0860 |
| Mercury | -6379-12-12 20:09 J | -608160.74 | -608160.66 | -608160.57 | 0.1686 | 0.1112 |

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|---------|---------------------|------------|------------|------------|--------|--------|
| Mercury | -6371-05-30 03:07 J | -605435.44 | -605435.37 | -605435.31 | 0.1712 | 0.1357 |
| Mercury | -6370-06-29 23:45 J | -605039.60 | -605039.51 | -605039.42 | 0.1836 | 0.1566 |
| Mercury | -6369-05-04 07:26 J | -604730.30 | -604730.19 | -604730.09 | 0.1691 | 0.0647 |
| Mercury | -6361-11-18 17:16 J | -601609.95 | -601609.78 | -601609.61 | 0.1829 | 0.0294 |
| Mercury | -6360-09-24 18:28 J | -601299.85 | -601299.73 | -601299.62 | 0.1696 | 0.0176 |
| Venus | -6352-11-02 12:28 J | -598339.06 | -598338.98 | -598338.91 | 0.1636 | 0.1457 |
| Mercury | -6351-04-10 11:45 J | -598180.16 | -598180.01 | -598179.87 | 0.1822 | 0.0915 |
| Mercury | -6350-02-15 05:16 J | -597869.39 | -597869.28 | -597869.16 | 0.1701 | 0.0311 |
| Venus | -6350-09-02 16:19 J | -597669.98 | -597669.82 | -597669.65 | 0.1626 | 0.0317 |
| Mercury | -6348-01-20 09:07 J | -597164.15 | -597164.12 | -597164.09 | 0.1681 | 0.1622 |
| Venus | -6347-06-08 09:21 J | -596660.23 | -596660.11 | -596659.99 | 0.1902 | 0.1386 |
| Mercury | -6341-07-07 16:04 J | -594438.93 | -594438.83 | -594438.72 | 0.1707 | 0.0805 |
| Moon | -6341-10-25 21:36 J | -594328.72 | -594328.60 | -594328.49 | 0.1618 | 0.1286 |
| Earth | -6341-10-26 03:50 J | -594328.47 | -594328.34 | -594328.21 | 0.1618 | 0.1156 |
| Mercury | -6339-06-12 20:09 J | -593733.74 | -593733.66 | -593733.58 | 0.1685 | 0.1165 |
| Mercury | -6332-11-28 02:52 J | -591008.45 | -591008.38 | -591008.30 | 0.1712 | 0.1301 |
| Mercury | -6331-12-29 00:28 J | -590612.55 | -590612.48 | -590612.41 | 0.1836 | 0.1670 |
| Mercury | -6330-11-03 07:12 J | -590303.30 | -590303.20 | -590303.09 | 0.1691 | 0.0702 |
| Mercury | -6321-05-19 18:14 J | -587182.90 | -587182.74 | -587182.57 | 0.1829 | 0.0422 |
| Mercury | -6320-03-25 18:14 J | -586872.85 | -586872.74 | -586872.62 | 0.1696 | 0.0235 |
| Venus | -6318-09-01 08:23 J | -585983.31 | -585983.15 | -585982.99 | 0.1630 | 0.0519 |
| Venus | -6316-07-01 13:12 J | -585314.06 | -585313.95 | -585313.83 | 0.1621 | 0.1223 |
| Venus | -6315-06-08 13:26 J | -584972.11 | -584971.94 | -584971.77 | 0.1896 | 0.0466 |
| Mercury | -6312-10-09 12:28 J | -583753.13 | -583752.98 | -583752.83 | 0.1822 | 0.0808 |
| Mercury | -6311-08-16 05:16 J | -583442.39 | -583442.28 | -583442.17 | 0.1701 | 0.0257 |
| Mercury | -6309-07-21 09:07 J | -582737.13 | -582737.12 | -582737.12 | 0.1681 | 0.1672 |
| Mercury | -6301-01-06 16:19 J | -580011.93 | -580011.82 | -580011.72 | 0.1706 | 0.0742 |
| Mercury | -6300-12-11 20:09 J | -579306.74 | -579306.66 | -579306.58 | 0.1686 | 0.1218 |
| Mercury | -6292-05-29 02:52 J | -576581.45 | -576581.38 | -576581.30 | 0.1712 | 0.1246 |
| Mercury | -6291-06-29 01:12 J | -576185.48 | -576185.45 | -576185.41 | 0.1836 | 0.1782 |

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|---------|---------------------|------------|------------|------------|--------|----------|
| Mercury | -6290-05-04 07:26 J | -575876.30 | -575876.19 | -575876.09 | 0.1690 | 0.0758 |
| Venus | -6286-08-31 00:43 J | -574296.56 | -574296.47 | -574296.38 | 0.1634 | 0.1367 |
| Venus | -6284-06-30 05:02 J | -573627.46 | -573627.29 | -573627.12 | 0.1624 | 0.0400 |
| Mercury | -6282-11-18 19:12 J | -572755.86 | -572755.70 | -572755.53 | 0.1829 | 0.0534 |
| Venus | -6281-04-04 11:31 J | -572618.10 | -572618.02 | -572617.94 | 0.1904 | 0.1708 |
| Mercury | -6281-09-23 18:14 J | -572445.85 | -572445.74 | -572445.63 | 0.1696 | 0.0280 |
| Mercury | -6272-04-09 13:26 J | -569326.10 | -569325.94 | -569325.78 | 0.1822 | 0.0693 |
| Mercury | -6271-02-14 05:16 J | -569015.39 | -569015.28 | -569015.17 | 0.1701 | 0.0199 |
| Mercury | -6262-07-07 16:04 J | -565584.93 | -565584.83 | -565584.72 | 0.1706 | 0.0692 |
| Mercury | -6260-06-11 20:09 J | -564879.73 | -564879.66 | -564879.59 | 0.1685 | 0.1270 |
| Mercury | -6253-11-27 02:52 J | -562154.46 | -562154.38 | -562154.30 | 0.1712 | 0.1188 |
| Venus | -6252-06-28 20:52 J | -561940.79 | -561940.63 | -561940.46 | 0.1628 | 0.0431 |
| Mercury | -6251-11-02 07:12 J | -561449.30 | -561449.20 | -561449.10 | 0.1691 | 0.0805 |
| Venus | -6250-04-29 02:23 J | -561271.50 | -561271.40 | -561271.30 | 0.1620 | 0.1302 |
| Venus | -6249-04-04 15:21 J | -560930.04 | -560929.86 | -560929.68 | 0.1898 | 0.0143 |
| Mercury | -6243-04-19 13:40 J | -558723.95 | -558723.93 | -558723.92 | 0.1718 | 0.1693 |
| Mercury | -6242-05-19 19:55 J | -558328.83 | -558328.67 | -558328.51 | 0.1829 | 0.0634 |
| Mercury | -6241-03-24 18:14 J | -558018.85 | -558018.74 | -558018.62 | 0.1696 | 0.0344 |
| Mercury | -6233-10-08 14:09 J | -554899.07 | -554898.91 | -554898.75 | 0.1822 | 0.0586 |
| Mercury | -6232-08-15 05:16 J | -554588.40 | -554588.28 | -554588.17 | 0.1701 | 0.0146 |
| Mercury | -6223-02-28 08:52 J | -551469.16 | -551469.13 | -551469.09 | 0.1815 | 0.1765 |
| Mercury | -6222-01-05 16:04 J | -551157.93 | -551157.83 | -551157.72 | 0.1706 | 0.0635 |
| Mercury | -6221-12-10 20:09 J | -550452.73 | -550452.66 | -550452.59 | 0.1685 | 0.1324 |
| Venus | -6220-06-27 12:57 J | -550254.07 | -550253.96 | -550253.86 | 0.1633 | 0.1274 |
| Venus | -6218-04-27 17:45 J | -549584.92 | -549584.76 | -549584.59 | 0.1623 | 0.0486 |
| Earth | -6215-10-23 11:16 J | -548310.20 | -548310.03 | -548309.85 | 0.1622 | 0.0573 |
| Moon | -6215-10-23 15:36 J | -548310.04 | -548309.85 | -548309.67 | 0.1622 | 0.0455 * |
| Mercury | -6213-05-28 02:52 J | -547727.46 | -547727.38 | -547727.29 | 0.1712 | 0.1133 |
| Mercury | -6211-05-03 07:12 J | -547022.30 | -547022.20 | -547022.10 | 0.1690 | 0.0862 |
| Earth | -6206-04-27 11:16 J | -545202.23 | -545202.03 | -545201.83 | 0.1905 | 0.0628 |

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|---------|---------------------|------------|------------|------------|--------|----------|
| Moon | -6206-04-27 18:57 J | -545201.87 | -545201.71 | -545201.56 | 0.1905 | 0.1098 * |
| Mercury | -6204-10-18 13:26 J | -544296.97 | -544296.94 | -544296.91 | 0.1718 | 0.1643 |
| Mercury | -6203-11-17 20:52 J | -543901.79 | -543901.63 | -543901.47 | 0.1829 | 0.0752 |
| Mercury | -6202-09-23 18:14 J | -543591.85 | -543591.74 | -543591.63 | 0.1695 | 0.0389 |
| Mercury | -6193-04-08 15:07 J | -540472.03 | -540471.87 | -540471.70 | 0.1822 | 0.0473 |
| Mercury | -6192-02-13 05:16 J | -540161.40 | -540161.28 | -540161.17 | 0.1701 | 0.0102 |
| Venus | -6186-04-26 09:21 J | -537898.28 | -537898.11 | -537897.94 | 0.1627 | 0.0340 |
| Venus | -6184-02-23 14:52 J | -537228.96 | -537228.88 | -537228.79 | 0.1619 | 0.1387 |
| Mercury | -6184-08-29 09:21 J | -537042.17 | -537042.11 | -537042.04 | 0.1815 | 0.1673 |
| Venus | -6183-01-30 17:16 J | -536887.96 | -536887.78 | -536887.61 | 0.1901 | 0.0187 |
| Mercury | -6183-07-06 16:04 J | -536730.93 | -536730.83 | -536730.72 | 0.1706 | 0.0577 |
| Mercury | -6181-06-10 20:09 J | -536025.73 | -536025.66 | -536025.60 | 0.1685 | 0.1379 |
| Mercury | -6174-11-27 02:52 J | -533300.47 | -533300.38 | -533300.29 | 0.1712 | 0.1076 |
| Mercury | -6172-11-01 07:12 J | -532595.29 | -532595.20 | -532595.10 | 0.1690 | 0.0917 |
| Mercury | -6164-04-18 13:40 J | -529869.98 | -529869.93 | -529869.89 | 0.1717 | 0.1584 |
| Mercury | -6163-05-18 22:04 J | -529474.73 | -529474.58 | -529474.43 | 0.1830 | 0.0877 |
| Mercury | -6162-03-24 18:14 J | -529164.85 | -529164.74 | -529164.63 | 0.1695 | 0.0444 |
| Venus | -6154-04-25 01:40 J | -526211.55 | -526211.43 | -526211.32 | 0.1631 | 0.1187 |
| Mercury | -6154-10-08 15:50 J | -526045.01 | -526044.84 | -526044.67 | 0.1822 | 0.0367 |
| Mercury | -6153-08-14 05:02 J | -525734.40 | -525734.29 | -525734.17 | 0.1701 | 0.0076 |
| Venus | -6152-02-22 06:28 J | -525542.39 | -525542.23 | -525542.07 | 0.1622 | 0.0572 |
| Venus | -6151-01-30 19:55 J | -525199.76 | -525199.67 | -525199.58 | 0.1894 | 0.1631 |
| Mercury | -6144-02-27 10:33 J | -522615.14 | -522615.06 | -522614.97 | 0.1815 | 0.1548 |
| Mercury | -6143-01-04 16:04 J | -522303.94 | -522303.83 | -522303.72 | 0.1706 | 0.0523 |
| Mercury | -6142-12-10 19:55 J | -521598.72 | -521598.67 | -521598.61 | 0.1685 | 0.1432 |
| Earth | -6136-10-25 11:45 J | -519453.18 | -519453.01 | -519452.84 | 0.1620 | 0.0561 |
| Moon | -6136-10-25 17:02 J | -519452.96 | -519452.79 | -519452.62 | 0.1620 | 0.0493 * |
| Mercury | -6134-05-28 02:52 J | -518873.47 | -518873.38 | -518873.29 | 0.1712 | 0.1019 |
| Mercury | -6132-05-02 07:11 J | -518168.29 | -518168.20 | -518168.11 | 0.1690 | 0.0969 |
| Mercury | -6125-10-17 13:40 J | -515442.98 | -515442.93 | -515442.88 | 0.1717 | 0.1526 |

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|---------|---------------------|------------|------------|------------|--------|--------|
| Mercury | -6124-11-16 22:19 J | -515047.71 | -515047.57 | -515047.42 | 0.1830 | 0.0965 |
| Mercury | -6123-09-22 18:14 J | -514737.85 | -514737.74 | -514737.63 | 0.1695 | 0.0500 |
| Venus | -6120-02-20 22:04 J | -513855.75 | -513855.58 | -513855.41 | 0.1626 | 0.0256 |
| Venus | -6119-12-22 04:04 J | -513186.40 | -513186.33 | -513186.26 | 0.1618 | 0.1466 |
| Venus | -6118-11-27 19:11 J | -512845.87 | -512845.70 | -512845.53 | 0.1902 | 0.0508 |
| Mercury | -6114-04-08 17:02 J | -511617.96 | -511617.79 | -511617.62 | 0.1823 | 0.0250 |
| Mercury | -6113-02-13 05:16 J | -511307.40 | -511307.28 | -511307.17 | 0.1700 | 0.0065 |
| Mercury | -6105-08-28 11:31 J | -508188.12 | -508188.02 | -508187.92 | 0.1815 | 0.1439 |
| Mercury | -6104-07-05 16:04 J | -507876.94 | -507876.83 | -507876.72 | 0.1706 | 0.0468 |
| Mercury | -6102-06-10 19:55 J | -507171.72 | -507171.67 | -507171.62 | 0.1685 | 0.1484 |
| Mercury | -6095-11-26 02:52 J | -504446.48 | -504446.38 | -504446.29 | 0.1712 | 0.0965 |
| Mercury | -6093-10-31 07:11 J | -503741.29 | -503741.20 | -503741.11 | 0.1690 | 0.1023 |
| Venus | -6088-02-19 13:55 J | -502169.04 | -502168.92 | -502168.79 | 0.1630 | 0.1097 |
| Venus | -6087-12-20 19:11 J | -501499.85 | -501499.70 | -501499.54 | 0.1621 | 0.0656 |
| Venus | -6086-11-27 22:19 J | -501157.70 | -501157.57 | -501157.45 | 0.1896 | 0.1320 |
| Mercury | -6085-04-17 13:26 J | -501015.99 | -501015.94 | -501015.88 | 0.1717 | 0.1472 |
| Mercury | -6084-05-17 23:45 J | -500620.65 | -500620.51 | -500620.38 | 0.1830 | 0.1096 |
| Mercury | -6083-03-23 18:14 J | -500310.85 | -500310.74 | -500310.64 | 0.1695 | 0.0555 |
| Mercury | -6075-10-07 17:45 J | -497190.93 | -497190.76 | -497190.59 | 0.1823 | 0.0146 |
| Mercury | -6074-08-14 05:02 J | -496880.40 | -496880.29 | -496880.17 | 0.1701 | 0.0085 |
| Mercury | -6065-02-27 12:00 J | -493761.11 | -493761.00 | -493760.88 | 0.1816 | 0.1343 |
| Mercury | -6064-01-03 16:04 J | -493449.94 | -493449.83 | -493449.72 | 0.1706 | 0.0408 |
| Mercury | -6063-12-09 19:55 J | -492744.71 | -492744.67 | -492744.62 | 0.1685 | 0.1538 |
| Mercury | -6055-05-27 02:52 J | -490019.48 | -490019.38 | -490019.29 | 0.1711 | 0.0911 |
| Venus | -6055-12-19 10:33 J | -489813.23 | -489813.06 | -489812.89 | 0.1624 | 0.0168 |
| Mercury | -6053-05-01 07:11 J | -489314.29 | -489314.20 | -489314.12 | 0.1690 | 0.1079 |
| Venus | -6053-10-18 17:02 J | -489143.84 | -489143.79 | -489143.74 | 0.1617 | 0.1545 |
| Venus | -6052-09-23 20:38 J | -488803.79 | -488803.64 | -488803.48 | 0.1904 | 0.0844 |
| Mercury | -6046-10-17 13:26 J | -486589.00 | -486588.94 | -486588.87 | 0.1717 | 0.1414 |
| Mercury | -6045-11-16 00:28 J | -486193.60 | -486193.48 | -486193.35 | 0.1830 | 0.1211 |

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|---------|---------------------|------------|------------|------------|--------|----------|
| Mercury | -6044-09-21 18:00 J | -485883.85 | -485883.75 | -485883.64 | 0.1695 | 0.0609 |
| Mercury | -6035-04-07 18:43 J | -482763.90 | -482763.72 | -482763.55 | 0.1823 | 0.0052 |
| Mercury | -6034-02-12 05:02 J | -482453.40 | -482453.29 | -482453.17 | 0.1700 | 0.0138 |
| Mercury | -6026-08-28 13:11 J | -479334.08 | -479333.95 | -479333.83 | 0.1816 | 0.1225 |
| Mercury | -6025-07-04 16:04 J | -479022.95 | -479022.83 | -479022.72 | 0.1706 | 0.0364 |
| Mercury | -6023-06-09 19:55 J | -478317.70 | -478317.67 | -478317.64 | 0.1685 | 0.1589 |
| Venus | -6023-12-18 02:38 J | -478126.52 | -478126.39 | -478126.25 | 0.1628 | 0.1010 |
| Venus | -6021-10-17 08:09 J | -477457.31 | -477457.16 | -477457.01 | 0.1620 | 0.0739 |
| Venus | -6020-09-24 00:57 J | -477115.61 | -477115.46 | -477115.31 | 0.1898 | 0.1017 |
| Mercury | -6016-11-25 02:52 J | -475592.48 | -475592.38 | -475592.28 | 0.1712 | 0.0851 |
| Mercury | -6014-10-31 06:57 J | -474887.29 | -474887.21 | -474887.12 | 0.1690 | 0.1130 |
| Moon | -6010-10-22 14:09 J | -473435.02 | -473434.91 | -473434.80 | 0.1625 | 0.1246 |
| Earth | -6010-10-22 19:11 J | -473434.82 | -473434.70 | -473434.57 | 0.1625 | 0.1182 * |
| Mercury | -6006-04-17 13:26 J | -472162.00 | -472161.94 | -472161.87 | 0.1717 | 0.1355 |
| Mercury | -6005-05-17 01:11 J | -471766.57 | -471766.45 | -471766.33 | 0.1830 | 0.1310 |
| Mercury | -6004-03-22 18:14 J | -471456.85 | -471456.74 | -471456.64 | 0.1695 | 0.0668 |

6TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 6th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|------------|------------|------------|--------|--------|-------|---|
| Mercury | -5996-10-06 19:26 J | -468336.86 | -468336.69 | -468336.52 | 0.1823 | 0.0087 | | |
| Mercury | -5995-08-13 05:02 J | -468026.40 | -468026.29 | -468026.17 | 0.1700 | 0.0186 | | |
| Venus | -5989-10-15 23:45 J | -465770.69 | -465770.51 | -465770.34 | 0.1623 | 0.0095 | | |

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|---------|---------------------|------------|------------|------------|--------|----------|
| Mercury | -5986-02-26 14:09 J | -464907.05 | -464906.91 | -464906.78 | 0.1816 | 0.1112 |
| Venus | -5986-07-21 22:33 J | -464761.70 | -464761.56 | -464761.42 | 0.1906 | 0.1175 |
| Mercury | -5985-01-03 16:04 J | -464595.95 | -464595.83 | -464595.72 | 0.1706 | 0.0306 |
| Mercury | -5984-12-08 19:55 J | -463890.69 | -463890.67 | -463890.65 | 0.1685 | 0.1643 |
| Mercury | -5976-05-26 02:52 J | -461165.49 | -461165.38 | -461165.28 | 0.1711 | 0.0798 |
| Mercury | -5974-05-01 06:57 J | -460460.29 | -460460.21 | -460460.13 | 0.1690 | 0.1186 |
| Mercury | -5967-10-16 13:26 J | -457735.01 | -457734.94 | -457734.87 | 0.1717 | 0.1303 |
| Mercury | -5966-11-16 02:09 J | -457339.51 | -457339.41 | -457339.30 | 0.1830 | 0.1429 |
| Mercury | -5965-09-20 18:00 J | -457029.85 | -457029.75 | -457029.65 | 0.1695 | 0.0715 |
| Venus | -5957-10-14 15:21 J | -454084.00 | -454083.86 | -454083.72 | 0.1627 | 0.0923 |
| Mercury | -5956-04-06 20:23 J | -453909.82 | -453909.65 | -453909.48 | 0.1823 | 0.0194 |
| Mercury | -5955-02-11 05:02 J | -453599.40 | -453599.29 | -453599.18 | 0.1700 | 0.0240 |
| Venus | -5955-08-14 20:52 J | -453414.78 | -453414.63 | -453414.48 | 0.1619 | 0.0821 |
| Venus | -5954-07-22 02:38 J | -453073.55 | -453073.39 | -453073.22 | 0.1900 | 0.0693 |
| Mercury | -5947-08-27 14:38 J | -450480.03 | -450479.89 | -450479.75 | 0.1816 | 0.1014 |
| Mercury | -5946-07-04 16:04 J | -450168.95 | -450168.83 | -450168.72 | 0.1706 | 0.0244 |
| Mercury | -5937-11-24 02:38 J | -446738.49 | -446738.39 | -446738.28 | 0.1711 | 0.0742 |
| Mercury | -5935-10-30 06:57 J | -446033.28 | -446033.21 | -446033.13 | 0.1690 | 0.1240 |
| Moon | -5931-10-24 13:40 J | -444578.12 | -444577.93 | -444577.74 | 0.1624 | 0.0012 |
| Earth | -5931-10-24 19:26 J | -444577.88 | -444577.69 | -444577.51 | 0.1623 | 0.0057 * |
| Mercury | -5927-04-16 13:26 J | -443308.02 | -443307.94 | -443307.86 | 0.1717 | 0.1244 |
| Mercury | -5926-05-17 03:21 J | -442912.45 | -442912.36 | -442912.27 | 0.1831 | 0.1553 |
| Mercury | -5925-03-21 18:00 J | -442602.85 | -442602.75 | -442602.65 | 0.1695 | 0.0770 |
| Venus | -5923-08-13 12:00 J | -441728.17 | -441728.00 | -441727.83 | 0.1622 | 0.0016 |
| Earth | -5922-04-26 07:11 J | -441472.40 | -441472.20 | -441471.99 | 0.1901 | 0.0522 |
| Moon | -5922-04-26 08:09 J | -441472.39 | -441472.16 | -441471.93 | 0.1901 | 0.0390 * |
| Venus | -5920-05-17 23:45 J | -440719.61 | -440719.51 | -440719.40 | 0.1907 | 0.1521 |
| Mercury | -5917-10-05 21:07 J | -439482.79 | -439482.62 | -439482.45 | 0.1823 | 0.0305 |
| Mercury | -5916-08-12 05:02 J | -439172.40 | -439172.29 | -439172.18 | 0.1700 | 0.0295 |
| Mercury | -5907-02-25 15:50 J | -436052.99 | -436052.84 | -436052.69 | 0.1816 | 0.0892 |

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|---------|---------------------|------------|------------|------------|--------|----------|
| Mercury | -5906-01-02 15:50 J | -435741.95 | -435741.84 | -435741.72 | 0.1706 | 0.0196 |
| Mercury | -5897-05-25 02:38 J | -432311.49 | -432311.39 | -432311.28 | 0.1711 | 0.0685 |
| Mercury | -5895-04-30 06:57 J | -431606.28 | -431606.21 | -431606.14 | 0.1690 | 0.1291 |
| Venus | -5891-08-12 03:36 J | -430041.49 | -430041.35 | -430041.20 | 0.1626 | 0.0833 |
| Venus | -5889-06-11 09:36 J | -429372.24 | -429372.10 | -429371.96 | 0.1618 | 0.0907 |
| Venus | -5888-05-18 04:48 J | -429031.47 | -429031.30 | -429031.12 | 0.1902 | 0.0374 |
| Mercury | -5888-10-15 13:26 J | -428881.02 | -428880.94 | -428880.86 | 0.1717 | 0.1187 |
| Mercury | -5887-11-15 03:50 J | -428485.41 | -428485.34 | -428485.27 | 0.1831 | 0.1643 |
| Mercury | -5886-09-20 18:00 J | -428175.85 | -428175.75 | -428175.65 | 0.1695 | 0.0827 |
| Mercury | -5878-03-08 00:00 J | -425450.51 | -425450.50 | -425450.48 | 0.1723 | 0.1700 |
| Mercury | -5877-04-05 22:19 J | -425055.74 | -425055.57 | -425055.40 | 0.1824 | 0.0426 |
| Mercury | -5876-02-10 05:02 J | -424745.40 | -424745.29 | -424745.18 | 0.1700 | 0.0352 |
| Mercury | -5868-08-26 16:33 J | -421625.96 | -421625.81 | -421625.65 | 0.1816 | 0.0784 |
| Mercury | -5867-07-03 15:50 J | -421314.95 | -421314.84 | -421314.72 | 0.1705 | 0.0139 |
| Mercury | -5858-11-24 02:38 J | -417884.49 | -417884.39 | -417884.28 | 0.1711 | 0.0629 |
| Venus | -5857-06-10 00:57 J | -417685.63 | -417685.46 | -417685.29 | 0.1621 | 0.0085 |
| Mercury | -5856-10-29 06:57 J | -417179.28 | -417179.21 | -417179.14 | 0.1689 | 0.1344 |
| Venus | -5854-03-15 01:55 J | -416677.45 | -416677.42 | -416677.37 | 0.1908 | 0.1850 |
| Earth | -5852-10-26 19:40 J | -415720.82 | -415720.68 | -415720.54 | 0.1622 | 0.1082 |
| Moon | -5852-10-26 20:09 J | -415720.82 | -415720.66 | -415720.50 | 0.1622 | 0.0922 * |
| Mercury | -5848-04-15 13:26 J | -414454.03 | -414453.94 | -414453.85 | 0.1717 | 0.1131 |
| Mercury | -5847-05-16 05:02 J | -414058.33 | -414058.29 | -414058.25 | 0.1831 | 0.1776 |
| Mercury | -5846-03-21 18:00 J | -413748.85 | -413748.75 | -413748.65 | 0.1695 | 0.0880 |
| Mercury | -5839-09-06 00:00 J | -411023.53 | -411023.50 | -411023.46 | 0.1723 | 0.1642 |
| Mercury | -5838-10-05 23:02 J | -410628.71 | -410628.54 | -410628.38 | 0.1824 | 0.0527 |
| Mercury | -5837-08-11 05:02 J | -410318.40 | -410318.29 | -410318.18 | 0.1700 | 0.0407 |
| Mercury | -5828-02-24 17:16 J | -407198.94 | -407198.78 | -407198.62 | 0.1817 | 0.0684 |
| Mercury | -5827-01-01 15:50 J | -406887.95 | -406887.84 | -406887.72 | 0.1705 | 0.0094 |
| Venus | -5825-06-08 16:33 J | -405998.96 | -405998.81 | -405998.66 | 0.1624 | 0.0747 |
| Venus | -5823-04-08 22:33 J | -405329.69 | -405329.56 | -405329.42 | 0.1617 | 0.0987 |

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|---------|---------------------|------------|------------|------------|--------|--------|
| Venus | -5822-03-15 06:43 J | -404989.40 | -404989.22 | -404989.05 | 0.1904 | 0.0059 |
| Mercury | -5818-05-25 02:38 J | -403457.50 | -403457.39 | -403457.28 | 0.1711 | 0.0573 |
| Mercury | -5816-04-29 06:57 J | -402752.27 | -402752.21 | -402752.15 | 0.1689 | 0.1401 |
| Mercury | -5809-10-14 13:26 J | -400027.03 | -400026.94 | -400026.85 | 0.1717 | 0.1075 |
| Mercury | -5807-09-19 18:00 J | -399321.85 | -399321.75 | -399321.66 | 0.1695 | 0.0934 |
| Mercury | -5799-03-07 00:00 J | -396596.54 | -396596.50 | -396596.46 | 0.1722 | 0.1587 |
| Mercury | -5798-04-06 00:00 J | -396201.66 | -396201.50 | -396201.34 | 0.1824 | 0.0644 |
| Mercury | -5797-02-10 05:02 J | -395891.40 | -395891.29 | -395891.18 | 0.1700 | 0.0463 |
| Venus | -5793-06-07 08:09 J | -394312.19 | -394312.16 | -394312.12 | 0.1628 | 0.1587 |
| Venus | -5791-04-07 13:40 J | -393643.10 | -393642.93 | -393642.75 | 0.1620 | 0.0173 |
| Venus | -5790-03-15 09:50 J | -393301.12 | -393301.09 | -393301.07 | 0.1898 | 0.1878 |
| Mercury | -5789-08-25 18:14 J | -392771.90 | -392771.74 | -392771.57 | 0.1817 | 0.0566 |
| Mercury | -5788-07-02 15:50 J | -392460.96 | -392460.84 | -392460.73 | 0.1705 | 0.0027 |
| Mercury | -5779-01-15 12:57 J | -389342.00 | -389341.96 | -389341.92 | 0.1809 | 0.1743 |
| Mercury | -5779-11-23 02:38 J | -389030.50 | -389030.39 | -389030.28 | 0.1711 | 0.0515 |
| Mercury | -5777-10-28 06:43 J | -388325.27 | -388325.22 | -388325.16 | 0.1689 | 0.1453 |
| Mercury | -5769-04-14 13:26 J | -385600.03 | -385599.94 | -385599.85 | 0.1716 | 0.1016 |
| Mercury | -5767-03-20 18:00 J | -384894.84 | -384894.75 | -384894.66 | 0.1694 | 0.0991 |
| Mercury | -5760-09-05 00:00 J | -382169.55 | -382169.50 | -382169.45 | 0.1722 | 0.1531 |
| Venus | -5759-04-06 05:02 J | -381956.45 | -381956.29 | -381956.13 | 0.1623 | 0.0657 |
| Mercury | -5759-10-05 00:57 J | -381774.62 | -381774.46 | -381774.31 | 0.1824 | 0.0758 |
| Mercury | -5758-08-11 04:48 J | -381464.40 | -381464.30 | -381464.19 | 0.1700 | 0.0517 |
| Venus | -5757-02-04 11:16 J | -381287.15 | -381287.03 | -381286.90 | 0.1616 | 0.1071 |
| Venus | -5756-01-09 08:23 J | -380947.33 | -380947.15 | -380946.98 | 0.1906 | 0.0293 |
| Mercury | -5749-02-24 19:11 J | -378344.86 | -378344.70 | -378344.53 | 0.1817 | 0.0452 |
| Mercury | -5749-12-31 15:50 J | -378033.95 | -378033.84 | -378033.72 | 0.1705 | 0.0034 |
| Mercury | -5740-07-16 13:55 J | -374914.99 | -374914.92 | -374914.84 | 0.1810 | 0.1625 |
| Mercury | -5739-05-24 02:38 J | -374603.50 | -374603.39 | -374603.28 | 0.1711 | 0.0461 |
| Mercury | -5737-04-28 06:43 J | -373898.26 | -373898.22 | -373898.17 | 0.1689 | 0.1508 |
| Mercury | -5730-10-14 13:26 J | -371173.04 | -371172.94 | -371172.85 | 0.1717 | 0.0965 |

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|---------|---------------------|------------|------------|------------|--------|----------|
| Mercury | -5728-09-18 17:45 J | -370467.85 | -370467.76 | -370467.67 | 0.1694 | 0.1041 |
| Venus | -5727-04-04 20:52 J | -370269.69 | -370269.63 | -370269.56 | 0.1627 | 0.1502 |
| Earth | -5726-10-24 02:52 J | -369702.55 | -369702.38 | -369702.22 | 0.1627 | 0.0663 |
| Moon | -5726-10-24 07:55 J | -369702.33 | -369702.17 | -369702.01 | 0.1627 | 0.0692 * |
| Venus | -5725-02-03 02:38 J | -369600.56 | -369600.39 | -369600.22 | 0.1619 | 0.0253 |
| Venus | -5724-01-09 12:00 J | -369259.10 | -369259.00 | -369258.90 | 0.1900 | 0.1566 |
| Mercury | -5720-03-06 00:00 J | -367742.55 | -367742.50 | -367742.44 | 0.1722 | 0.1469 |
| Mercury | -5719-04-05 01:40 J | -367347.58 | -367347.43 | -367347.28 | 0.1824 | 0.0865 |
| Mercury | -5718-02-09 04:48 J | -367037.40 | -367037.30 | -367037.19 | 0.1700 | 0.0575 |
| Mercury | -5710-08-25 19:55 J | -363917.84 | -363917.67 | -363917.50 | 0.1817 | 0.0352 |
| Mercury | -5709-07-01 15:50 J | -363606.95 | -363606.84 | -363606.73 | 0.1705 | 0.0090 |
| Mercury | -5700-01-14 14:52 J | -360487.97 | -360487.88 | -360487.79 | 0.1810 | 0.1515 |
| Mercury | -5700-11-22 02:38 J | -360176.50 | -360176.39 | -360176.28 | 0.1711 | 0.0406 |
| Mercury | -5698-10-28 06:43 J | -359471.26 | -359471.22 | -359471.18 | 0.1689 | 0.1560 |
| Venus | -5693-02-01 18:00 J | -357913.91 | -357913.75 | -357913.59 | 0.1622 | 0.0575 |
| Venus | -5692-12-02 00:28 J | -357244.60 | -357244.48 | -357244.36 | 0.1615 | 0.1151 |
| Venus | -5691-11-06 10:19 J | -356905.24 | -356905.07 | -356904.91 | 0.1907 | 0.0630 |
| Mercury | -5690-04-14 13:26 J | -356746.04 | -356745.94 | -356745.85 | 0.1716 | 0.0906 |
| Mercury | -5688-03-19 17:45 J | -356040.84 | -356040.76 | -356040.67 | 0.1694 | 0.1097 |
| Mercury | -5681-09-04 00:00 J | -353315.56 | -353315.50 | -353315.44 | 0.1722 | 0.1418 |
| Mercury | -5680-10-04 02:38 J | -352920.54 | -352920.39 | -352920.25 | 0.1824 | 0.0977 |
| Mercury | -5679-08-10 04:48 J | -352610.40 | -352610.30 | -352610.19 | 0.1699 | 0.0625 |
| Mercury | -5670-02-23 20:52 J | -349490.80 | -349490.63 | -349490.46 | 0.1817 | 0.0236 |
| Mercury | -5670-12-31 15:50 J | -349179.96 | -349179.84 | -349179.73 | 0.1705 | 0.0147 |
| Venus | -5661-01-31 09:36 J | -346227.18 | -346227.10 | -346227.02 | 0.1626 | 0.1413 |
| Mercury | -5661-07-15 15:36 J | -346060.96 | -346060.85 | -346060.75 | 0.1810 | 0.1417 |
| Mercury | -5660-05-23 02:38 J | -345749.50 | -345749.39 | -345749.28 | 0.1711 | 0.0347 |
| Venus | -5660-11-30 15:36 J | -345558.02 | -345557.85 | -345557.69 | 0.1618 | 0.0337 |
| Venus | -5659-11-06 14:09 J | -345217.05 | -345216.91 | -345216.78 | 0.1902 | 0.1243 |
| Mercury | -5658-04-28 06:43 J | -345044.25 | -345044.22 | -345044.19 | 0.1689 | 0.1613 |

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|---------|---------------------|------------|------------|------------|--------|----------|
| Mercury | -5651-10-13 13:26 J | -342319.04 | -342318.94 | -342318.84 | 0.1716 | 0.0849 |
| Mercury | -5649-09-17 17:45 J | -341613.84 | -341613.76 | -341613.67 | 0.1694 | 0.1154 |
| Moon | -5647-10-26 01:40 J | -340845.59 | -340845.43 | -340845.27 | 0.1625 | 0.0574 |
| Earth | -5647-10-26 03:21 J | -340845.53 | -340845.36 | -340845.18 | 0.1625 | 0.0489 * |
| Mercury | -5641-03-05 00:00 J | -338888.57 | -338888.50 | -338888.43 | 0.1722 | 0.1358 |
| Mercury | -5640-04-04 03:36 J | -338493.48 | -338493.35 | -338493.21 | 0.1825 | 0.1099 |
| Mercury | -5639-02-08 04:48 J | -338183.40 | -338183.30 | -338183.19 | 0.1699 | 0.0680 |
| Earth | -5638-04-25 05:02 J | -337742.41 | -337742.29 | -337742.18 | 0.1897 | 0.1565 |
| Mercury | -5631-08-24 21:50 J | -335063.76 | -335063.59 | -335063.42 | 0.1817 | 0.0126 |
| Mercury | -5630-07-01 15:50 J | -334752.96 | -334752.84 | -334752.73 | 0.1705 | 0.0209 |
| Venus | -5628-11-29 06:28 J | -333871.39 | -333871.23 | -333871.06 | 0.1621 | 0.0488 |
| Venus | -5626-09-29 13:26 J | -333202.05 | -333201.94 | -333201.83 | 0.1615 | 0.1233 |
| Venus | -5625-09-02 11:31 J | -332863.18 | -332863.02 | -332862.87 | 0.1909 | 0.0977 |
| Mercury | -5621-01-14 16:33 J | -331633.93 | -331633.81 | -331633.70 | 0.1810 | 0.1304 |
| Mercury | -5621-11-21 02:38 J | -331322.51 | -331322.39 | -331322.28 | 0.1710 | 0.0297 |
| Mercury | -5619-10-27 06:43 J | -330617.23 | -330617.22 | -330617.21 | 0.1689 | 0.1665 |
| Mercury | -5611-04-13 13:26 J | -327892.05 | -327891.94 | -327891.84 | 0.1716 | 0.0795 |
| Mercury | -5609-03-18 17:45 J | -327186.84 | -327186.76 | -327186.68 | 0.1694 | 0.1204 |
| Mercury | -5602-09-04 00:00 J | -324461.57 | -324461.50 | -324461.43 | 0.1722 | 0.1300 |
| Mercury | -5601-10-03 04:04 J | -324066.45 | -324066.33 | -324066.20 | 0.1825 | 0.1196 |
| Mercury | -5600-08-09 04:48 J | -323756.40 | -323756.30 | -323756.20 | 0.1699 | 0.0733 |
| Venus | -5596-11-27 22:19 J | -322184.67 | -322184.57 | -322184.47 | 0.1624 | 0.1329 |
| Venus | -5594-09-28 04:19 J | -321515.48 | -321515.32 | -321515.15 | 0.1617 | 0.0423 |
| Venus | -5593-09-02 16:19 J | -321174.97 | -321174.82 | -321174.66 | 0.1904 | 0.0928 |
| Mercury | -5591-02-22 22:33 J | -320636.73 | -320636.56 | -320636.39 | 0.1818 | 0.0020 |
| Mercury | -5591-12-30 15:50 J | -320325.96 | -320325.84 | -320325.73 | 0.1705 | 0.0259 |
| Mercury | -5582-07-15 17:31 J | -317206.89 | -317206.77 | -317206.64 | 0.1810 | 0.1185 |
| Mercury | -5581-05-22 02:38 J | -316895.51 | -316895.39 | -316895.28 | 0.1710 | 0.0244 |
| Mercury | -5572-10-12 13:11 J | -313465.05 | -313464.95 | -313464.84 | 0.1716 | 0.0741 |
| Mercury | -5570-09-17 17:45 J | -312759.84 | -312759.76 | -312759.69 | 0.1694 | 0.1256 |

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|---------|---------------------|------------|------------|------------|--------|----------|
| Moon | -5568-10-27 21:07 J | -311988.71 | -311988.62 | -311988.52 | 0.1624 | 0.1379 |
| Earth | -5568-10-28 03:36 J | -311988.37 | -311988.35 | -311988.33 | 0.1623 | 0.1608 |
| Mercury | -5562-03-05 00:00 J | -310034.58 | -310034.50 | -310034.43 | 0.1722 | 0.1248 |
| Venus | -5562-09-26 19:40 J | -309828.85 | -309828.68 | -309828.51 | 0.1620 | 0.0406 |
| Mercury | -5561-04-03 05:16 J | -309639.40 | -309639.28 | -309639.16 | 0.1825 | 0.1316 |
| Mercury | -5560-02-07 04:48 J | -309329.40 | -309329.30 | -309329.20 | 0.1699 | 0.0788 |
| Venus | -5560-07-27 02:23 J | -309159.50 | -309159.40 | -309159.31 | 0.1614 | 0.1318 |
| Venus | -5559-06-30 13:11 J | -308821.08 | -308820.95 | -308820.82 | 0.1910 | 0.1318 |
| Mercury | -5552-08-23 23:31 J | -306209.69 | -306209.52 | -306209.35 | 0.1818 | 0.0104 |
| Mercury | -5551-06-30 15:36 J | -305898.96 | -305898.85 | -305898.73 | 0.1705 | 0.0311 |
| Mercury | -5542-01-13 18:00 J | -302779.88 | -302779.75 | -302779.61 | 0.1810 | 0.1097 |
| Mercury | -5542-11-21 02:38 J | -302468.51 | -302468.39 | -302468.28 | 0.1710 | 0.0184 |
| Mercury | -5532-04-12 13:11 J | -299038.05 | -299037.95 | -299037.84 | 0.1716 | 0.0683 |
| Mercury | -5530-03-18 17:45 J | -298332.83 | -298332.76 | -298332.69 | 0.1694 | 0.1314 |
| Venus | -5530-09-25 11:02 J | -298142.15 | -298142.04 | -298141.93 | 0.1623 | 0.1241 |
| Venus | -5528-07-25 17:02 J | -297472.95 | -297472.79 | -297472.62 | 0.1616 | 0.0507 |
| Venus | -5527-06-30 18:00 J | -297132.92 | -297132.75 | -297132.58 | 0.1906 | 0.0587 |
| Mercury | -5523-09-03 00:00 J | -295607.59 | -295607.50 | -295607.42 | 0.1722 | 0.1191 |
| Mercury | -5522-10-03 06:14 J | -295212.34 | -295212.24 | -295212.14 | 0.1825 | 0.1432 |
| Mercury | -5521-08-08 04:48 J | -294902.40 | -294902.30 | -294902.20 | 0.1699 | 0.0842 |
| Moon | -5521-10-22 05:02 J | -294827.40 | -294827.29 | -294827.17 | 0.1631 | 0.1311 |
| Earth | -5521-10-22 09:36 J | -294827.21 | -294827.10 | -294826.99 | 0.1631 | 0.1292 * |
| Mercury | -5513-01-24 10:33 J | -292177.08 | -292177.06 | -292177.05 | 0.1728 | 0.1706 |
| Mercury | -5512-02-22 00:28 J | -291782.65 | -291782.48 | -291782.31 | 0.1818 | 0.0209 |
| Mercury | -5512-12-29 15:36 J | -291471.96 | -291471.85 | -291471.73 | 0.1704 | 0.0367 |
| Mercury | -5503-07-14 19:11 J | -288352.84 | -288352.70 | -288352.56 | 0.1811 | 0.0975 |
| Mercury | -5502-05-22 02:23 J | -288041.51 | -288041.40 | -288041.28 | 0.1710 | 0.0140 |
| Venus | -5496-07-24 08:09 J | -285786.33 | -285786.16 | -285786.00 | 0.1619 | 0.0319 |
| Venus | -5494-05-24 15:21 J | -285116.94 | -285116.86 | -285116.77 | 0.1613 | 0.1399 |
| Venus | -5493-04-26 14:09 J | -284778.99 | -284778.91 | -284778.83 | 0.1911 | 0.1672 |

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|---------|---------------------|------------|------------|------------|--------|----------|
| Mercury | -5493-10-11 13:11 J | -284611.05 | -284610.95 | -284610.84 | 0.1716 | 0.0627 |
| Mercury | -5491-09-16 17:45 J | -283905.83 | -283905.76 | -283905.70 | 0.1694 | 0.1364 |
| Mercury | -5483-03-04 00:00 J | -281180.59 | -281180.50 | -281180.41 | 0.1722 | 0.1128 |
| Mercury | -5482-04-03 06:57 J | -280785.30 | -280785.21 | -280785.12 | 0.1825 | 0.1535 |
| Mercury | -5481-02-07 04:48 J | -280475.40 | -280475.30 | -280475.21 | 0.1699 | 0.0899 |
| Mercury | -5474-07-25 10:19 J | -277750.10 | -277750.07 | -277750.03 | 0.1728 | 0.1653 |
| Mercury | -5473-08-23 01:11 J | -277355.62 | -277355.45 | -277355.28 | 0.1818 | 0.0312 |
| Mercury | -5472-06-29 15:36 J | -277044.96 | -277044.85 | -277044.74 | 0.1704 | 0.0423 |
| Venus | -5464-07-22 23:31 J | -274099.64 | -274099.52 | -274099.40 | 0.1622 | 0.1150 |
| Mercury | -5463-01-12 19:55 J | -273925.81 | -273925.67 | -273925.52 | 0.1811 | 0.0867 |
| Mercury | -5463-11-20 02:23 J | -273614.51 | -273614.40 | -273614.28 | 0.1710 | 0.0078 |
| Venus | -5462-05-23 06:00 J | -273430.41 | -273430.25 | -273430.09 | 0.1615 | 0.0591 |
| Venus | -5461-04-26 19:55 J | -273090.85 | -273090.67 | -273090.49 | 0.1907 | 0.0259 |
| Mercury | -5453-04-11 13:11 J | -270184.05 | -270183.95 | -270183.84 | 0.1716 | 0.0570 |
| Mercury | -5451-03-17 17:45 J | -269478.82 | -269478.76 | -269478.70 | 0.1694 | 0.1420 |
| Mercury | -5444-09-01 23:45 J | -266753.59 | -266753.51 | -266753.42 | 0.1722 | 0.1079 |
| Mercury | -5443-10-02 07:55 J | -266358.24 | -266358.17 | -266358.10 | 0.1825 | 0.1648 |
| Mercury | -5442-08-08 04:48 J | -266048.40 | -266048.30 | -266048.21 | 0.1699 | 0.0952 |
| Earth | -5442-10-25 10:19 J | -265970.26 | -265970.07 | -265969.89 | 0.1629 | 0.0145 |
| Moon | -5442-10-25 13:11 J | -265970.14 | -265969.95 | -265969.75 | 0.1629 | 0.0174 * |
| Mercury | -5434-01-23 10:33 J | -263323.10 | -263323.06 | -263323.02 | 0.1728 | 0.1591 |
| Mercury | -5433-02-22 02:09 J | -262928.58 | -262928.41 | -262928.24 | 0.1818 | 0.0428 |
| Mercury | -5433-12-28 15:36 J | -262617.96 | -262617.85 | -262617.74 | 0.1704 | 0.0472 |
| Venus | -5430-05-21 21:07 J | -261743.79 | -261743.62 | -261743.45 | 0.1618 | 0.0237 |
| Venus | -5428-03-21 04:19 J | -261074.39 | -261074.32 | -261074.26 | 0.1613 | 0.1484 |
| Mercury | -5424-07-13 20:38 J | -259498.79 | -259498.64 | -259498.48 | 0.1811 | 0.0767 |
| Mercury | -5423-05-21 02:38 J | -259187.51 | -259187.39 | -259187.28 | 0.1710 | 0.0071 |
| Mercury | -5414-10-11 13:11 J | -255757.06 | -255756.95 | -255756.84 | 0.1716 | 0.0513 |
| Mercury | -5412-09-15 17:45 J | -255051.82 | -255051.76 | -255051.71 | 0.1693 | 0.1475 |
| Mercury | -5404-03-02 23:45 J | -252326.60 | -252326.51 | -252326.41 | 0.1721 | 0.1021 |

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|---------|---------------------|------------|------------|------------|--------|--------|
| Mercury | -5403-04-02 08:52 J | -251931.16 | -251931.13 | -251931.09 | 0.1826 | 0.1771 |
| Mercury | -5402-02-06 04:33 J | -251621.40 | -251621.31 | -251621.21 | 0.1699 | 0.1006 |
| Venus | -5398-05-20 12:28 J | -250057.11 | -250056.98 | -250056.85 | 0.1621 | 0.1065 |
| Venus | -5396-03-19 18:57 J | -249387.86 | -249387.71 | -249387.55 | 0.1615 | 0.0673 |
| Venus | -5395-02-21 21:21 J | -249048.79 | -249048.61 | -249048.43 | 0.1909 | 0.0084 |
| Mercury | -5395-07-24 10:19 J | -248896.12 | -248896.07 | -248896.02 | 0.1727 | 0.1538 |
| Mercury | -5394-08-23 03:07 J | -248501.54 | -248501.37 | -248501.21 | 0.1818 | 0.0539 |
| Mercury | -5393-06-28 15:35 J | -248190.96 | -248190.85 | -248190.74 | 0.1704 | 0.0527 |
| Mercury | -5384-01-11 21:35 J | -245071.76 | -245071.60 | -245071.44 | 0.1811 | 0.0653 |
| Mercury | -5384-11-19 02:24 J | -244760.51 | -244760.40 | -244760.28 | 0.1710 | 0.0041 |
| Mercury | -5375-06-03 16:48 J | -241641.81 | -241641.80 | -241641.79 | 0.1804 | 0.1799 |
| Mercury | -5374-04-11 13:11 J | -241330.06 | -241329.95 | -241329.84 | 0.1716 | 0.0456 |
| Mercury | -5372-03-16 17:31 J | -240624.81 | -240624.77 | -240624.72 | 0.1693 | 0.1525 |
| Mercury | -5365-08-31 23:45 J | -237899.60 | -237899.51 | -237899.41 | 0.1721 | 0.0964 |
| Venus | -5364-03-18 09:50 J | -237701.26 | -237701.09 | -237700.92 | 0.1617 | 0.0150 |
| Venus | -5363-02-22 01:11 J | -237360.50 | -237360.45 | -237360.39 | 0.1904 | 0.1796 |
| Mercury | -5363-08-07 04:33 J | -237194.40 | -237194.31 | -237194.22 | 0.1699 | 0.1060 |
| Earth | -5363-10-27 11:02 J | -237113.19 | -237113.04 | -237112.90 | 0.1627 | 0.1008 |
| Moon | -5363-10-27 17:31 J | -237112.89 | -237112.77 | -237112.65 | 0.1627 | 0.1225 |
| Venus | -5362-01-16 17:16 J | -237031.81 | -237031.78 | -237031.74 | 0.1612 | 0.1564 |
| Mercury | -5355-01-22 10:19 J | -234469.12 | -234469.07 | -234469.01 | 0.1727 | 0.1480 |
| Mercury | -5354-02-21 03:50 J | -234074.50 | -234074.34 | -234074.18 | 0.1819 | 0.0646 |
| Mercury | -5354-12-28 15:35 J | -233763.96 | -233763.85 | -233763.74 | 0.1704 | 0.0585 |
| Mercury | -5345-07-12 22:48 J | -230644.72 | -230644.55 | -230644.39 | 0.1811 | 0.0538 |
| Mercury | -5344-05-20 02:24 J | -230333.51 | -230333.40 | -230333.29 | 0.1710 | 0.0095 |
| Mercury | -5336-12-02 17:31 J | -227214.82 | -227214.77 | -227214.72 | 0.1804 | 0.1697 |
| Mercury | -5335-10-10 13:11 J | -226903.06 | -226902.95 | -226902.84 | 0.1715 | 0.0403 |
| Mercury | -5333-09-14 17:31 J | -226197.81 | -226197.77 | -226197.73 | 0.1693 | 0.1577 |
| Venus | -5332-03-17 00:57 J | -226014.60 | -226014.46 | -226014.32 | 0.1620 | 0.0974 |
| Venus | -5330-01-15 07:55 J | -225345.32 | -225345.17 | -225345.02 | 0.1614 | 0.0756 |

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|---------|---------------------|------------|------------|------------|--------|----------|
| Venus | -5330-12-19 22:48 J | -225006.72 | -225006.55 | -225006.37 | 0.1911 | 0.0429 |
| Mercury | -5325-03-01 23:45 J | -223472.60 | -223472.51 | -223472.41 | 0.1721 | 0.0908 |
| Mercury | -5323-02-05 04:33 J | -222767.39 | -222767.31 | -222767.22 | 0.1699 | 0.1113 |
| Mercury | -5316-07-23 10:19 J | -220042.13 | -220042.07 | -220042.00 | 0.1727 | 0.1423 |
| Mercury | -5315-08-22 04:48 J | -219647.46 | -219647.30 | -219647.15 | 0.1819 | 0.0758 |
| Mercury | -5314-06-28 15:35 J | -219336.96 | -219336.85 | -219336.75 | 0.1704 | 0.0639 |
| Mercury | -5305-01-11 23:02 J | -216217.70 | -216217.54 | -216217.37 | 0.1811 | 0.0450 |
| Mercury | -5305-11-18 02:24 J | -215906.51 | -215906.40 | -215906.28 | 0.1710 | 0.0153 |
| Venus | -5298-01-13 22:48 J | -213658.72 | -213658.55 | -213658.37 | 0.1616 | 0.0072 |
| Venus | -5298-12-20 03:07 J | -213318.48 | -213318.37 | -213318.25 | 0.1906 | 0.1470 |
| Mercury | -5296-06-02 18:28 J | -212787.81 | -212787.73 | -212787.65 | 0.1804 | 0.1582 |
| Mercury | -5295-04-10 13:11 J | -212476.06 | -212475.95 | -212475.84 | 0.1715 | 0.0346 |
| Mercury | -5293-03-15 17:31 J | -211770.79 | -211770.77 | -211770.74 | 0.1693 | 0.1636 |
| Mercury | -5286-08-31 23:45 J | -209045.61 | -209045.51 | -209045.41 | 0.1721 | 0.0851 |
| Mercury | -5284-08-06 04:33 J | -208340.39 | -208340.31 | -208340.23 | 0.1698 | 0.1166 |
| Mercury | -5276-01-21 10:19 J | -205615.13 | -205615.07 | -205615.00 | 0.1727 | 0.1366 |
| Mercury | -5275-02-20 05:31 J | -205220.42 | -205220.27 | -205220.12 | 0.1819 | 0.0868 |
| Earth | -5275-04-27 22:04 J | -205153.77 | -205153.58 | -205153.39 | 0.1896 | 0.0834 |
| Moon | -5275-04-27 21:35 J | -205153.75 | -205153.60 | -205153.45 | 0.1896 | 0.1141 * |
| Mercury | -5275-12-27 15:35 J | -204909.96 | -204909.85 | -204909.75 | 0.1704 | 0.0694 |
| Venus | -5266-01-12 13:55 J | -201972.06 | -201971.92 | -201971.77 | 0.1619 | 0.0893 |
| Mercury | -5266-07-13 00:14 J | -201790.66 | -201790.49 | -201790.32 | 0.1812 | 0.0325 |
| Mercury | -5265-05-19 02:24 J | -201479.52 | -201479.40 | -201479.29 | 0.1710 | 0.0207 |
| Venus | -5265-11-11 21:07 J | -201302.77 | -201302.62 | -201302.48 | 0.1613 | 0.0836 |
| Venus | -5264-10-16 00:28 J | -200964.64 | -200964.48 | -200964.32 | 0.1912 | 0.0775 |
| Mercury | -5257-12-01 19:11 J | -198360.80 | -198360.70 | -198360.61 | 0.1804 | 0.1486 |
| Mercury | -5256-10-09 13:11 J | -198049.07 | -198048.95 | -198048.84 | 0.1715 | 0.0293 |
| Mercury | -5254-09-14 17:31 J | -197343.78 | -197343.77 | -197343.76 | 0.1693 | 0.1684 |
| Mercury | -5246-03-01 23:45 J | -194618.61 | -194618.51 | -194618.40 | 0.1721 | 0.0792 |
| Mercury | -5244-02-04 04:33 J | -193913.39 | -193913.31 | -193913.23 | 0.1698 | 0.1222 |

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|---------|---------------------|------------|------------|------------|--------|----------|
| Mercury | -5237-07-22 10:19 J | -191188.14 | -191188.07 | -191188.00 | 0.1727 | 0.1311 |
| Moon | -5237-10-23 13:55 J | -191095.08 | -191094.92 | -191094.77 | 0.1633 | 0.0747 |
| Earth | -5237-10-23 16:19 J | -191094.98 | -191094.82 | -191094.66 | 0.1633 | 0.0779 * |
| Mercury | -5236-08-21 06:28 J | -190793.38 | -190793.23 | -190793.09 | 0.1819 | 0.0975 |
| Mercury | -5235-06-27 15:21 J | -190482.96 | -190482.86 | -190482.75 | 0.1704 | 0.0749 |
| Venus | -5233-11-10 12:00 J | -189616.18 | -189616.00 | -189615.83 | 0.1615 | 0.0042 |
| Venus | -5232-10-16 04:48 J | -189276.44 | -189276.30 | -189276.15 | 0.1907 | 0.1136 |
| Mercury | -5226-01-11 01:11 J | -187363.62 | -187363.45 | -187363.28 | 0.1812 | 0.0216 |
| Mercury | -5226-11-18 02:24 J | -187052.52 | -187052.40 | -187052.29 | 0.1710 | 0.0263 |
| Mercury | -5217-06-01 20:09 J | -183933.77 | -183933.66 | -183933.55 | 0.1804 | 0.1372 |
| Mercury | -5216-04-09 13:11 J | -183622.07 | -183621.95 | -183621.84 | 0.1715 | 0.0240 |
| Mercury | -5207-08-30 23:45 J | -180191.61 | -180191.51 | -180191.41 | 0.1721 | 0.0742 |
| Mercury | -5205-08-05 04:33 J | -179486.39 | -179486.31 | -179486.24 | 0.1698 | 0.1274 |
| Venus | -5201-11-09 02:38 J | -177929.54 | -177929.39 | -177929.24 | 0.1618 | 0.0807 |
| Venus | -5199-09-09 09:50 J | -177260.22 | -177260.09 | -177259.94 | 0.1612 | 0.0921 |
| Venus | -5198-08-13 01:26 J | -176922.58 | -176922.44 | -176922.30 | 0.1913 | 0.1133 |
| Mercury | -5197-01-21 10:19 J | -176761.14 | -176761.07 | -176760.99 | 0.1727 | 0.1251 |
| Mercury | -5196-02-19 07:26 J | -176366.33 | -176366.19 | -176366.06 | 0.1819 | 0.1088 |
| Mercury | -5196-12-26 15:21 J | -176055.96 | -176055.86 | -176055.76 | 0.1704 | 0.0800 |
| Mercury | -5187-07-12 01:40 J | -172936.60 | -172936.43 | -172936.25 | 0.1812 | 0.0127 |
| Mercury | -5186-05-19 02:24 J | -172625.51 | -172625.40 | -172625.29 | 0.1709 | 0.0320 |
| Mercury | -5178-12-01 20:52 J | -169506.75 | -169506.63 | -169506.51 | 0.1805 | 0.1268 |
| Mercury | -5177-10-08 12:57 J | -169195.07 | -169194.96 | -169194.84 | 0.1715 | 0.0189 |
| Mercury | -5167-02-28 23:45 J | -165764.62 | -165764.51 | -165764.41 | 0.1721 | 0.0683 |
| Venus | -5167-09-08 00:43 J | -165573.65 | -165573.47 | -165573.30 | 0.1614 | 0.0109 |
| Venus | -5166-08-13 06:57 J | -165234.37 | -165234.21 | -165234.05 | 0.1909 | 0.0805 |
| Mercury | -5165-02-04 04:19 J | -165059.38 | -165059.32 | -165059.25 | 0.1698 | 0.1328 |
| Mercury | -5158-07-22 10:19 J | -162334.15 | -162334.07 | -162333.99 | 0.1727 | 0.1197 |
| Moon | -5158-10-26 11:16 J | -162238.21 | -162238.03 | -162237.84 | 0.1631 | 0.0207 |
| Earth | -5158-10-26 17:31 J | -162237.95 | -162237.77 | -162237.59 | 0.1631 | 0.0384 * |

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|---------|---------------------|------------|------------|------------|--------|--------|
| Mercury | -5157-08-20 08:09 J | -161939.28 | -161939.16 | -161939.03 | 0.1819 | 0.1199 |
| Mercury | -5156-06-26 15:21 J | -161628.96 | -161628.86 | -161628.76 | 0.1704 | 0.0854 |
| Mercury | -5149-12-11 20:52 J | -158903.64 | -158903.63 | -158903.62 | 0.1733 | 0.1720 |
| Mercury | -5147-01-10 02:38 J | -158509.56 | -158509.39 | -158509.21 | 0.1812 | 0.0045 |
| Mercury | -5147-11-17 02:09 J | -158198.52 | -158198.41 | -158198.29 | 0.1709 | 0.0372 |
| Mercury | -5138-06-01 21:35 J | -155079.72 | -155079.60 | -155079.47 | 0.1804 | 0.1166 |
| Mercury | -5137-04-08 12:57 J | -154768.07 | -154767.96 | -154767.84 | 0.1715 | 0.0131 |
| Venus | -5135-09-06 15:35 J | -153887.00 | -153886.85 | -153886.70 | 0.1617 | 0.0723 |
| Venus | -5133-07-06 22:48 J | -153217.69 | -153217.55 | -153217.42 | 0.1612 | 0.1006 |
| Venus | -5132-06-09 02:38 J | -152880.50 | -152880.39 | -152880.27 | 0.1914 | 0.1490 |
| Mercury | -5128-08-29 23:45 J | -151337.62 | -151337.51 | -151337.40 | 0.1721 | 0.0624 |
| Mercury | -5126-08-05 04:19 J | -150632.38 | -150632.32 | -150632.25 | 0.1698 | 0.1384 |
| Mercury | -5118-01-20 10:19 J | -147907.16 | -147907.07 | -147906.98 | 0.1727 | 0.1139 |
| Mercury | -5117-02-19 09:07 J | -147512.24 | -147512.12 | -147512.01 | 0.1820 | 0.1307 |
| Mercury | -5117-12-25 15:21 J | -147201.95 | -147201.86 | -147201.76 | 0.1703 | 0.0910 |
| Mercury | -5109-06-11 20:52 J | -144476.66 | -144476.63 | -144476.60 | 0.1733 | 0.1664 |
| Mercury | -5108-07-11 03:50 J | -144082.51 | -144082.34 | -144082.17 | 0.1812 | 0.0119 |
| Mercury | -5107-05-18 02:09 J | -143771.52 | -143771.41 | -143771.30 | 0.1709 | 0.0425 |
| Venus | -5103-09-05 06:43 J | -142200.26 | -142200.22 | -142200.17 | 0.1620 | 0.1555 |
| Venus | -5101-07-05 13:26 J | -141531.11 | -141530.94 | -141530.77 | 0.1614 | 0.0190 |
| Venus | -5100-06-09 07:55 J | -141192.34 | -141192.17 | -141191.99 | 0.1910 | 0.0452 |
| Mercury | -5099-11-30 22:33 J | -140652.70 | -140652.56 | -140652.43 | 0.1805 | 0.1060 |
| Mercury | -5098-10-08 12:57 J | -140341.07 | -140340.96 | -140340.84 | 0.1715 | 0.0072 |
| Mercury | -5088-02-27 23:45 J | -136910.62 | -136910.51 | -136910.41 | 0.1721 | 0.0574 |
| Mercury | -5086-02-03 04:19 J | -136205.38 | -136205.32 | -136205.26 | 0.1698 | 0.1434 |
| Mercury | -5079-07-21 10:19 J | -133480.16 | -133480.07 | -133479.98 | 0.1727 | 0.1082 |
| Earth | -5079-10-28 18:00 J | -133380.81 | -133380.75 | -133380.69 | 0.1629 | 0.1527 |
| Mercury | -5078-08-20 09:50 J | -133085.19 | -133085.09 | -133084.98 | 0.1820 | 0.1417 |
| Mercury | -5077-06-25 15:21 J | -132774.96 | -132774.86 | -132774.77 | 0.1704 | 0.0961 |
| Mercury | -5070-12-11 20:52 J | -130049.67 | -130049.63 | -130049.59 | 0.1732 | 0.1605 |

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|---------|---------------------|------------|------------|------------|--------|----------|
| Venus | -5069-07-04 04:04 J | -129844.48 | -129844.33 | -129844.17 | 0.1616 | 0.0635 |
| Mercury | -5068-01-09 04:04 J | -129655.50 | -129655.33 | -129655.16 | 0.1812 | 0.0206 |
| Mercury | -5068-11-16 02:09 J | -129344.52 | -129344.41 | -129344.30 | 0.1709 | 0.0484 |
| Venus | -5067-05-04 12:00 J | -129175.13 | -129175.00 | -129174.88 | 0.1611 | 0.1090 |
| Venus | -5066-04-06 03:35 J | -128838.39 | -128838.35 | -128838.31 | 0.1914 | 0.1854 |
| Mercury | -5059-05-31 23:31 J | -126225.66 | -126225.52 | -126225.37 | 0.1805 | 0.0942 |
| Mercury | -5058-04-08 12:57 J | -125914.07 | -125913.96 | -125913.84 | 0.1715 | 0.0021 |
| Mercury | -5049-08-28 23:45 J | -122483.62 | -122483.51 | -122483.41 | 0.1721 | 0.0520 |
| Mercury | -5047-08-04 04:19 J | -121778.37 | -121778.32 | -121778.27 | 0.1698 | 0.1486 |
| Mercury | -5039-01-19 10:19 J | -119053.16 | -119053.07 | -119052.98 | 0.1726 | 0.1028 |
| Mercury | -5038-02-18 10:47 J | -118658.14 | -118658.05 | -118657.96 | 0.1820 | 0.1525 |
| Mercury | -5038-12-25 15:21 J | -118347.95 | -118347.86 | -118347.77 | 0.1703 | 0.1017 |
| Venus | -5037-07-02 19:26 J | -118157.76 | -118157.69 | -118157.62 | 0.1619 | 0.1467 |
| Venus | -5035-05-03 02:24 J | -117488.57 | -117488.40 | -117488.23 | 0.1613 | 0.0278 |
| Venus | -5034-04-06 09:50 J | -117150.26 | -117150.09 | -117149.91 | 0.1912 | 0.0119 |
| Earth | -5032-10-22 22:04 J | -116219.67 | -116219.58 | -116219.49 | 0.1638 | 0.1428 |
| Moon | -5032-10-23 02:09 J | -116219.52 | -116219.41 | -116219.30 | 0.1638 | 0.1354 * |
| Mercury | -5030-06-11 20:38 J | -115622.68 | -115622.64 | -115622.59 | 0.1733 | 0.1552 |
| Mercury | -5029-07-10 05:31 J | -115228.44 | -115228.27 | -115228.11 | 0.1813 | 0.0331 |
| Mercury | -5028-05-17 02:09 J | -114917.52 | -114917.41 | -114917.30 | 0.1709 | 0.0533 |
| Mercury | -5020-11-30 00:00 J | -111798.65 | -111798.50 | -111798.35 | 0.1805 | 0.0853 |
| Mercury | -5019-10-07 12:57 J | -111487.08 | -111486.96 | -111486.85 | 0.1715 | 0.0045 |
| Mercury | -5009-02-27 23:45 J | -108056.62 | -108056.51 | -108056.40 | 0.1720 | 0.0458 |
| Mercury | -5007-02-02 04:19 J | -107351.37 | -107351.32 | -107351.28 | 0.1698 | 0.1542 |
| Venus | -5003-05-01 17:16 J | -105801.94 | -105801.78 | -105801.62 | 0.1615 | 0.0551 |
| Venus | -5001-03-01 00:43 J | -105132.59 | -105132.47 | -105132.36 | 0.1611 | 0.1177 |

5TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 5th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|---|------------|------------|------------|--------|--------|---|
| Mercury | -5000-07-20 10:19 J | | -104626.17 | -104626.07 | -104625.98 | 0.1726 | 0.0974 | |
| Mercury | -4999-08-19 11:45 J | | -104231.09 | -104231.01 | -104230.94 | 0.1820 | 0.1638 | |
| Mercury | -4998-06-25 15:21 J | | -103920.95 | -103920.86 | -103920.78 | 0.1703 | 0.1071 | |
| Earth | -4991-04-26 19:55 J | | -101423.88 | -101423.67 | -101423.46 | 0.1891 | 0.0192 | |
| Moon | -4991-04-27 03:50 J | | -101423.56 | -101423.34 | -101423.12 | 0.1891 | 0.0315 | * |
| Mercury | -4991-12-10 20:52 J | | -101195.69 | -101195.63 | -101195.58 | 0.1732 | 0.1492 | |
| Mercury | -4989-01-09 06:14 J | | -100801.41 | -100801.24 | -100801.08 | 0.1813 | 0.0433 | |
| Mercury | -4989-11-15 02:09 J | | -100490.52 | -100490.41 | -100490.30 | 0.1709 | 0.0588 | |
| Mercury | -4980-05-31 00:57 J | | -97371.61 | -97371.46 | -97371.30 | 0.1805 | 0.0738 | |
| Mercury | -4979-04-07 12:57 J | | -97060.08 | -97059.96 | -97059.85 | 0.1715 | 0.0099 | |
| Venus | -4971-04-30 08:09 J | | -94115.24 | -94115.16 | -94115.07 | 0.1618 | 0.1382 | |
| Mercury | -4970-08-28 23:31 J | | -93629.63 | -93629.52 | -93629.41 | 0.1721 | 0.0408 | |
| Venus | -4969-02-28 15:21 J | | -93446.03 | -93445.86 | -93445.70 | 0.1612 | 0.0361 | |
| Venus | -4968-01-31 11:02 J | | -93108.22 | -93108.04 | -93107.87 | 0.1913 | 0.0247 | |
| Mercury | -4968-08-03 04:19 J | | -92924.36 | -92924.32 | -92924.29 | 0.1698 | 0.1593 | |
| Mercury | -4960-01-18 10:19 J | | -90199.17 | -90199.07 | -90198.97 | 0.1726 | 0.0911 | |
| Mercury | -4959-02-17 12:28 J | | -89804.02 | -89803.98 | -89803.93 | 0.1820 | 0.1745 | |
| Mercury | -4959-12-24 15:07 J | | -89493.95 | -89493.87 | -89493.78 | 0.1703 | 0.1125 | |
| Earth | -4953-10-24 22:33 J | | -87362.74 | -87362.56 | -87362.37 | 0.1636 | 0.0269 | |
| Moon | -4953-10-25 04:47 J | | -87362.49 | -87362.30 | -87362.12 | 0.1635 | 0.0167 | * |
| Mercury | -4951-06-10 20:38 J | | -86768.70 | -86768.64 | -86768.57 | 0.1732 | 0.1436 | |
| Mercury | -4950-07-10 06:43 J | | -86374.38 | -86374.22 | -86374.05 | 0.1813 | 0.0533 | |

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|---------|---------------------|-----------|-----------|-----------|--------|----------|
| Mercury | -4949-05-16 02:09 J | -86063.52 | -86063.41 | -86063.30 | 0.1709 | 0.0645 |
| Mercury | -4941-11-29 01:55 J | -82944.58 | -82944.42 | -82944.26 | 0.1806 | 0.0629 |
| Mercury | -4940-10-06 12:43 J | -82633.08 | -82632.97 | -82632.85 | 0.1714 | 0.0162 |
| Venus | -4937-02-27 06:00 J | -81759.42 | -81759.25 | -81759.09 | 0.1614 | 0.0464 |
| Venus | -4936-01-31 15:21 J | -81419.94 | -81419.86 | -81419.77 | 0.1909 | 0.1675 |
| Venus | -4936-12-27 13:55 J | -81090.03 | -81089.92 | -81089.82 | 0.1611 | 0.1259 |
| Mercury | -4931-04-20 21:21 J | -79514.64 | -79514.61 | -79514.58 | 0.1798 | 0.1755 |
| Mercury | -4930-02-26 23:31 J | -79202.63 | -79202.52 | -79202.40 | 0.1720 | 0.0352 |
| Mercury | -4928-02-01 04:04 J | -78497.35 | -78497.33 | -78497.30 | 0.1698 | 0.1647 |
| Mercury | -4921-07-19 10:04 J | -75772.17 | -75772.08 | -75771.98 | 0.1726 | 0.0863 |
| Mercury | -4919-06-24 15:07 J | -75066.95 | -75066.87 | -75066.79 | 0.1703 | 0.1177 |
| Mercury | -4912-12-09 20:38 J | -72341.71 | -72341.64 | -72341.57 | 0.1732 | 0.1380 |
| Mercury | -4910-01-08 07:40 J | -71947.33 | -71947.18 | -71947.02 | 0.1813 | 0.0647 |
| Mercury | -4910-11-15 01:55 J | -71636.52 | -71636.42 | -71636.31 | 0.1709 | 0.0696 |
| Venus | -4905-02-25 20:52 J | -70072.74 | -70072.63 | -70072.53 | 0.1617 | 0.1291 |
| Venus | -4904-12-26 04:04 J | -69403.49 | -69403.33 | -69403.16 | 0.1612 | 0.0446 |
| Venus | -4903-11-28 12:28 J | -69066.15 | -69065.98 | -69065.81 | 0.1914 | 0.0599 |
| Mercury | -4901-05-30 02:38 J | -68517.55 | -68517.39 | -68517.23 | 0.1805 | 0.0528 |
| Mercury | -4900-04-06 12:57 J | -68206.08 | -68205.96 | -68205.85 | 0.1715 | 0.0215 |
| Mercury | -4892-10-19 21:50 J | -65087.65 | -65087.59 | -65087.52 | 0.1798 | 0.1662 |
| Mercury | -4891-08-27 23:31 J | -64775.63 | -64775.52 | -64775.40 | 0.1720 | 0.0295 |
| Mercury | -4881-01-18 10:04 J | -61345.18 | -61345.08 | -61344.97 | 0.1726 | 0.0806 |
| Mercury | -4880-12-23 15:07 J | -60639.95 | -60639.87 | -60639.79 | 0.1703 | 0.1231 |
| Earth | -4874-10-27 23:31 J | -58505.67 | -58505.52 | -58505.36 | 0.1633 | 0.0891 |
| Moon | -4874-10-28 00:43 J | -58505.62 | -58505.47 | -58505.32 | 0.1633 | 0.0766 * |
| Mercury | -4872-06-09 20:38 J | -57914.71 | -57914.64 | -57914.57 | 0.1732 | 0.1324 |
| Venus | -4872-12-24 18:57 J | -57716.88 | -57716.71 | -57716.54 | 0.1614 | 0.0379 |
| Mercury | -4871-07-09 08:52 J | -57520.29 | -57520.13 | -57519.98 | 0.1813 | 0.0762 |
| Venus | -4871-11-28 17:16 J | -57377.90 | -57377.78 | -57377.65 | 0.1910 | 0.1338 |
| Mercury | -4870-05-16 01:55 J | -57209.52 | -57209.42 | -57209.31 | 0.1709 | 0.0752 |

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|---------|---------------------|-----------|-----------|-----------|--------|--------|
| Venus | -4870-10-25 02:38 J | -57047.48 | -57047.39 | -57047.29 | 0.1610 | 0.1344 |
| Mercury | -4862-11-29 03:36 J | -54090.52 | -54090.35 | -54090.19 | 0.1806 | 0.0423 |
| Mercury | -4861-10-05 12:43 J | -53779.08 | -53778.97 | -53778.85 | 0.1714 | 0.0265 |
| Mercury | -4852-04-19 23:02 J | -50660.63 | -50660.54 | -50660.46 | 0.1798 | 0.1548 |
| Mercury | -4851-02-25 23:31 J | -50348.63 | -50348.52 | -50348.41 | 0.1720 | 0.0239 |
| Mercury | -4842-07-19 10:04 J | -46918.18 | -46918.08 | -46917.97 | 0.1726 | 0.0748 |
| Mercury | -4840-06-23 15:07 J | -46212.95 | -46212.87 | -46212.80 | 0.1703 | 0.1283 |
| Venus | -4840-12-23 09:50 J | -46030.20 | -46030.09 | -46029.98 | 0.1616 | 0.1207 |
| Venus | -4838-10-23 17:16 J | -45360.94 | -45360.78 | -45360.61 | 0.1611 | 0.0528 |
| Venus | -4837-09-24 13:40 J | -45024.08 | -45023.93 | -45023.78 | 0.1915 | 0.0956 |
| Mercury | -4833-12-08 20:38 J | -43487.72 | -43487.64 | -43487.56 | 0.1732 | 0.1265 |
| Mercury | -4831-01-07 09:21 J | -43093.26 | -43093.11 | -43092.96 | 0.1813 | 0.0853 |
| Mercury | -4831-11-14 02:09 J | -42782.51 | -42782.41 | -42782.31 | 0.1708 | 0.0810 |
| Mercury | -4822-05-30 04:33 J | -39663.48 | -39663.31 | -39663.14 | 0.1806 | 0.0303 |
| Mercury | -4821-04-05 12:43 J | -39352.08 | -39351.97 | -39351.86 | 0.1714 | 0.0317 |
| Mercury | -4813-10-18 23:45 J | -36233.61 | -36233.51 | -36233.42 | 0.1798 | 0.1449 |
| Mercury | -4812-08-26 23:31 J | -35921.64 | -35921.52 | -35921.41 | 0.1720 | 0.0184 |
| Venus | -4806-10-22 08:09 J | -33674.33 | -33674.16 | -33673.99 | 0.1613 | 0.0298 |
| Venus | -4805-09-24 18:43 J | -33335.88 | -33335.72 | -33335.57 | 0.1912 | 0.0988 |
| Venus | -4804-08-21 15:50 J | -33004.92 | -33004.84 | -33004.76 | 0.1610 | 0.1425 |
| Mercury | -4802-01-17 10:04 J | -32491.18 | -32491.08 | -32490.97 | 0.1726 | 0.0692 |
| Mercury | -4801-12-22 15:07 J | -31785.94 | -31785.87 | -31785.80 | 0.1703 | 0.1337 |
| Mercury | -4793-06-08 20:38 J | -29060.72 | -29060.64 | -29060.56 | 0.1732 | 0.1211 |
| Mercury | -4792-07-08 10:33 J | -28666.21 | -28666.06 | -28665.92 | 0.1813 | 0.0978 |
| Mercury | -4791-05-15 01:55 J | -28355.52 | -28355.42 | -28355.32 | 0.1708 | 0.0858 |
| Mercury | -4783-11-28 05:02 J | -25236.46 | -25236.29 | -25236.12 | 0.1806 | 0.0216 |
| Mercury | -4782-10-05 12:43 J | -24925.08 | -24924.97 | -24924.86 | 0.1714 | 0.0371 |
| Venus | -4774-10-20 22:33 J | -21987.68 | -21987.56 | -21987.44 | 0.1615 | 0.1120 |
| Mercury | -4773-04-19 00:28 J | -21806.59 | -21806.48 | -21806.37 | 0.1799 | 0.1344 |
| Mercury | -4772-02-24 23:31 J | -21494.63 | -21494.52 | -21494.41 | 0.1720 | 0.0125 |

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|---------|---------------------|-----------|-----------|-----------|--------|----------|
| Venus | -4772-08-20 06:14 J | -21318.40 | -21318.24 | -21318.08 | 0.1611 | 0.0612 |
| Venus | -4771-07-22 14:23 J | -20982.02 | -20981.90 | -20981.77 | 0.1916 | 0.1325 |
| Mercury | -4763-07-18 10:04 J | -18064.19 | -18064.08 | -18063.97 | 0.1726 | 0.0636 |
| Mercury | -4761-06-22 15:07 J | -17358.94 | -17358.87 | -17358.81 | 0.1703 | 0.1392 |
| Mercury | -4754-12-08 20:38 J | -14633.73 | -14633.64 | -14633.56 | 0.1732 | 0.1153 |
| Mercury | -4752-01-06 11:16 J | -14239.17 | -14239.03 | -14238.90 | 0.1813 | 0.1080 |
| Mercury | -4752-11-13 01:55 J | -13928.52 | -13928.42 | -13928.32 | 0.1708 | 0.0912 |
| Moon | -4748-10-23 21:21 J | -12487.75 | -12487.61 | -12487.47 | 0.1641 | 0.1065 |
| Earth | -4748-10-24 03:35 J | -12487.50 | -12487.35 | -12487.19 | 0.1641 | 0.0932 * |
| Mercury | -4744-04-30 06:57 J | -11203.23 | -11203.21 | -11203.18 | 0.1738 | 0.1686 |
| Mercury | -4743-05-29 06:00 J | -10809.42 | -10809.25 | -10809.08 | 0.1806 | 0.0101 |
| Mercury | -4742-04-05 12:43 J | -10498.08 | -10497.97 | -10497.86 | 0.1714 | 0.0425 |
| Venus | -4740-08-18 20:38 J | -9631.81 | -9631.64 | -9631.47 | 0.1612 | 0.0208 |
| Venus | -4739-07-22 20:24 J | -9293.82 | -9293.65 | -9293.48 | 0.1913 | 0.0646 |
| Venus | -4738-06-19 04:33 J | -8962.36 | -8962.31 | -8962.25 | 0.1609 | 0.1514 |
| Mercury | -4734-10-19 01:26 J | -7379.57 | -7379.44 | -7379.32 | 0.1799 | 0.1239 |
| Mercury | -4733-08-25 23:31 J | -7067.64 | -7067.52 | -7067.41 | 0.1720 | 0.0093 |
| Mercury | -4723-01-16 10:04 J | -3637.19 | -3637.08 | -3636.97 | 0.1726 | 0.0577 |
| Mercury | -4722-12-22 14:52 J | -2931.93 | -2931.88 | -2931.82 | 0.1703 | 0.1445 |
| Mercury | -4714-06-08 20:38 J | -206.73 | -206.64 | -206.55 | 0.1732 | 0.1098 |
| Mercury | -4713-07-07 11:45 J | 187.87 | 187.99 | 188.12 | 0.1814 | 0.1182 |
| Mercury | -4712-05-14 01:55 J | 498.49 | 498.58 | 498.67 | 0.1708 | 0.0969 |
| Venus | -4708-08-17 11:31 J | 2054.85 | 2054.98 | 2055.11 | 0.1614 | 0.1036 |
| Moon | -4707-04-25 08:09 J | 2305.68 | 2305.84 | 2306.00 | 0.1885 | 0.1182 |
| Earth | -4707-04-25 18:43 J | 2306.12 | 2306.28 | 2306.44 | 0.1885 | 0.1149 |
| Venus | -4706-06-17 19:12 J | 2724.14 | 2724.30 | 2724.45 | 0.1610 | 0.0697 |
| Venus | -4705-05-18 15:36 J | 3060.06 | 3060.15 | 3060.23 | 0.1916 | 0.1688 |
| Mercury | -4705-10-29 06:57 J | 3223.75 | 3223.79 | 3223.83 | 0.1738 | 0.1628 |
| Mercury | -4704-11-27 06:57 J | 3617.62 | 3617.79 | 3617.96 | 0.1806 | 0.0012 |
| Mercury | -4703-10-04 12:43 J | 3928.92 | 3929.03 | 3929.14 | 0.1714 | 0.0480 |

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| Mercury | -4694-04-19 02:09 J | 7047.46 | 7047.59 | 7047.72 | 0.1799 | 0.1130 |
| Mercury | -4693-02-24 23:31 J | 7359.36 | 7359.48 | 7359.59 | 0.1720 | 0.0053 |
| Mercury | -4684-07-17 10:04 J | 10789.81 | 10789.92 | 10790.03 | 0.1726 | 0.0527 |
| Mercury | -4682-06-22 14:52 J | 11495.07 | 11495.12 | 11495.17 | 0.1702 | 0.1497 |
| Mercury | -4675-12-07 20:38 J | 14220.27 | 14220.36 | 14220.45 | 0.1732 | 0.1042 |
| Venus | -4674-06-16 09:50 J | 14410.74 | 14410.91 | 14411.08 | 0.1611 | 0.0126 |
| Mercury | -4673-01-06 12:57 J | 14614.92 | 14615.04 | 14615.15 | 0.1814 | 0.1296 |
| Venus | -4673-05-18 21:07 J | 14748.21 | 14748.38 | 14748.56 | 0.1914 | 0.0284 |
| Mercury | -4673-11-12 01:40 J | 14925.48 | 14925.57 | 14925.67 | 0.1708 | 0.1021 |
| Venus | -4672-04-15 17:45 J | 15080.22 | 15080.24 | 15080.26 | 0.1609 | 0.1597 |
| Moon | -4669-10-26 04:33 J | 16369.49 | 16369.69 | 16369.88 | 0.1638 | 0.0332 |
| Earth | -4669-10-26 04:48 J | 16369.52 | 16369.70 | 16369.88 | 0.1638 | 0.0240 * |
| Mercury | -4665-04-29 06:57 J | 17650.75 | 17650.79 | 17650.84 | 0.1738 | 0.1567 |
| Mercury | -4664-05-28 07:40 J | 18044.65 | 18044.82 | 18044.99 | 0.1806 | 0.0112 |
| Mercury | -4663-04-04 12:43 J | 18355.92 | 18356.03 | 18356.14 | 0.1714 | 0.0537 |
| Mercury | -4655-10-18 02:52 J | 21474.48 | 21474.62 | 21474.76 | 0.1799 | 0.1034 |
| Mercury | -4654-08-25 23:31 J | 21786.36 | 21786.48 | 21786.59 | 0.1719 | 0.0070 |
| Mercury | -4644-01-15 10:04 J | 25216.81 | 25216.92 | 25217.03 | 0.1726 | 0.0471 |
| Mercury | -4643-12-21 14:52 J | 25922.08 | 25922.12 | 25922.17 | 0.1702 | 0.1550 |
| Venus | -4642-06-15 00:14 J | 26097.37 | 26097.51 | 26097.65 | 0.1613 | 0.0949 |
| Venus | -4640-04-14 08:09 J | 26766.69 | 26766.84 | 26766.99 | 0.1610 | 0.0782 |
| Mercury | -4635-06-07 20:38 J | 28647.26 | 28647.36 | 28647.45 | 0.1732 | 0.0986 |
| Mercury | -4634-07-07 13:55 J | 29041.97 | 29042.08 | 29042.18 | 0.1814 | 0.1412 |
| Mercury | -4633-05-13 01:55 J | 29352.49 | 29352.58 | 29352.66 | 0.1708 | 0.1077 |
| Mercury | -4626-10-29 06:57 J | 32077.74 | 32077.79 | 32077.84 | 0.1738 | 0.1515 |
| Mercury | -4625-11-26 08:23 J | 32471.68 | 32471.85 | 32472.02 | 0.1807 | 0.0222 |
| Mercury | -4624-10-03 12:28 J | 32782.92 | 32783.02 | 32783.13 | 0.1714 | 0.0591 |
| Mercury | -4615-04-18 03:50 J | 35901.51 | 35901.66 | 35901.81 | 0.1799 | 0.0922 |
| Mercury | -4614-02-23 23:16 J | 36213.36 | 36213.47 | 36213.59 | 0.1720 | 0.0101 |
| Venus | -4608-04-12 22:33 J | 38453.27 | 38453.44 | 38453.61 | 0.1611 | 0.0040 |

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|---------|---------------------|----------|----------|----------|--------|--------|
| Venus | -4607-03-15 23:02 J | 38790.29 | 38790.46 | 38790.64 | 0.1915 | 0.0083 |
| Mercury | -4605-07-16 10:04 J | 39643.81 | 39643.92 | 39644.03 | 0.1725 | 0.0410 |
| Mercury | -4603-06-21 14:52 J | 40349.09 | 40349.12 | 40349.16 | 0.1702 | 0.1603 |
| Mercury | -4596-12-06 20:38 J | 43074.26 | 43074.36 | 43074.45 | 0.1731 | 0.0929 |
| Mercury | -4594-01-05 14:23 J | 43469.00 | 43469.10 | 43469.19 | 0.1814 | 0.1503 |
| Mercury | -4594-11-12 01:40 J | 43779.49 | 43779.57 | 43779.66 | 0.1708 | 0.1133 |
| Earth | -4590-10-29 05:45 J | 45226.64 | 45226.74 | 45226.83 | 0.1636 | 0.1404 |
| Moon | -4590-10-29 11:45 J | 45226.89 | 45226.99 | 45227.10 | 0.1636 | 0.1337 |
| Mercury | -4586-04-29 06:57 J | 46504.73 | 46504.79 | 46504.85 | 0.1738 | 0.1456 |
| Mercury | -4585-05-27 09:36 J | 46898.73 | 46898.90 | 46899.07 | 0.1807 | 0.0338 |
| Mercury | -4584-04-03 12:28 J | 47209.92 | 47210.02 | 47210.13 | 0.1714 | 0.0645 |
| Venus | -4576-04-11 13:12 J | 50139.91 | 50140.05 | 50140.20 | 0.1613 | 0.0865 |
| Mercury | -4576-10-17 04:33 J | 50328.54 | 50328.69 | 50328.84 | 0.1799 | 0.0820 |
| Venus | -4575-03-16 04:04 J | 50478.64 | 50478.67 | 50478.69 | 0.1912 | 0.1883 |
| Mercury | -4575-08-24 23:16 J | 50640.36 | 50640.47 | 50640.59 | 0.1719 | 0.0150 |
| Venus | -4574-02-09 21:07 J | 50809.23 | 50809.38 | 50809.52 | 0.1610 | 0.0870 |
| Mercury | -4565-01-15 10:04 J | 54070.80 | 54070.92 | 54071.03 | 0.1725 | 0.0361 |
| Mercury | -4564-12-20 14:52 J | 54776.10 | 54776.12 | 54776.14 | 0.1702 | 0.1657 |
| Mercury | -4556-06-06 20:23 J | 57501.26 | 57501.35 | 57501.45 | 0.1732 | 0.0874 |
| Mercury | -4555-07-06 15:36 J | 57896.08 | 57896.15 | 57896.22 | 0.1814 | 0.1627 |
| Mercury | -4554-05-13 01:40 J | 58206.49 | 58206.57 | 58206.65 | 0.1708 | 0.1181 |
| Mercury | -4547-10-28 06:57 J | 60931.72 | 60931.79 | 60931.86 | 0.1737 | 0.1397 |
| Mercury | -4546-11-26 10:04 J | 61325.75 | 61325.92 | 61326.08 | 0.1807 | 0.0426 |
| Mercury | -4545-10-02 12:28 J | 61636.92 | 61637.02 | 61637.13 | 0.1714 | 0.0700 |
| Earth | -4543-10-23 07:12 J | 62387.78 | 62387.80 | 62387.83 | 0.1646 | 0.1629 |
| Moon | -4543-10-23 12:43 J | 62387.99 | 62388.03 | 62388.08 | 0.1646 | 0.1587 |
| Venus | -4542-02-08 11:31 J | 62495.81 | 62495.98 | 62496.16 | 0.1611 | 0.0060 |
| Venus | -4541-01-11 00:00 J | 62832.33 | 62832.50 | 62832.68 | 0.1916 | 0.0431 |
| Mercury | -4536-04-17 05:31 J | 64755.57 | 64755.73 | 64755.88 | 0.1800 | 0.0712 |
| Mercury | -4535-02-22 23:16 J | 65067.36 | 65067.47 | 65067.59 | 0.1719 | 0.0214 |

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|---------|---------------------|----------|----------|----------|--------|----------|
| Mercury | -4526-07-16 09:50 J | 68497.80 | 68497.91 | 68498.03 | 0.1725 | 0.0305 |
| Mercury | -4517-12-05 20:24 J | 71928.25 | 71928.35 | 71928.45 | 0.1731 | 0.0818 |
| Mercury | -4515-01-04 16:19 J | 72323.13 | 72323.18 | 72323.23 | 0.1814 | 0.1730 |
| Mercury | -4515-11-11 01:40 J | 72633.49 | 72633.57 | 72633.65 | 0.1708 | 0.1234 |
| Venus | -4510-02-07 02:09 J | 74182.44 | 74182.59 | 74182.74 | 0.1612 | 0.0779 |
| Venus | -4509-01-11 05:02 J | 74520.61 | 74520.71 | 74520.82 | 0.1913 | 0.1528 |
| Venus | -4509-12-07 10:19 J | 74851.79 | 74851.93 | 74852.07 | 0.1609 | 0.0952 |
| Mercury | -4507-04-28 06:57 J | 75358.72 | 75358.79 | 75358.86 | 0.1738 | 0.1344 |
| Mercury | -4506-05-27 11:02 J | 75752.80 | 75752.96 | 75753.13 | 0.1807 | 0.0549 |
| Mercury | -4505-04-02 12:28 J | 76063.92 | 76064.02 | 76064.12 | 0.1713 | 0.0753 |
| Mercury | -4497-10-16 06:14 J | 79182.60 | 79182.76 | 79182.92 | 0.1800 | 0.0609 |
| Mercury | -4496-08-23 23:16 J | 79494.36 | 79494.47 | 79494.58 | 0.1719 | 0.0258 |
| Mercury | -4487-03-08 01:40 J | 82612.53 | 82612.57 | 82612.61 | 0.1792 | 0.1725 |
| Mercury | -4486-01-14 10:04 J | 82924.80 | 82924.92 | 82925.03 | 0.1725 | 0.0247 |
| Venus | -4478-02-05 16:47 J | 85869.19 | 85869.20 | 85869.21 | 0.1614 | 0.1606 |
| Mercury | -4477-06-05 20:24 J | 86355.25 | 86355.35 | 86355.45 | 0.1731 | 0.0761 |
| Venus | -4477-12-06 00:28 J | 86538.35 | 86538.52 | 86538.69 | 0.1610 | 0.0133 |
| Venus | -4476-11-07 01:26 J | 86874.40 | 86874.56 | 86874.73 | 0.1917 | 0.0791 |
| Mercury | -4475-05-12 01:40 J | 87060.50 | 87060.57 | 87060.64 | 0.1707 | 0.1293 |
| Mercury | -4468-10-27 06:57 J | 89785.71 | 89785.79 | 89785.86 | 0.1737 | 0.1286 |
| Mercury | -4467-11-25 12:00 J | 90179.84 | 90180.00 | 90180.16 | 0.1807 | 0.0657 |
| Mercury | -4466-10-02 12:28 J | 90490.92 | 90491.02 | 90491.12 | 0.1713 | 0.0806 |
| Moon | -4464-10-25 08:24 J | 91244.69 | 91244.85 | 91245.02 | 0.1643 | 0.0484 |
| Earth | -4464-10-25 09:21 J | 91244.71 | 91244.89 | 91245.07 | 0.1643 | 0.0426 * |
| Mercury | -4457-04-16 07:12 J | 93609.63 | 93609.80 | 93609.96 | 0.1800 | 0.0501 |
| Mercury | -4456-02-21 23:16 J | 93921.36 | 93921.47 | 93921.58 | 0.1719 | 0.0315 |
| Mercury | -4448-09-06 02:38 J | 97039.54 | 97039.61 | 97039.68 | 0.1792 | 0.1615 |
| Mercury | -4447-07-15 09:50 J | 97351.80 | 97351.91 | 97352.02 | 0.1725 | 0.0192 |
| Venus | -4445-12-04 15:07 J | 98224.98 | 98225.13 | 98225.29 | 0.1611 | 0.0695 |
| Venus | -4444-11-07 06:43 J | 98562.64 | 98562.78 | 98562.92 | 0.1914 | 0.1180 |

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|---------|---------------------|-----------|-----------|-----------|--------|----------|
| Venus | -4443-10-04 23:16 J | 98894.34 | 98894.47 | 98894.60 | 0.1609 | 0.1040 |
| Mercury | -4438-12-05 20:24 J | 100782.25 | 100782.35 | 100782.46 | 0.1731 | 0.0703 |
| Mercury | -4436-11-10 01:40 J | 101487.50 | 101487.57 | 101487.64 | 0.1708 | 0.1343 |
| Mercury | -4428-04-27 06:57 J | 104212.71 | 104212.79 | 104212.87 | 0.1737 | 0.1225 |
| Mercury | -4427-05-26 12:43 J | 104606.87 | 104607.03 | 104607.18 | 0.1807 | 0.0754 |
| Mercury | -4426-04-02 12:28 J | 104917.92 | 104918.02 | 104918.12 | 0.1713 | 0.0864 |
| Moon | -4423-04-25 00:14 J | 106036.50 | 106036.51 | 106036.53 | 0.1879 | 0.1869 |
| Mercury | -4418-10-16 07:55 J | 108036.66 | 108036.83 | 108036.99 | 0.1800 | 0.0400 |
| Mercury | -4417-08-22 23:16 J | 108348.36 | 108348.47 | 108348.58 | 0.1719 | 0.0371 |
| Venus | -4413-12-03 06:00 J | 109911.69 | 109911.75 | 109911.80 | 0.1613 | 0.1525 |
| Venus | -4411-10-03 13:40 J | 110580.90 | 110581.07 | 110581.25 | 0.1610 | 0.0220 |
| Venus | -4410-09-04 02:24 J | 110916.46 | 110916.60 | 110916.75 | 0.1917 | 0.1158 |
| Mercury | -4408-03-07 03:35 J | 111466.56 | 111466.65 | 111466.74 | 0.1793 | 0.1505 |
| Mercury | -4407-01-13 09:50 J | 111778.80 | 111778.91 | 111779.03 | 0.1725 | 0.0134 |
| Mercury | -4398-06-05 20:24 J | 115209.25 | 115209.35 | 115209.46 | 0.1731 | 0.0647 |
| Mercury | -4396-05-11 01:40 J | 115914.50 | 115914.57 | 115914.63 | 0.1707 | 0.1399 |
| Mercury | -4389-10-26 06:57 J | 118639.70 | 118639.79 | 118639.87 | 0.1737 | 0.1176 |
| Mercury | -4388-11-24 13:26 J | 119033.92 | 119034.06 | 119034.21 | 0.1808 | 0.0866 |
| Mercury | -4387-10-01 12:28 J | 119344.92 | 119345.02 | 119345.11 | 0.1713 | 0.0915 |
| Moon | -4385-10-27 04:33 J | 120101.54 | 120101.69 | 120101.85 | 0.1641 | 0.0838 |
| Earth | -4385-10-27 10:47 J | 120101.78 | 120101.95 | 120102.11 | 0.1641 | 0.0751 * |
| Mercury | -4379-03-18 17:16 J | 122070.20 | 122070.22 | 122070.24 | 0.1744 | 0.1705 |
| Venus | -4379-10-02 04:19 J | 122267.52 | 122267.68 | 122267.84 | 0.1611 | 0.0611 |
| Mercury | -4378-04-16 08:52 J | 122463.70 | 122463.87 | 122464.03 | 0.1800 | 0.0291 |
| Venus | -4378-09-04 07:55 J | 122604.67 | 122604.83 | 122604.99 | 0.1915 | 0.0818 |
| Mercury | -4377-02-21 23:16 J | 122775.36 | 122775.47 | 122775.58 | 0.1719 | 0.0428 |
| Venus | -4377-08-01 12:14 J | 122936.89 | 122937.01 | 122937.13 | 0.1609 | 0.1124 |
| Mercury | -4369-09-05 04:04 J | 125893.57 | 125893.67 | 125893.78 | 0.1793 | 0.1415 |
| Mercury | -4368-07-14 09:50 J | 126205.80 | 126205.91 | 126206.03 | 0.1725 | 0.0083 |
| Mercury | -4359-12-04 20:24 J | 129636.24 | 129636.35 | 129636.46 | 0.1731 | 0.0591 |

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|---------|---------------------|-----------|-----------|-----------|--------|----------|
| Mercury | -4357-11-09 01:40 J | 130341.51 | 130341.57 | 130341.62 | 0.1707 | 0.1453 |
| Mercury | -4349-04-26 06:57 J | 133066.70 | 133066.79 | 133066.87 | 0.1737 | 0.1116 |
| Mercury | -4348-05-25 14:38 J | 133460.97 | 133461.11 | 133461.25 | 0.1808 | 0.0985 |
| Mercury | -4347-04-01 12:28 J | 133771.92 | 133772.02 | 133772.11 | 0.1713 | 0.0971 |
| Venus | -4347-09-30 18:43 J | 133954.21 | 133954.28 | 133954.36 | 0.1612 | 0.1437 |
| Venus | -4345-07-31 02:38 J | 134623.44 | 134623.61 | 134623.78 | 0.1609 | 0.0304 |
| Moon | -4344-04-28 02:24 J | 134894.43 | 134894.60 | 134894.77 | 0.1884 | 0.0966 |
| Earth | -4344-04-28 10:19 J | 134894.77 | 134894.93 | 134895.09 | 0.1884 | 0.1165 * |
| Venus | -4344-07-01 03:35 J | 134958.54 | 134958.65 | 134958.75 | 0.1917 | 0.1530 |
| Mercury | -4340-09-16 17:02 J | 136497.18 | 136497.21 | 136497.25 | 0.1743 | 0.1653 |
| Mercury | -4339-10-15 09:35 J | 136890.73 | 136890.90 | 136891.07 | 0.1800 | 0.0185 |
| Mercury | -4338-08-22 23:16 J | 137202.36 | 137202.47 | 137202.58 | 0.1719 | 0.0483 |
| Mercury | -4329-03-06 05:16 J | 140320.60 | 140320.72 | 140320.83 | 0.1793 | 0.1301 |
| Mercury | -4328-01-12 09:50 J | 140632.79 | 140632.91 | 140633.02 | 0.1725 | 0.0029 |
| Mercury | -4319-06-04 20:24 J | 144063.24 | 144063.35 | 144063.46 | 0.1731 | 0.0534 |
| Mercury | -4317-05-10 01:26 J | 144768.51 | 144768.56 | 144768.61 | 0.1707 | 0.1504 |
| Venus | -4313-07-29 17:02 J | 146310.05 | 146310.21 | 146310.37 | 0.1610 | 0.0521 |
| Venus | -4312-07-01 09:50 J | 146646.73 | 146646.91 | 146647.08 | 0.1916 | 0.0470 |
| Venus | -4311-05-30 01:11 J | 146979.44 | 146979.55 | 146979.67 | 0.1609 | 0.1211 |
| Mercury | -4310-10-26 06:57 J | 147493.70 | 147493.79 | 147493.88 | 0.1737 | 0.1057 |
| Mercury | -4309-11-23 15:07 J | 147887.99 | 147888.13 | 147888.27 | 0.1808 | 0.1073 |
| Mercury | -4308-09-30 12:28 J | 148198.93 | 148199.02 | 148199.11 | 0.1713 | 0.1027 |
| Mercury | -4300-03-17 17:02 J | 150924.17 | 150924.21 | 150924.26 | 0.1743 | 0.1594 |
| Mercury | -4299-04-15 10:33 J | 151317.77 | 151317.94 | 151318.11 | 0.1801 | 0.0076 |
| Mercury | -4298-02-20 23:16 J | 151629.36 | 151629.47 | 151629.57 | 0.1719 | 0.0540 |
| Mercury | -4290-09-05 06:00 J | 154747.63 | 154747.75 | 154747.88 | 0.1793 | 0.1196 |
| Mercury | -4289-07-13 09:50 J | 155059.79 | 155059.91 | 155060.02 | 0.1725 | 0.0048 |
| Venus | -4281-07-28 07:40 J | 157996.73 | 157996.82 | 157996.91 | 0.1612 | 0.1352 |
| Mercury | -4280-12-03 20:24 J | 158490.24 | 158490.35 | 158490.46 | 0.1731 | 0.0478 |
| Venus | -4279-05-28 15:50 J | 158665.99 | 158666.16 | 158666.33 | 0.1609 | 0.0387 |

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|---------|---------------------|-----------|-----------|-----------|--------|----------|
| Venus | -4278-04-28 04:33 J | 159000.67 | 159000.69 | 159000.71 | 0.1917 | 0.1896 |
| Mercury | -4278-11-09 01:26 J | 159195.52 | 159195.56 | 159195.61 | 0.1707 | 0.1558 |
| Mercury | -4270-04-26 06:43 J | 161920.69 | 161920.78 | 161920.88 | 0.1737 | 0.1004 |
| Mercury | -4269-05-24 16:19 J | 162315.05 | 162315.18 | 162315.31 | 0.1808 | 0.1197 |
| Mercury | -4268-03-31 12:14 J | 162625.93 | 162626.01 | 162626.10 | 0.1713 | 0.1082 |
| Mercury | -4261-09-15 17:16 J | 165351.16 | 165351.22 | 165351.27 | 0.1743 | 0.1534 |
| Mercury | -4260-10-14 11:16 J | 165744.80 | 165744.97 | 165745.14 | 0.1801 | 0.0037 |
| Mercury | -4259-08-21 23:02 J | 166056.36 | 166056.46 | 166056.57 | 0.1719 | 0.0590 |
| Earth | -4259-10-24 12:43 J | 166119.89 | 166120.03 | 166120.16 | 0.1650 | 0.1124 |
| Moon | -4259-10-24 13:11 J | 166119.90 | 166120.05 | 166120.20 | 0.1650 | 0.1074 * |
| Mercury | -4250-03-06 06:43 J | 169174.64 | 169174.78 | 169174.91 | 0.1793 | 0.1101 |
| Mercury | -4249-01-12 09:50 J | 169486.80 | 169486.91 | 169487.02 | 0.1724 | 0.0093 |
| Venus | -4247-05-27 06:14 J | 170352.60 | 170352.76 | 170352.93 | 0.1610 | 0.0440 |
| Venus | -4246-04-28 10:33 J | 170688.76 | 170688.94 | 170689.12 | 0.1916 | 0.0101 |
| Venus | -4245-03-26 14:24 J | 171022.00 | 171022.10 | 171022.20 | 0.1609 | 0.1296 |
| Mercury | -4240-06-03 20:24 J | 172917.24 | 172917.35 | 172917.46 | 0.1731 | 0.0422 |
| Mercury | -4238-05-10 01:26 J | 173622.53 | 173622.56 | 173622.60 | 0.1707 | 0.1616 |
| Mercury | -4231-10-25 06:43 J | 176347.69 | 176347.78 | 176347.88 | 0.1737 | 0.0946 |
| Mercury | -4230-11-23 17:16 J | 176742.10 | 176742.22 | 176742.33 | 0.1808 | 0.1306 |
| Mercury | -4229-09-29 12:14 J | 177052.93 | 177053.01 | 177053.10 | 0.1713 | 0.1132 |
| Mercury | -4221-03-16 17:02 J | 179778.16 | 179778.21 | 179778.27 | 0.1743 | 0.1480 |
| Mercury | -4220-04-14 12:14 J | 180171.84 | 180172.01 | 180172.18 | 0.1801 | 0.0143 |
| Mercury | -4219-02-19 23:02 J | 180483.36 | 180483.46 | 180483.57 | 0.1718 | 0.0646 |
| Venus | -4215-05-25 20:38 J | 182039.26 | 182039.36 | 182039.47 | 0.1611 | 0.1266 |
| Venus | -4213-03-25 04:48 J | 182708.54 | 182708.70 | 182708.86 | 0.1609 | 0.0473 |
| Mercury | -4211-09-04 07:40 J | 183601.68 | 183601.82 | 183601.96 | 0.1793 | 0.0988 |
| Mercury | -4210-07-13 09:50 J | 183913.79 | 183913.91 | 183914.02 | 0.1725 | 0.0157 |
| Mercury | -4201-12-02 20:24 J | 187344.24 | 187344.35 | 187344.46 | 0.1731 | 0.0363 |
| Mercury | -4199-11-08 01:26 J | 188049.54 | 188049.56 | 188049.58 | 0.1707 | 0.1664 |
| Mercury | -4191-04-25 06:57 J | 190774.69 | 190774.79 | 190774.88 | 0.1737 | 0.0886 |

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|---------|---------------------|-----------|-----------|-----------|--------|----------|
| Mercury | -4190-05-24 17:45 J | 191169.14 | 191169.24 | 191169.35 | 0.1808 | 0.1403 |
| Mercury | -4189-03-30 12:14 J | 191479.93 | 191480.01 | 191480.10 | 0.1713 | 0.1193 |
| Mercury | -4182-09-15 17:02 J | 194205.15 | 194205.21 | 194205.28 | 0.1743 | 0.1422 |
| Venus | -4181-03-23 18:57 J | 194395.13 | 194395.29 | 194395.46 | 0.1609 | 0.0351 |
| Mercury | -4181-10-13 12:57 J | 194598.87 | 194599.04 | 194599.21 | 0.1801 | 0.0244 |
| Venus | -4180-02-22 12:28 J | 194730.84 | 194731.02 | 194731.19 | 0.1917 | 0.0256 |
| Mercury | -4180-08-20 23:02 J | 194910.36 | 194910.46 | 194910.57 | 0.1718 | 0.0700 |
| Earth | -4180-10-26 14:52 J | 194976.93 | 194977.12 | 194977.30 | 0.1647 | 0.0084 |
| Moon | -4180-10-26 20:52 J | 194977.18 | 194977.37 | 194977.56 | 0.1646 | 0.0050 * |
| Venus | -4179-01-22 03:21 J | 195064.56 | 195064.64 | 195064.73 | 0.1609 | 0.1382 |
| Mercury | -4171-03-05 08:38 J | 198028.71 | 198028.86 | 198029.00 | 0.1793 | 0.0879 |
| Mercury | -4170-01-11 09:50 J | 198340.79 | 198340.91 | 198341.02 | 0.1724 | 0.0209 |
| Mercury | -4161-06-02 20:24 J | 201771.23 | 201771.35 | 201771.46 | 0.1730 | 0.0312 |
| Mercury | -4152-10-24 06:43 J | 205201.68 | 205201.78 | 205201.88 | 0.1737 | 0.0833 |
| Mercury | -4151-11-22 18:43 J | 205596.19 | 205596.28 | 205596.37 | 0.1809 | 0.1517 |
| Mercury | -4150-09-29 12:14 J | 205906.93 | 205907.01 | 205907.09 | 0.1713 | 0.1240 |
| Venus | -4149-03-22 09:35 J | 206081.79 | 206081.90 | 206082.02 | 0.1611 | 0.1183 |
| Venus | -4148-02-22 17:45 J | 206419.16 | 206419.24 | 206419.31 | 0.1915 | 0.1729 |
| Venus | -4147-01-20 17:45 J | 206751.08 | 206751.24 | 206751.41 | 0.1609 | 0.0560 |
| Mercury | -4142-03-16 17:16 J | 208632.15 | 208632.22 | 208632.29 | 0.1743 | 0.1359 |
| Mercury | -4141-04-13 13:55 J | 209025.91 | 209026.08 | 209026.25 | 0.1801 | 0.0353 |
| Mercury | -4140-02-18 23:02 J | 209337.36 | 209337.46 | 209337.56 | 0.1718 | 0.0756 |
| Mercury | -4132-09-03 09:07 J | 212455.73 | 212455.88 | 212456.03 | 0.1794 | 0.0787 |
| Mercury | -4131-07-12 09:50 J | 212767.79 | 212767.91 | 212768.02 | 0.1724 | 0.0263 |
| Mercury | -4122-12-02 20:24 J | 216198.23 | 216198.35 | 216198.46 | 0.1730 | 0.0260 |
| Venus | -4115-01-19 08:24 J | 218437.68 | 218437.85 | 218438.02 | 0.1609 | 0.0270 |
| Venus | -4115-12-20 13:26 J | 218772.89 | 218773.06 | 218773.23 | 0.1917 | 0.0623 |
| Venus | -4114-11-19 16:33 J | 219107.12 | 219107.19 | 219107.26 | 0.1609 | 0.1466 |
| Mercury | -4112-04-24 06:43 J | 219628.68 | 219628.78 | 219628.89 | 0.1736 | 0.0774 |
| Mercury | -4111-05-23 19:55 J | 220023.26 | 220023.33 | 220023.40 | 0.1809 | 0.1637 |

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|---------|---------------------|-----------|-----------|-----------|--------|----------|
| Mercury | -4110-03-30 12:14 J | 220333.94 | 220334.01 | 220334.08 | 0.1712 | 0.1297 |
| Mercury | -4103-09-14 17:02 J | 223059.14 | 223059.21 | 223059.29 | 0.1743 | 0.1307 |
| Mercury | -4102-10-13 14:38 J | 223452.95 | 223453.11 | 223453.28 | 0.1801 | 0.0457 |
| Mercury | -4101-08-19 23:02 J | 223764.36 | 223764.46 | 223764.56 | 0.1718 | 0.0810 |
| Earth | -4101-10-28 16:48 J | 223834.08 | 223834.20 | 223834.32 | 0.1644 | 0.1273 |
| Moon | -4101-10-28 19:40 J | 223834.24 | 223834.32 | 223834.40 | 0.1644 | 0.1440 * |
| Mercury | -4092-03-04 10:04 J | 226882.77 | 226882.92 | 226883.08 | 0.1794 | 0.0674 |
| Mercury | -4091-01-10 09:35 J | 227194.79 | 227194.90 | 227195.02 | 0.1724 | 0.0317 |
| Venus | -4083-01-17 22:48 J | 230124.32 | 230124.45 | 230124.57 | 0.1610 | 0.1099 |
| Mercury | -4083-07-25 06:00 J | 230312.73 | 230312.75 | 230312.76 | 0.1786 | 0.1771 |
| Venus | -4083-12-20 18:43 J | 230461.16 | 230461.28 | 230461.41 | 0.1916 | 0.1366 |
| Mercury | -4082-06-02 20:24 J | 230625.23 | 230625.35 | 230625.46 | 0.1730 | 0.0199 |
| Venus | -4082-11-18 07:11 J | 230793.64 | 230793.80 | 230793.96 | 0.1608 | 0.0641 |
| Mercury | -4073-10-23 06:43 J | 234055.68 | 234055.78 | 234055.89 | 0.1736 | 0.0716 |
| Mercury | -4072-11-21 20:24 J | 234450.30 | 234450.35 | 234450.40 | 0.1809 | 0.1726 |
| Mercury | -4071-09-28 12:14 J | 234760.94 | 234761.01 | 234761.08 | 0.1712 | 0.1353 |
| Mercury | -4063-03-15 17:02 J | 237486.13 | 237486.21 | 237486.29 | 0.1743 | 0.1248 |
| Mercury | -4062-04-13 15:35 J | 237879.99 | 237880.15 | 237880.31 | 0.1802 | 0.0571 |
| Mercury | -4061-02-18 23:02 J | 238191.36 | 238191.46 | 238191.56 | 0.1718 | 0.0866 |
| Earth | -4060-04-27 12:14 J | 238624.81 | 238625.01 | 238625.21 | 0.1878 | 0.0333 |
| Moon | -4060-04-27 21:35 J | 238625.21 | 238625.40 | 238625.59 | 0.1878 | 0.0704 * |
| Mercury | -4053-09-02 11:02 J | 241309.80 | 241309.96 | 241310.12 | 0.1794 | 0.0567 |
| Mercury | -4052-07-11 09:35 J | 241621.79 | 241621.90 | 241622.01 | 0.1724 | 0.0369 |
| Venus | -4050-11-16 21:21 J | 242480.22 | 242480.39 | 242480.56 | 0.1609 | 0.0185 |
| Venus | -4049-10-16 14:52 J | 242814.97 | 242815.12 | 242815.27 | 0.1918 | 0.0985 |
| Venus | -4048-09-16 05:45 J | 243149.70 | 243149.74 | 243149.79 | 0.1609 | 0.1552 |
| Mercury | -4043-01-23 06:57 J | 244739.73 | 244739.79 | 244739.84 | 0.1787 | 0.1663 |
| Mercury | -4043-12-01 20:24 J | 245052.23 | 245052.35 | 245052.46 | 0.1730 | 0.0150 |
| Mercury | -4033-04-23 06:43 J | 248482.67 | 248482.78 | 248482.89 | 0.1736 | 0.0660 |
| Mercury | -4031-03-29 12:14 J | 249187.95 | 249188.01 | 249188.07 | 0.1712 | 0.1405 |

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|---------|---------------------|-----------|-----------|-----------|--------|--------|
| Mercury | -4024-09-13 17:02 J | 251913.13 | 251913.21 | 251913.30 | 0.1743 | 0.1190 |
| Mercury | -4023-10-12 16:19 J | 252307.02 | 252307.18 | 252307.34 | 0.1802 | 0.0668 |
| Mercury | -4022-08-19 23:02 J | 252618.36 | 252618.46 | 252618.55 | 0.1718 | 0.0921 |
| Venus | -4018-11-15 12:00 J | 254166.87 | 254167.00 | 254167.13 | 0.1610 | 0.1017 |
| Venus | -4017-10-16 20:24 J | 254503.20 | 254503.35 | 254503.50 | 0.1917 | 0.1013 |
| Venus | -4016-09-14 20:09 J | 254836.19 | 254836.34 | 254836.49 | 0.1608 | 0.0730 |
| Mercury | -4014-02-04 03:21 J | 255343.63 | 255343.64 | 255343.65 | 0.1749 | 0.1730 |
| Mercury | -4013-03-03 11:45 J | 255736.82 | 255736.99 | 255737.15 | 0.1794 | 0.0468 |
| Mercury | -4012-01-09 09:50 J | 256048.80 | 256048.91 | 256049.02 | 0.1724 | 0.0432 |
| Mercury | -4004-07-24 07:55 J | 259166.75 | 259166.83 | 259166.91 | 0.1787 | 0.1553 |
| Mercury | -4003-06-01 20:09 J | 259479.23 | 259479.34 | 259479.46 | 0.1730 | 0.0104 |

4TH MILLENNIUM BCE

This is a list of transits visible from Mars in the 4th millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|---|-----------|-----------|-----------|--------|--------|---|
| Mercury | -3994-10-23 06:43 J | | 262909.67 | 262909.78 | 262909.89 | 0.1736 | 0.0603 | |
| Mercury | -3992-09-27 12:14 J | | 263614.95 | 263615.01 | 263615.06 | 0.1712 | 0.1459 | |
| Mercury | -3984-03-14 17:02 J | | 266340.13 | 266340.21 | 266340.30 | 0.1742 | 0.1134 | |
| Venus | -3984-09-13 10:33 J | | 266522.77 | 266522.94 | 266523.11 | 0.1609 | 0.0102 | |
| Mercury | -3983-04-12 17:16 J | | 266734.07 | 266734.22 | 266734.38 | 0.1802 | 0.0784 | |
| Venus | -3983-08-13 15:50 J | | 266857.04 | 266857.16 | 266857.29 | 0.1918 | 0.1356 | |
| Mercury | -3982-02-17 23:02 J | | 267045.36 | 267045.46 | 267045.55 | 0.1718 | 0.0977 | |
| Mercury | -3975-08-05 03:21 J | | 269770.61 | 269770.64 | 269770.67 | 0.1749 | 0.1673 | |

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|---------|---------------------|-----------|-----------|-----------|--------|----------|
| Moon | -3975-10-25 12:00 J | 269851.83 | 269852.00 | 269852.18 | 0.1653 | 0.0630 |
| Earth | -3975-10-25 18:28 J | 269852.10 | 269852.27 | 269852.45 | 0.1653 | 0.0608 * |
| Mercury | -3974-09-02 12:43 J | 270163.86 | 270164.03 | 270164.20 | 0.1794 | 0.0355 |
| Mercury | -3973-07-10 09:36 J | 270475.79 | 270475.90 | 270476.01 | 0.1724 | 0.0479 |
| Mercury | -3964-01-22 08:23 J | 273593.75 | 273593.85 | 273593.94 | 0.1787 | 0.1466 |
| Mercury | -3964-11-30 20:23 J | 273906.23 | 273906.35 | 273906.46 | 0.1730 | 0.0064 |
| Mercury | -3954-04-23 06:43 J | 277336.67 | 277336.78 | 277336.89 | 0.1736 | 0.0544 |
| Mercury | -3952-03-28 12:14 J | 278041.96 | 278042.01 | 278042.06 | 0.1712 | 0.1517 |
| Venus | -3952-09-12 00:57 J | 278209.40 | 278209.54 | 278209.68 | 0.1609 | 0.0933 |
| Venus | -3951-08-13 21:36 J | 278545.23 | 278545.40 | 278545.56 | 0.1917 | 0.0645 |
| Venus | -3950-07-13 09:07 J | 278878.73 | 278878.88 | 278879.03 | 0.1608 | 0.0815 |
| Mercury | -3945-09-12 17:02 J | 280767.12 | 280767.21 | 280767.30 | 0.1742 | 0.1076 |
| Mercury | -3944-10-11 18:14 J | 281161.11 | 281161.26 | 281161.41 | 0.1802 | 0.0892 |
| Mercury | -3943-08-18 23:02 J | 281472.36 | 281472.46 | 281472.55 | 0.1718 | 0.1032 |
| Mercury | -3935-02-03 03:21 J | 284197.60 | 284197.64 | 284197.68 | 0.1749 | 0.1614 |
| Mercury | -3934-03-03 13:40 J | 284590.90 | 284591.07 | 284591.23 | 0.1794 | 0.0251 |
| Mercury | -3933-01-09 09:36 J | 284902.79 | 284902.90 | 284903.01 | 0.1724 | 0.0537 |
| Mercury | -3925-07-23 09:21 J | 288020.78 | 288020.89 | 288021.00 | 0.1787 | 0.1351 |
| Mercury | -3924-05-31 20:09 J | 288333.23 | 288333.34 | 288333.46 | 0.1730 | 0.0052 |
| Venus | -3918-07-11 23:31 J | 290565.30 | 290565.48 | 290565.65 | 0.1608 | 0.0046 |
| Venus | -3917-06-09 16:48 J | 290899.13 | 290899.20 | 290899.27 | 0.1918 | 0.1736 |
| Mercury | -3915-10-22 06:43 J | 291763.67 | 291763.78 | 291763.89 | 0.1736 | 0.0490 |
| Mercury | -3913-09-26 12:00 J | 292468.96 | 292469.00 | 292469.05 | 0.1712 | 0.1568 |
| Mercury | -3905-03-13 17:16 J | 295194.12 | 295194.22 | 295194.31 | 0.1742 | 0.1014 |
| Mercury | -3904-04-11 18:57 J | 295588.15 | 295588.29 | 295588.43 | 0.1802 | 0.0996 |
| Mercury | -3903-02-16 22:48 J | 295899.37 | 295899.45 | 295899.54 | 0.1718 | 0.1088 |
| Mercury | -3896-08-04 03:21 J | 298624.59 | 298624.64 | 298624.69 | 0.1748 | 0.1558 |
| Moon | -3896-10-27 17:02 J | 298709.02 | 298709.21 | 298709.40 | 0.1650 | 0.0430 |
| Earth | -3896-10-27 20:23 J | 298709.17 | 298709.35 | 298709.52 | 0.1650 | 0.0598 * |
| Mercury | -3895-09-01 14:09 J | 299017.92 | 299018.09 | 299018.26 | 0.1795 | 0.0155 |

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| Mercury | -3894-07-10 09:36 J | 299329.80 | 299329.90 | 299330.01 | 0.1723 | 0.0594 |
| Venus | -3886-07-10 13:55 J | 302251.93 | 302252.08 | 302252.22 | 0.1609 | 0.0843 |
| Mercury | -3885-01-22 10:19 J | 302447.81 | 302447.93 | 302448.05 | 0.1787 | 0.1246 |
| Venus | -3885-06-09 23:02 J | 302587.29 | 302587.46 | 302587.64 | 0.1918 | 0.0286 |
| Mercury | -3885-11-29 20:09 J | 302760.23 | 302760.34 | 302760.46 | 0.1730 | 0.0090 |
| Venus | -3884-05-09 22:19 J | 302921.28 | 302921.43 | 302921.57 | 0.1608 | 0.0904 |
| Mercury | -3875-04-22 06:43 J | 306190.67 | 306190.78 | 306190.89 | 0.1736 | 0.0430 |
| Mercury | -3873-03-27 12:00 J | 306895.97 | 306896.00 | 306896.04 | 0.1712 | 0.1623 |
| Mercury | -3866-09-12 17:02 J | 309621.12 | 309621.21 | 309621.31 | 0.1742 | 0.0963 |
| Mercury | -3865-10-10 19:55 J | 310015.19 | 310015.33 | 310015.46 | 0.1802 | 0.1103 |
| Mercury | -3864-08-17 22:48 J | 310326.37 | 310326.45 | 310326.54 | 0.1717 | 0.1140 |
| Mercury | -3856-02-02 03:21 J | 313051.58 | 313051.64 | 313051.70 | 0.1749 | 0.1498 |
| Mercury | -3855-03-02 15:21 J | 313444.97 | 313445.14 | 313445.31 | 0.1795 | 0.0052 |
| Mercury | -3854-01-08 09:36 J | 313756.79 | 313756.90 | 313757.01 | 0.1724 | 0.0645 |
| Venus | -3852-05-08 12:43 J | 314607.86 | 314608.03 | 314608.20 | 0.1608 | 0.0072 |
| Mercury | -3846-07-23 10:48 J | 316874.82 | 316874.95 | 316875.08 | 0.1787 | 0.1151 |
| Mercury | -3845-05-30 20:09 J | 317187.23 | 317187.34 | 317187.46 | 0.1730 | 0.0160 |
| Mercury | -3836-10-21 06:43 J | 320617.67 | 320617.78 | 320617.89 | 0.1736 | 0.0375 |
| Mercury | -3834-09-26 12:00 J | 321322.99 | 321323.00 | 321323.02 | 0.1712 | 0.1679 |
| Mercury | -3826-03-13 17:02 J | 324048.11 | 324048.21 | 324048.31 | 0.1742 | 0.0903 |
| Mercury | -3825-04-10 20:52 J | 324442.25 | 324442.37 | 324442.49 | 0.1803 | 0.1219 |
| Mercury | -3824-02-15 22:48 J | 324753.37 | 324753.45 | 324753.53 | 0.1717 | 0.1194 |
| Venus | -3820-05-07 03:07 J | 326294.48 | 326294.63 | 326294.79 | 0.1608 | 0.0762 |
| Venus | -3819-04-07 00:14 J | 326629.33 | 326629.51 | 326629.68 | 0.1918 | 0.0100 |
| Venus | -3818-03-07 11:16 J | 326963.84 | 326963.97 | 326964.11 | 0.1608 | 0.0989 |
| Mercury | -3817-08-03 03:21 J | 327478.58 | 327478.64 | 327478.70 | 0.1748 | 0.1442 |
| Mercury | -3816-08-31 16:04 J | 327872.00 | 327872.17 | 327872.34 | 0.1795 | 0.0070 |
| Mercury | -3815-07-09 09:36 J | 328183.80 | 328183.90 | 328184.00 | 0.1723 | 0.0702 |
| Mercury | -3806-01-21 11:45 J | 331301.85 | 331301.99 | 331302.13 | 0.1788 | 0.1042 |
| Mercury | -3806-11-29 20:09 J | 331614.23 | 331614.34 | 331614.45 | 0.1729 | 0.0197 |

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|---------|---------------------|-----------|-----------|-----------|--------|----------|
| Mercury | -3796-04-21 06:43 J | 335044.67 | 335044.78 | 335044.89 | 0.1736 | 0.0320 |
| Venus | -3788-05-05 17:31 J | 337981.21 | 337981.23 | 337981.25 | 0.1609 | 0.1591 |
| Mercury | -3787-09-11 17:02 J | 338475.11 | 338475.21 | 338475.31 | 0.1742 | 0.0845 |
| Venus | -3786-03-06 01:40 J | 338650.40 | 338650.57 | 338650.74 | 0.1608 | 0.0159 |
| Mercury | -3786-10-10 21:36 J | 338869.28 | 338869.40 | 338869.51 | 0.1803 | 0.1315 |
| Mercury | -3785-08-16 22:48 J | 339180.37 | 339180.45 | 339180.53 | 0.1717 | 0.1249 |
| Mercury | -3777-02-02 03:21 J | 341905.57 | 341905.64 | 341905.71 | 0.1748 | 0.1382 |
| Mercury | -3776-03-01 16:48 J | 342299.03 | 342299.20 | 342299.37 | 0.1795 | 0.0171 |
| Moon | -3776-04-26 12:14 J | 342354.78 | 342355.01 | 342355.23 | 0.1871 | 0.0150 |
| Earth | -3776-04-26 17:45 J | 342355.04 | 342355.24 | 342355.44 | 0.1871 | 0.0353 * |
| Mercury | -3775-01-07 09:36 J | 342610.80 | 342610.90 | 342611.00 | 0.1723 | 0.0761 |
| Earth | -3770-10-24 20:09 J | 344727.23 | 344727.34 | 344727.44 | 0.1660 | 0.1353 |
| Moon | -3770-10-25 02:52 J | 344727.51 | 344727.62 | 344727.74 | 0.1659 | 0.1306 |
| Mercury | -3767-07-22 12:43 J | 345728.89 | 345729.03 | 345729.18 | 0.1788 | 0.0931 |
| Mercury | -3766-05-30 20:09 J | 346041.23 | 346041.34 | 346041.45 | 0.1729 | 0.0252 |
| Mercury | -3757-10-20 06:43 J | 349471.66 | 349471.78 | 349471.89 | 0.1735 | 0.0266 |
| Venus | -3754-03-04 15:50 J | 350337.01 | 350337.16 | 350337.32 | 0.1608 | 0.0671 |
| Venus | -3753-02-02 01:55 J | 350671.41 | 350671.58 | 350671.75 | 0.1918 | 0.0448 |
| Venus | -3752-01-02 00:28 J | 351006.39 | 351006.52 | 351006.64 | 0.1608 | 0.1077 |
| Mercury | -3747-03-12 17:02 J | 352902.11 | 352902.21 | 352902.31 | 0.1742 | 0.0789 |
| Mercury | -3746-04-10 22:33 J | 353296.34 | 353296.44 | 353296.54 | 0.1803 | 0.1433 |
| Mercury | -3745-02-15 22:48 J | 353607.38 | 353607.45 | 353607.52 | 0.1717 | 0.1304 |
| Mercury | -3738-08-03 03:21 J | 356332.57 | 356332.64 | 356332.71 | 0.1748 | 0.1325 |
| Mercury | -3737-08-30 17:45 J | 356726.07 | 356726.24 | 356726.41 | 0.1795 | 0.0280 |
| Mercury | -3736-07-08 09:36 J | 357037.80 | 357037.90 | 357038.00 | 0.1723 | 0.0812 |
| Mercury | -3727-01-20 13:11 J | 360155.90 | 360156.05 | 360156.20 | 0.1788 | 0.0845 |
| Mercury | -3727-11-28 20:09 J | 360468.23 | 360468.34 | 360468.45 | 0.1729 | 0.0311 |
| Venus | -3722-03-03 06:28 J | 362023.71 | 362023.77 | 362023.83 | 0.1609 | 0.1507 |
| Venus | -3721-02-02 07:26 J | 362359.71 | 362359.81 | 362359.91 | 0.1918 | 0.1561 |
| Venus | -3721-12-31 14:52 J | 362692.95 | 362693.12 | 362693.29 | 0.1608 | 0.0246 |

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|---------|---------------------|-----------|-----------|-----------|--------|----------|
| Mercury | -3717-04-20 06:43 J | 363898.66 | 363898.78 | 363898.89 | 0.1735 | 0.0204 |
| Mercury | -3708-09-10 17:02 J | 367329.11 | 367329.21 | 367329.32 | 0.1742 | 0.0731 |
| Mercury | -3707-10-09 23:31 J | 367723.39 | 367723.48 | 367723.56 | 0.1803 | 0.1541 |
| Mercury | -3706-08-16 22:48 J | 368034.38 | 368034.45 | 368034.52 | 0.1717 | 0.1357 |
| Mercury | -3698-02-01 03:21 J | 370759.56 | 370759.64 | 370759.72 | 0.1748 | 0.1267 |
| Mercury | -3697-02-29 18:43 J | 371153.11 | 371153.28 | 371153.44 | 0.1796 | 0.0388 |
| Mercury | -3696-01-06 09:36 J | 371464.80 | 371464.90 | 371465.00 | 0.1723 | 0.0869 |
| Earth | -3691-10-26 23:31 J | 373584.30 | 373584.48 | 373584.67 | 0.1656 | 0.0105 |
| Moon | -3691-10-27 02:23 J | 373584.43 | 373584.60 | 373584.78 | 0.1656 | 0.0038 * |
| Venus | -3689-12-30 05:16 J | 374379.56 | 374379.72 | 374379.88 | 0.1608 | 0.0589 |
| Mercury | -3688-07-21 14:23 J | 374582.94 | 374583.10 | 374583.25 | 0.1788 | 0.0726 |
| Venus | -3688-11-29 03:07 J | 374713.47 | 374713.63 | 374713.79 | 0.1918 | 0.0823 |
| Mercury | -3687-05-29 20:09 J | 374895.23 | 374895.34 | 374895.45 | 0.1729 | 0.0365 |
| Venus | -3687-10-30 13:40 J | 375048.95 | 375049.07 | 375049.19 | 0.1609 | 0.1161 |
| Mercury | -3678-10-20 06:43 J | 378325.66 | 378325.78 | 378325.89 | 0.1736 | 0.0159 |
| Mercury | -3668-03-11 17:02 J | 381756.11 | 381756.21 | 381756.32 | 0.1741 | 0.0673 |
| Mercury | -3667-04-10 00:14 J | 382150.44 | 382150.51 | 382150.58 | 0.1803 | 0.1641 |
| Mercury | -3666-02-14 22:48 J | 382461.39 | 382461.45 | 382461.51 | 0.1717 | 0.1414 |
| Mercury | -3659-08-02 03:21 J | 385186.56 | 385186.64 | 385186.72 | 0.1748 | 0.1211 |
| Mercury | -3658-08-30 19:26 J | 385580.14 | 385580.31 | 385580.47 | 0.1796 | 0.0488 |
| Mercury | -3657-07-07 09:36 J | 385891.80 | 385891.90 | 385891.99 | 0.1723 | 0.0925 |
| Venus | -3657-12-28 19:40 J | 386066.24 | 386066.32 | 386066.39 | 0.1608 | 0.1422 |
| Venus | -3656-11-29 08:38 J | 386401.72 | 386401.86 | 386402.00 | 0.1918 | 0.1191 |
| Venus | -3655-10-29 04:19 J | 386735.51 | 386735.68 | 386735.84 | 0.1608 | 0.0329 |
| Mercury | -3648-01-19 15:07 J | 389009.98 | 389010.13 | 389010.29 | 0.1788 | 0.0622 |
| Mercury | -3648-11-27 20:09 J | 389322.23 | 389322.34 | 389322.45 | 0.1729 | 0.0421 |
| Mercury | -3639-06-11 11:16 J | 392439.92 | 392439.97 | 392440.02 | 0.1781 | 0.1697 |
| Mercury | -3638-04-20 06:43 J | 392752.66 | 392752.78 | 392752.89 | 0.1735 | 0.0101 |
| Mercury | -3629-09-09 17:02 J | 396183.10 | 396183.21 | 396183.32 | 0.1742 | 0.0619 |
| Mercury | -3628-10-09 00:57 J | 396577.51 | 396577.54 | 396577.58 | 0.1803 | 0.1751 |

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| Mercury | -3627-08-15 22:48 J | 396888.39 | 396888.45 | 396888.50 | 0.1717 | 0.1466 |
| Venus | -3623-10-27 18:28 J | 398422.10 | 398422.27 | 398422.43 | 0.1608 | 0.0506 |
| Venus | -3622-09-26 04:19 J | 398755.55 | 398755.68 | 398755.82 | 0.1918 | 0.1192 |
| Venus | -3621-08-27 02:38 J | 399091.51 | 399091.61 | 399091.72 | 0.1609 | 0.1250 |
| Mercury | -3619-01-31 03:21 J | 399613.56 | 399613.64 | 399613.73 | 0.1748 | 0.1149 |
| Mercury | -3618-02-28 20:23 J | 400007.19 | 400007.35 | 400007.51 | 0.1796 | 0.0600 |
| Mercury | -3617-01-06 09:36 J | 400318.80 | 400318.90 | 400318.99 | 0.1723 | 0.0980 |
| Moon | -3612-10-28 21:07 J | 402441.24 | 402441.38 | 402441.53 | 0.1654 | 0.0952 |
| Earth | -3612-10-29 01:55 J | 402441.44 | 402441.58 | 402441.71 | 0.1653 | 0.1121 * |
| Mercury | -3610-06-23 13:26 J | 403044.04 | 403044.06 | 403044.09 | 0.1754 | 0.1698 |
| Mercury | -3609-07-20 15:50 J | 403437.00 | 403437.16 | 403437.32 | 0.1788 | 0.0528 |
| Mercury | -3608-05-28 20:09 J | 403749.23 | 403749.34 | 403749.45 | 0.1729 | 0.0480 |
| Mercury | -3600-12-10 12:00 J | 406866.93 | 406867.00 | 406867.07 | 0.1781 | 0.1599 |
| Mercury | -3599-10-19 06:43 J | 407179.66 | 407179.78 | 407179.89 | 0.1735 | 0.0075 |
| Venus | -3591-10-26 08:52 J | 410108.78 | 410108.87 | 410108.96 | 0.1608 | 0.1340 |
| Venus | -3590-09-26 10:04 J | 410443.76 | 410443.92 | 410444.08 | 0.1919 | 0.0826 |
| Mercury | -3589-03-10 17:02 J | 410610.10 | 410610.21 | 410610.32 | 0.1741 | 0.0559 |
| Venus | -3589-08-25 17:02 J | 410778.04 | 410778.21 | 410778.38 | 0.1608 | 0.0418 |
| Mercury | -3587-02-13 22:48 J | 411315.40 | 411315.45 | 411315.50 | 0.1717 | 0.1522 |
| Mercury | -3580-08-01 03:21 J | 414040.55 | 414040.64 | 414040.73 | 0.1748 | 0.1095 |
| Mercury | -3579-08-29 21:07 J | 414434.23 | 414434.38 | 414434.54 | 0.1796 | 0.0706 |
| Mercury | -3578-07-07 09:21 J | 414745.80 | 414745.89 | 414745.99 | 0.1723 | 0.1035 |
| Mercury | -3571-12-22 13:26 J | 417471.03 | 417471.06 | 417471.10 | 0.1754 | 0.1642 |
| Mercury | -3569-01-19 16:48 J | 417864.03 | 417864.20 | 417864.36 | 0.1789 | 0.0419 |
| Mercury | -3569-11-26 20:09 J | 418176.23 | 418176.34 | 418176.44 | 0.1729 | 0.0534 |
| Mercury | -3560-06-10 12:57 J | 421293.95 | 421294.04 | 421294.13 | 0.1781 | 0.1497 |
| Mercury | -3559-04-19 06:28 J | 421606.66 | 421606.77 | 421606.89 | 0.1735 | 0.0071 |
| Venus | -3557-08-24 07:26 J | 422464.64 | 422464.81 | 422464.98 | 0.1608 | 0.0419 |
| Venus | -3556-07-23 05:31 J | 422797.63 | 422797.73 | 422797.83 | 0.1918 | 0.1566 |
| Venus | -3555-06-24 15:36 J | 423134.06 | 423134.15 | 423134.25 | 0.1609 | 0.1341 |

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| Mercury | -3550-09-09 17:02 J | 425037.10 | 425037.21 | 425037.32 | 0.1741 | 0.0501 |
| Mercury | -3548-08-14 22:48 J | 425742.40 | 425742.45 | 425742.49 | 0.1717 | 0.1577 |
| Mercury | -3540-01-30 03:21 J | 428467.55 | 428467.64 | 428467.73 | 0.1747 | 0.1037 |
| Mercury | -3539-02-27 21:50 J | 428861.26 | 428861.41 | 428861.57 | 0.1796 | 0.0808 |
| Mercury | -3538-01-05 09:36 J | 429172.81 | 429172.90 | 429172.98 | 0.1722 | 0.1092 |
| Mercury | -3531-06-22 13:26 J | 431898.02 | 431898.06 | 431898.11 | 0.1754 | 0.1584 |
| Mercury | -3530-07-20 17:45 J | 432291.07 | 432291.24 | 432291.41 | 0.1789 | 0.0307 |
| Mercury | -3529-05-27 19:55 J | 432603.23 | 432603.33 | 432603.44 | 0.1729 | 0.0590 |
| Venus | -3525-08-22 21:50 J | 434151.30 | 434151.41 | 434151.52 | 0.1608 | 0.1253 |
| Venus | -3524-07-23 11:02 J | 434485.79 | 434485.96 | 434486.13 | 0.1919 | 0.0448 |
| Venus | -3523-06-23 06:14 J | 434820.59 | 434820.76 | 434820.92 | 0.1608 | 0.0504 |
| Mercury | -3521-12-09 13:40 J | 435720.97 | 435721.07 | 435721.17 | 0.1781 | 0.1396 |
| Mercury | -3520-10-18 06:28 J | 436033.66 | 436033.77 | 436033.89 | 0.1735 | 0.0101 |
| Mercury | -3510-03-10 17:02 J | 439464.10 | 439464.21 | 439464.32 | 0.1741 | 0.0446 |
| Mercury | -3508-02-12 22:33 J | 440169.41 | 440169.44 | 440169.48 | 0.1716 | 0.1630 |
| Mercury | -3501-07-31 03:21 J | 442894.55 | 442894.64 | 442894.73 | 0.1748 | 0.0979 |
| Mercury | -3500-08-28 22:48 J | 443288.31 | 443288.45 | 443288.60 | 0.1796 | 0.0916 |
| Mercury | -3499-07-06 09:21 J | 443599.81 | 443599.89 | 443599.98 | 0.1723 | 0.1140 |
| Moon | -3492-04-25 21:07 J | 446085.21 | 446085.38 | 446085.55 | 0.1864 | 0.0762 |
| Earth | -3492-04-26 00:00 J | 446085.33 | 446085.50 | 446085.67 | 0.1864 | 0.0982 * |
| Mercury | -3492-12-21 13:40 J | 446325.01 | 446325.07 | 446325.12 | 0.1754 | 0.1523 |
| Venus | -3491-06-21 20:23 J | 446507.18 | 446507.35 | 446507.52 | 0.1607 | 0.0332 |
| Mercury | -3490-01-18 18:14 J | 446718.09 | 446718.26 | 446718.43 | 0.1789 | 0.0221 |
| Mercury | -3490-11-26 20:09 J | 447030.23 | 447030.34 | 447030.44 | 0.1729 | 0.0648 |
| Venus | -3489-04-21 04:48 J | 447176.63 | 447176.70 | 447176.78 | 0.1609 | 0.1429 |
| Moon | -3486-10-25 22:33 J | 448459.28 | 448459.44 | 448459.61 | 0.1664 | 0.0919 |
| Earth | -3486-10-26 00:28 J | 448459.36 | 448459.52 | 448459.68 | 0.1664 | 0.0855 * |
| Mercury | -3481-06-09 14:38 J | 450147.99 | 450148.11 | 450148.23 | 0.1782 | 0.1286 |
| Mercury | -3480-04-18 06:28 J | 450460.66 | 450460.77 | 450460.89 | 0.1735 | 0.0149 |
| Mercury | -3471-09-08 17:02 J | 453891.10 | 453891.21 | 453891.32 | 0.1741 | 0.0390 |

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|---------|---------------------|-----------|-----------|-----------|--------|----------|
| Mercury | -3469-08-13 22:33 J | 454596.42 | 454596.44 | 454596.46 | 0.1716 | 0.1681 |
| Mercury | -3461-01-30 03:21 J | 457321.54 | 457321.64 | 457321.74 | 0.1747 | 0.0922 |
| Mercury | -3460-02-26 23:45 J | 457715.35 | 457715.49 | 457715.63 | 0.1797 | 0.1023 |
| Mercury | -3459-01-04 09:21 J | 458026.81 | 458026.89 | 458026.97 | 0.1722 | 0.1198 |
| Venus | -3459-06-20 10:48 J | 458193.83 | 458193.95 | 458194.07 | 0.1608 | 0.1166 |
| Venus | -3458-05-20 12:28 J | 458527.84 | 458528.02 | 458528.20 | 0.1919 | 0.0086 |
| Venus | -3457-04-19 19:11 J | 458863.14 | 458863.30 | 458863.46 | 0.1608 | 0.0596 |
| Mercury | -3452-06-21 13:26 J | 460752.00 | 460752.06 | 460752.12 | 0.1754 | 0.1469 |
| Mercury | -3451-07-19 19:26 J | 461145.14 | 461145.31 | 461145.48 | 0.1789 | 0.0106 |
| Mercury | -3450-05-27 19:55 J | 461457.23 | 461457.33 | 461457.44 | 0.1728 | 0.0700 |
| Mercury | -3442-12-09 15:07 J | 464575.01 | 464575.13 | 464575.26 | 0.1781 | 0.1197 |
| Mercury | -3441-10-17 06:28 J | 464887.66 | 464887.77 | 464887.89 | 0.1735 | 0.0190 |
| Mercury | -3431-03-09 17:02 J | 468318.10 | 468318.21 | 468318.32 | 0.1741 | 0.0329 |
| Venus | -3425-04-18 09:36 J | 470549.73 | 470549.90 | 470550.07 | 0.1608 | 0.0245 |
| Venus | -3423-02-16 17:31 J | 471219.18 | 471219.23 | 471219.29 | 0.1610 | 0.1525 |
| Mercury | -3422-07-31 03:21 J | 471748.54 | 471748.64 | 471748.74 | 0.1747 | 0.0867 |
| Mercury | -3421-08-28 00:28 J | 472142.39 | 472142.52 | 472142.65 | 0.1797 | 0.1127 |
| Mercury | -3420-07-05 09:21 J | 472453.82 | 472453.89 | 472453.97 | 0.1722 | 0.1254 |
| Moon | -3413-04-29 02:52 J | 474943.50 | 474943.62 | 474943.75 | 0.1869 | 0.1475 |
| Mercury | -3413-12-20 13:26 J | 475179.00 | 475179.06 | 475179.13 | 0.1754 | 0.1409 |
| Mercury | -3411-01-17 20:09 J | 475572.17 | 475572.34 | 475572.51 | 0.1789 | 0.0016 |
| Mercury | -3411-11-25 19:55 J | 475884.23 | 475884.33 | 475884.43 | 0.1728 | 0.0753 |
| Earth | -3407-10-28 03:50 J | 477316.48 | 477316.66 | 477316.84 | 0.1660 | 0.0407 |
| Moon | -3407-10-28 09:36 J | 477316.71 | 477316.90 | 477317.08 | 0.1660 | 0.0569 * |
| Mercury | -3402-06-09 16:04 J | 479002.04 | 479002.17 | 479002.31 | 0.1782 | 0.1087 |
| Mercury | -3401-04-17 06:28 J | 479314.66 | 479314.77 | 479314.89 | 0.1734 | 0.0249 |
| Venus | -3393-04-17 00:00 J | 482236.37 | 482236.50 | 482236.63 | 0.1608 | 0.1081 |
| Venus | -3392-03-16 13:26 J | 482569.89 | 482570.06 | 482570.24 | 0.1918 | 0.0301 |
| Mercury | -3392-09-07 17:02 J | 482745.09 | 482745.21 | 482745.32 | 0.1741 | 0.0285 |
| Venus | -3391-02-15 08:09 J | 482905.69 | 482905.84 | 482906.00 | 0.1609 | 0.0683 |

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|---------|---------------------|-----------|-----------|-----------|--------|--------|
| Mercury | -3382-01-29 03:21 J | 486175.54 | 486175.64 | 486175.74 | 0.1747 | 0.0804 |
| Mercury | -3381-02-27 01:26 J | 486569.44 | 486569.56 | 486569.68 | 0.1797 | 0.1235 |
| Mercury | -3380-01-03 09:21 J | 486880.82 | 486880.89 | 486880.96 | 0.1722 | 0.1306 |
| Mercury | -3373-06-20 13:26 J | 489605.99 | 489606.06 | 489606.14 | 0.1753 | 0.1351 |
| Mercury | -3372-07-18 20:38 J | 489999.19 | 489999.36 | 489999.53 | 0.1789 | 0.0106 |
| Mercury | -3371-05-26 19:55 J | 490311.23 | 490311.33 | 490311.43 | 0.1728 | 0.0814 |
| Mercury | -3363-12-08 17:02 J | 493429.07 | 493429.21 | 493429.35 | 0.1782 | 0.0986 |
| Mercury | -3362-10-17 06:28 J | 493741.66 | 493741.77 | 493741.88 | 0.1734 | 0.0299 |
| Venus | -3360-03-16 19:40 J | 494258.25 | 494258.32 | 494258.39 | 0.1919 | 0.1745 |
| Venus | -3359-02-13 22:33 J | 494592.27 | 494592.44 | 494592.61 | 0.1608 | 0.0157 |
| Mercury | -3352-03-08 17:02 J | 497172.09 | 497172.21 | 497172.32 | 0.1741 | 0.0219 |
| Mercury | -3343-07-30 03:21 J | 500602.53 | 500602.64 | 500602.74 | 0.1747 | 0.0754 |
| Mercury | -3342-08-28 02:09 J | 500996.48 | 500996.59 | 500996.70 | 0.1797 | 0.1340 |
| Mercury | -3341-07-04 09:21 J | 501307.82 | 501307.89 | 501307.96 | 0.1722 | 0.1360 |
| Mercury | -3334-12-20 13:26 J | 504032.99 | 504033.06 | 504033.14 | 0.1754 | 0.1295 |
| Mercury | -3332-01-16 21:36 J | 504426.24 | 504426.40 | 504426.57 | 0.1790 | 0.0211 |
| Mercury | -3332-11-24 19:55 J | 504738.23 | 504738.33 | 504738.43 | 0.1728 | 0.0862 |
| Earth | -3328-10-30 06:28 J | 506173.74 | 506173.77 | 506173.80 | 0.1657 | 0.1632 |
| Moon | -3328-10-30 12:14 J | 506173.94 | 506174.01 | 506174.08 | 0.1657 | 0.1511 |
| Venus | -3327-02-12 12:43 J | 506278.90 | 506279.03 | 506279.17 | 0.1607 | 0.0992 |
| Venus | -3326-01-11 15:07 J | 506611.96 | 506612.13 | 506612.30 | 0.1918 | 0.0663 |
| Venus | -3326-12-13 21:07 J | 506948.23 | 506948.38 | 506948.53 | 0.1609 | 0.0773 |
| Mercury | -3323-06-08 17:45 J | 507856.09 | 507856.24 | 507856.38 | 0.1782 | 0.0885 |
| Mercury | -3322-04-17 06:28 J | 508168.66 | 508168.77 | 508168.88 | 0.1735 | 0.0358 |
| Mercury | -3313-09-06 17:02 J | 511599.09 | 511599.21 | 511599.32 | 0.1740 | 0.0163 |
| Mercury | -3303-01-28 03:21 J | 515029.53 | 515029.64 | 515029.74 | 0.1747 | 0.0697 |
| Mercury | -3302-02-26 02:52 J | 515423.53 | 515423.62 | 515423.72 | 0.1798 | 0.1445 |
| Mercury | -3301-01-03 09:21 J | 515734.82 | 515734.89 | 515734.95 | 0.1722 | 0.1416 |
| Venus | -3294-01-11 20:38 J | 518300.24 | 518300.36 | 518300.48 | 0.1919 | 0.1368 |
| Mercury | -3294-06-20 13:26 J | 518459.98 | 518460.06 | 518460.14 | 0.1753 | 0.1237 |

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|---------|---------------------|-----------|-----------|-----------|--------|----------|
| Venus | -3294-12-12 11:45 J | 518634.81 | 518634.99 | 518635.16 | 0.1608 | 0.0077 |
| Mercury | -3293-07-17 22:48 J | 518853.28 | 518853.45 | 518853.61 | 0.1790 | 0.0322 |
| Mercury | -3292-05-25 19:55 J | 519165.23 | 519165.33 | 519165.43 | 0.1728 | 0.0919 |
| Mercury | -3284-12-07 18:28 J | 522283.12 | 522283.27 | 522283.42 | 0.1782 | 0.0784 |
| Mercury | -3283-10-16 06:28 J | 522595.66 | 522595.77 | 522595.88 | 0.1734 | 0.0411 |
| Earth | -3281-10-24 00:14 J | 523334.48 | 523334.51 | 523334.54 | 0.1671 | 0.1644 |
| Moon | -3281-10-24 02:09 J | 523334.54 | 523334.59 | 523334.63 | 0.1671 | 0.1605 * |
| Mercury | -3273-03-07 16:47 J | 526026.09 | 526026.20 | 526026.32 | 0.1741 | 0.0127 |
| Mercury | -3264-07-29 03:21 J | 529456.53 | 529456.64 | 529456.74 | 0.1747 | 0.0638 |
| Mercury | -3263-08-27 03:50 J | 529850.58 | 529850.66 | 529850.75 | 0.1797 | 0.1552 |
| Mercury | -3262-07-04 09:07 J | 530161.83 | 530161.88 | 530161.94 | 0.1722 | 0.1468 |
| Venus | -3262-12-11 01:55 J | 530321.44 | 530321.58 | 530321.73 | 0.1607 | 0.0910 |
| Venus | -3261-11-07 16:19 J | 530654.03 | 530654.18 | 530654.33 | 0.1918 | 0.1044 |
| Venus | -3260-10-10 10:19 J | 530990.79 | 530990.93 | 530991.08 | 0.1609 | 0.0861 |
| Mercury | -3255-12-19 13:26 J | 532886.98 | 532887.06 | 532887.15 | 0.1753 | 0.1178 |
| Mercury | -3253-01-16 23:02 J | 533280.30 | 533280.46 | 533280.63 | 0.1790 | 0.0408 |
| Mercury | -3253-11-23 19:55 J | 533592.24 | 533592.33 | 533592.42 | 0.1728 | 0.0976 |
| Mercury | -3245-05-10 23:31 J | 536317.47 | 536317.48 | 536317.50 | 0.1760 | 0.1734 |
| Mercury | -3244-06-07 19:26 J | 536710.15 | 536710.31 | 536710.47 | 0.1783 | 0.0674 |
| Mercury | -3243-04-16 06:28 J | 537022.66 | 537022.77 | 537022.88 | 0.1734 | 0.0468 |
| Mercury | -3235-10-28 15:36 J | 540140.12 | 540140.15 | 540140.19 | 0.1775 | 0.1737 |
| Mercury | -3234-09-06 16:47 J | 540453.09 | 540453.20 | 540453.32 | 0.1740 | 0.0069 |
| Venus | -3229-11-07 21:36 J | 542342.25 | 542342.40 | 542342.56 | 0.1919 | 0.0988 |
| Venus | -3228-10-09 00:57 J | 542677.37 | 542677.54 | 542677.71 | 0.1608 | 0.0020 |
| Mercury | -3224-01-27 03:21 J | 543883.53 | 543883.64 | 543883.74 | 0.1747 | 0.0583 |
| Mercury | -3223-02-25 04:47 J | 544277.63 | 544277.70 | 544277.76 | 0.1798 | 0.1658 |
| Mercury | -3222-01-02 09:21 J | 544588.83 | 544588.89 | 544588.94 | 0.1722 | 0.1525 |
| Mercury | -3215-06-19 13:26 J | 547313.97 | 547314.06 | 547314.15 | 0.1753 | 0.1123 |
| Mercury | -3214-07-18 00:14 J | 547707.35 | 547707.51 | 547707.67 | 0.1790 | 0.0525 |
| Mercury | -3213-05-24 19:55 J | 548019.23 | 548019.33 | 548019.42 | 0.1728 | 0.1029 |

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|---------|---------------------|-----------|-----------|-----------|--------|----------|
| Earth | -3208-04-25 06:43 J | 549815.67 | 549815.78 | 549815.89 | 0.1857 | 0.1558 |
| Moon | -3208-04-25 16:04 J | 549816.00 | 549816.17 | 549816.34 | 0.1857 | 0.1125 |
| Mercury | -3206-11-09 23:31 J | 550744.45 | 550744.48 | 550744.52 | 0.1760 | 0.1674 |
| Mercury | -3205-12-06 19:55 J | 551137.17 | 551137.33 | 551137.49 | 0.1782 | 0.0587 |
| Mercury | -3204-10-15 06:28 J | 551449.66 | 551449.77 | 551449.88 | 0.1734 | 0.0523 |
| Moon | -3202-10-26 23:02 J | 552191.29 | 552191.46 | 552191.62 | 0.1668 | 0.0540 |
| Earth | -3202-10-27 03:36 J | 552191.47 | 552191.65 | 552191.83 | 0.1668 | 0.0369 * |
| Venus | -3196-10-07 15:07 J | 554363.98 | 554364.13 | 554364.27 | 0.1607 | 0.0820 |
| Mercury | -3195-04-28 16:33 J | 554567.12 | 554567.19 | 554567.25 | 0.1775 | 0.1638 |
| Venus | -3195-09-04 17:31 J | 554696.11 | 554696.23 | 554696.35 | 0.1917 | 0.1419 |
| Mercury | -3194-03-07 17:02 J | 554880.09 | 554880.21 | 554880.32 | 0.1740 | 0.0058 |
| Venus | -3194-08-07 23:16 J | 555033.33 | 555033.47 | 555033.61 | 0.1609 | 0.0953 |
| Mercury | -3185-07-28 03:07 J | 558310.52 | 558310.63 | 558310.74 | 0.1747 | 0.0526 |
| Mercury | -3184-08-26 05:31 J | 558704.70 | 558704.73 | 558704.76 | 0.1798 | 0.1764 |
| Mercury | -3183-07-03 09:07 J | 559015.84 | 559015.88 | 559015.93 | 0.1721 | 0.1578 |
| Mercury | -3176-12-18 13:26 J | 561740.97 | 561741.06 | 561741.15 | 0.1753 | 0.1063 |
| Mercury | -3174-01-16 00:57 J | 562134.38 | 562134.54 | 562134.70 | 0.1790 | 0.0625 |
| Mercury | -3174-11-23 19:40 J | 562446.24 | 562446.32 | 562446.41 | 0.1728 | 0.1083 |
| Mercury | -3166-05-10 23:31 J | 565171.44 | 565171.48 | 565171.52 | 0.1760 | 0.1620 |
| Mercury | -3165-06-06 20:52 J | 565564.21 | 565564.37 | 565564.54 | 0.1783 | 0.0476 |
| Mercury | -3164-04-15 06:28 J | 565876.66 | 565876.77 | 565876.87 | 0.1734 | 0.0580 |
| Venus | -3163-09-04 22:47 J | 566384.29 | 566384.45 | 566384.62 | 0.1919 | 0.0613 |
| Venus | -3162-08-06 13:40 J | 566719.89 | 566720.07 | 566720.24 | 0.1608 | 0.0117 |
| Mercury | -3156-10-27 17:16 J | 568994.14 | 568994.22 | 568994.31 | 0.1775 | 0.1535 |
| Mercury | -3155-09-05 16:47 J | 569307.09 | 569307.20 | 569307.32 | 0.1740 | 0.0062 |
| Mercury | -3145-01-27 03:21 J | 572737.52 | 572737.64 | 572737.75 | 0.1747 | 0.0467 |
| Mercury | -3143-01-01 09:07 J | 573442.85 | 573442.88 | 573442.91 | 0.1722 | 0.1629 |
| Mercury | -3136-06-18 13:26 J | 576167.97 | 576168.06 | 576168.15 | 0.1753 | 0.1007 |
| Mercury | -3135-07-17 01:40 J | 576561.41 | 576561.57 | 576561.72 | 0.1790 | 0.0721 |
| Mercury | -3134-05-24 19:55 J | 576873.24 | 576873.33 | 576873.41 | 0.1728 | 0.1141 |

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|---------|---------------------|-----------|-----------|-----------|--------|----------|
| Venus | -3130-08-05 04:04 J | 578406.51 | 578406.67 | 578406.82 | 0.1607 | 0.0732 |
| Earth | -3129-04-28 17:31 J | 578674.09 | 578674.23 | 578674.38 | 0.1863 | 0.1326 |
| Moon | -3129-04-28 21:50 J | 578674.28 | 578674.41 | 578674.55 | 0.1863 | 0.1242 * |
| Venus | -3129-07-01 18:43 J | 578738.22 | 578738.28 | 578738.34 | 0.1917 | 0.1799 |
| Venus | -3128-06-04 12:14 J | 579075.88 | 579076.01 | 579076.14 | 0.1610 | 0.1046 |
| Mercury | -3127-11-08 23:31 J | 579598.43 | 579598.48 | 579598.53 | 0.1760 | 0.1561 |
| Mercury | -3126-12-06 21:50 J | 579991.24 | 579991.41 | 579991.57 | 0.1783 | 0.0371 |
| Mercury | -3125-10-14 06:28 J | 580303.66 | 580303.77 | 580303.87 | 0.1734 | 0.0636 |
| Moon | -3123-10-29 02:23 J | 581048.45 | 581048.60 | 581048.75 | 0.1664 | 0.0997 |
| Earth | -3123-10-29 07:40 J | 581048.67 | 581048.82 | 581048.98 | 0.1664 | 0.0900 * |
| Mercury | -3116-04-27 18:14 J | 583421.16 | 583421.26 | 583421.35 | 0.1775 | 0.1433 |
| Mercury | -3115-03-06 16:47 J | 583734.09 | 583734.20 | 583734.32 | 0.1740 | 0.0121 |
| Mercury | -3106-07-28 03:07 J | 587164.52 | 587164.63 | 587164.74 | 0.1746 | 0.0413 |
| Mercury | -3104-07-02 09:07 J | 587869.86 | 587869.88 | 587869.90 | 0.1721 | 0.1683 |
| Venus | -3098-08-03 18:14 J | 590093.23 | 590093.26 | 590093.30 | 0.1607 | 0.1571 |
| Venus | -3097-07-02 00:00 J | 590426.32 | 590426.50 | 590426.67 | 0.1919 | 0.0230 |
| Mercury | -3097-12-17 13:26 J | 590594.96 | 590595.06 | 590595.16 | 0.1753 | 0.0949 |
| Venus | -3096-06-03 02:52 J | 590762.45 | 590762.62 | 590762.79 | 0.1608 | 0.0199 |
| Mercury | -3095-01-15 02:38 J | 590988.46 | 590988.61 | 590988.76 | 0.1790 | 0.0833 |
| Mercury | -3095-11-22 19:40 J | 591300.24 | 591300.32 | 591300.40 | 0.1728 | 0.1190 |
| Mercury | -3087-05-09 23:31 J | 594025.43 | 594025.48 | 594025.54 | 0.1759 | 0.1499 |
| Mercury | -3086-06-06 22:33 J | 594418.27 | 594418.44 | 594418.61 | 0.1783 | 0.0275 |
| Mercury | -3085-04-14 06:28 J | 594730.66 | 594730.77 | 594730.87 | 0.1734 | 0.0693 |
| Mercury | -3077-10-26 18:43 J | 597848.17 | 597848.28 | 597848.39 | 0.1776 | 0.1343 |
| Mercury | -3076-09-04 16:47 J | 598161.09 | 598161.20 | 598161.32 | 0.1740 | 0.0177 |
| Mercury | -3066-01-26 03:07 J | 601591.52 | 601591.63 | 601591.74 | 0.1746 | 0.0354 |
| Venus | -3064-06-01 17:02 J | 602449.06 | 602449.21 | 602449.37 | 0.1607 | 0.0644 |
| Venus | -3062-04-02 01:26 J | 603118.44 | 603118.56 | 603118.68 | 0.1610 | 0.1137 |
| Mercury | -3057-06-17 13:26 J | 605021.96 | 605022.06 | 605022.16 | 0.1753 | 0.0892 |
| Mercury | -3056-07-16 03:36 J | 605415.51 | 605415.65 | 605415.79 | 0.1791 | 0.0944 |

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|---------|---------------------|-----------|-----------|-----------|--------|--------|
| Mercury | -3055-05-23 19:40 J | 605727.24 | 605727.32 | 605727.40 | 0.1727 | 0.1246 |
| Mercury | -3048-11-07 23:31 J | 608452.41 | 608452.48 | 608452.54 | 0.1759 | 0.1448 |
| Mercury | -3047-12-05 23:16 J | 608845.30 | 608845.47 | 608845.64 | 0.1783 | 0.0173 |
| Mercury | -3046-10-14 06:14 J | 609157.66 | 609157.76 | 609157.87 | 0.1734 | 0.0743 |
| Mercury | -3037-04-26 19:40 J | 612275.20 | 612275.32 | 612275.44 | 0.1776 | 0.1233 |
| Mercury | -3036-03-05 16:47 J | 612588.08 | 612588.20 | 612588.31 | 0.1740 | 0.0230 |
| Venus | -3032-05-31 07:26 J | 614135.75 | 614135.81 | 614135.87 | 0.1607 | 0.1482 |
| Venus | -3031-04-29 01:12 J | 614468.37 | 614468.55 | 614468.73 | 0.1918 | 0.0152 |
| Venus | -3030-03-31 15:36 J | 614804.98 | 614805.15 | 614805.32 | 0.1609 | 0.0293 |
| Mercury | -3027-07-27 03:07 J | 616018.52 | 616018.63 | 616018.75 | 0.1746 | 0.0298 |
| Mercury | -3018-12-17 13:26 J | 619448.96 | 619449.06 | 619449.16 | 0.1753 | 0.0833 |
| Mercury | -3016-01-14 04:04 J | 619842.53 | 619842.67 | 619842.81 | 0.1791 | 0.1030 |
| Mercury | -3016-11-21 19:40 J | 620154.25 | 620154.32 | 620154.40 | 0.1727 | 0.1303 |
| Mercury | -3008-05-08 23:31 J | 622879.41 | 622879.48 | 622879.55 | 0.1759 | 0.1387 |
| Mercury | -3007-06-06 00:14 J | 623272.34 | 623272.51 | 623272.68 | 0.1783 | 0.0063 |
| Mercury | -3006-04-14 06:14 J | 623584.66 | 623584.76 | 623584.86 | 0.1733 | 0.0798 |

3RD MILLENNIUM BCE

This is a list of transits visible from Mars in the 3rd millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|---|-----------|-----------|-----------|--------|--------|---|
| Venus | -2999-04-29 07:12 J | | 626156.78 | 626156.80 | 626156.82 | 0.1920 | 0.1905 | |
| Venus | -2998-03-30 06:00 J | | 626491.59 | 626491.75 | 626491.91 | 0.1608 | 0.0554 | |
| Mercury | -2998-10-26 20:23 J | | 626702.22 | 626702.35 | 626702.48 | 0.1776 | 0.1136 | |

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|---------|---------------------|-----------|-----------|-----------|--------|----------|
| Mercury | -2997-09-03 16:47 J | 627015.08 | 627015.20 | 627015.31 | 0.1740 | 0.0287 |
| Earth | -2997-10-25 02:23 J | 627066.47 | 627066.60 | 627066.74 | 0.1675 | 0.1178 |
| Moon | -2997-10-25 08:09 J | 627066.70 | 627066.84 | 627066.99 | 0.1675 | 0.1083 * |
| Venus | -2996-01-27 14:09 J | 627160.98 | 627161.09 | 627161.20 | 0.1611 | 0.1234 |
| Mercury | -2987-01-25 03:07 J | 630445.52 | 630445.63 | 630445.74 | 0.1746 | 0.0240 |
| Mercury | -2978-06-17 13:26 J | 633875.96 | 633876.06 | 633876.16 | 0.1753 | 0.0780 |
| Mercury | -2977-07-15 05:02 J | 634269.59 | 634269.71 | 634269.85 | 0.1791 | 0.1150 |
| Mercury | -2976-05-22 19:40 J | 634581.25 | 634581.32 | 634581.39 | 0.1727 | 0.1353 |
| Mercury | -2969-11-06 23:31 J | 637306.41 | 637306.48 | 637306.55 | 0.1759 | 0.1327 |
| Mercury | -2968-12-05 00:43 J | 637699.36 | 637699.53 | 637699.70 | 0.1783 | 0.0035 |
| Mercury | -2967-10-13 06:14 J | 638011.66 | 638011.76 | 638011.86 | 0.1734 | 0.0853 |
| Venus | -2966-03-28 20:23 J | 638178.27 | 638178.35 | 638178.43 | 0.1607 | 0.1396 |
| Venus | -2965-02-24 02:09 J | 638510.42 | 638510.59 | 638510.76 | 0.1918 | 0.0533 |
| Venus | -2964-01-26 04:33 J | 638847.53 | 638847.69 | 638847.86 | 0.1609 | 0.0384 |
| Mercury | -2958-04-26 21:07 J | 641129.25 | 641129.38 | 641129.52 | 0.1776 | 0.1037 |
| Mercury | -2957-03-04 16:47 J | 641442.09 | 641442.20 | 641442.31 | 0.1739 | 0.0344 |
| Mercury | -2948-07-26 03:07 J | 644872.51 | 644872.63 | 644872.74 | 0.1746 | 0.0188 |
| Mercury | -2939-12-16 13:26 J | 648302.95 | 648303.06 | 648303.16 | 0.1752 | 0.0721 |
| Mercury | -2937-01-14 06:00 J | 648696.63 | 648696.75 | 648696.87 | 0.1791 | 0.1250 |
| Mercury | -2937-11-20 19:40 J | 649008.25 | 649008.32 | 649008.38 | 0.1727 | 0.1408 |
| Venus | -2933-02-24 08:09 J | 650198.74 | 650198.84 | 650198.95 | 0.1920 | 0.1529 |
| Venus | -2932-01-24 19:12 J | 650534.13 | 650534.30 | 650534.46 | 0.1608 | 0.0467 |
| Venus | -2931-11-25 03:07 J | 651203.54 | 651203.63 | 651203.73 | 0.1611 | 0.1324 |
| Mercury | -2929-05-07 23:31 J | 651733.40 | 651733.48 | 651733.56 | 0.1759 | 0.1274 |
| Mercury | -2928-06-05 01:55 J | 652126.41 | 652126.58 | 652126.74 | 0.1784 | 0.0150 |
| Mercury | -2927-04-13 06:14 J | 652438.66 | 652438.76 | 652438.86 | 0.1733 | 0.0909 |
| Mercury | -2919-10-25 22:04 J | 655556.27 | 655556.42 | 655556.56 | 0.1776 | 0.0937 |
| Mercury | -2918-09-03 16:33 J | 655869.08 | 655869.19 | 655869.31 | 0.1740 | 0.0398 |
| Earth | -2918-10-28 06:14 J | 655923.57 | 655923.76 | 655923.94 | 0.1672 | 0.0116 |
| Moon | -2918-10-28 11:16 J | 655923.79 | 655923.97 | 655924.15 | 0.1672 | 0.0051 * |

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|---------|---------------------|-----------|-----------|-----------|--------|----------|
| Mercury | -2908-01-24 03:07 J | 659299.52 | 659299.63 | 659299.75 | 0.1746 | 0.0126 |
| Venus | -2900-01-23 09:21 J | 662220.79 | 662220.89 | 662220.99 | 0.1607 | 0.1306 |
| Venus | -2900-12-21 04:04 J | 662552.51 | 662552.67 | 662552.82 | 0.1917 | 0.0900 |
| Mercury | -2899-06-16 13:26 J | 662729.95 | 662730.06 | 662730.16 | 0.1752 | 0.0666 |
| Venus | -2899-11-23 17:45 J | 662890.07 | 662890.24 | 662890.40 | 0.1609 | 0.0474 |
| Mercury | -2898-07-15 06:43 J | 663123.67 | 663123.78 | 663123.89 | 0.1791 | 0.1349 |
| Mercury | -2897-05-21 19:40 J | 663435.26 | 663435.32 | 663435.38 | 0.1727 | 0.1466 |
| Mercury | -2890-11-06 23:31 J | 666160.40 | 666160.48 | 666160.56 | 0.1759 | 0.1215 |
| Mercury | -2889-12-04 02:38 J | 666553.44 | 666553.61 | 666553.78 | 0.1784 | 0.0244 |
| Mercury | -2888-10-12 06:14 J | 666865.66 | 666865.76 | 666865.85 | 0.1733 | 0.0963 |
| Mercury | -2879-04-25 22:47 J | 669983.30 | 669983.45 | 669983.60 | 0.1776 | 0.0833 |
| Mercury | -2878-03-04 16:47 J | 670296.08 | 670296.20 | 670296.31 | 0.1739 | 0.0458 |
| Mercury | -2869-07-25 03:07 J | 673726.51 | 673726.63 | 673726.74 | 0.1746 | 0.0091 |
| Venus | -2868-12-21 09:21 J | 674240.75 | 674240.89 | 674241.03 | 0.1920 | 0.1146 |
| Venus | -2867-11-22 08:09 J | 674576.67 | 674576.84 | 674577.01 | 0.1608 | 0.0377 |
| Venus | -2865-09-21 16:04 J | 675246.09 | 675246.17 | 675246.25 | 0.1612 | 0.1421 |
| Mercury | -2860-12-15 13:26 J | 677156.95 | 677157.06 | 677157.17 | 0.1752 | 0.0607 |
| Mercury | -2858-01-13 07:26 J | 677550.72 | 677550.81 | 677550.91 | 0.1791 | 0.1460 |
| Mercury | -2858-11-20 19:26 J | 677862.26 | 677862.31 | 677862.37 | 0.1727 | 0.1516 |
| Mercury | -2850-05-07 23:31 J | 680587.39 | 680587.48 | 680587.57 | 0.1759 | 0.1153 |
| Mercury | -2849-06-04 03:21 J | 680980.47 | 680980.64 | 680980.80 | 0.1784 | 0.0341 |
| Mercury | -2848-04-12 06:14 J | 681292.67 | 681292.76 | 681292.85 | 0.1733 | 0.1020 |
| Earth | -2845-04-28 00:28 J | 682404.33 | 682404.52 | 682404.71 | 0.1855 | 0.0720 |
| Moon | -2845-04-28 05:31 J | 682404.53 | 682404.73 | 682404.93 | 0.1855 | 0.0743 * |
| Mercury | -2841-09-27 09:21 J | 684017.87 | 684017.89 | 684017.91 | 0.1765 | 0.1722 |
| Mercury | -2840-10-24 23:31 J | 684410.32 | 684410.48 | 684410.63 | 0.1776 | 0.0740 |
| Mercury | -2839-09-02 16:33 J | 684723.08 | 684723.19 | 684723.30 | 0.1739 | 0.0512 |
| Moon | -2839-10-30 08:52 J | 684780.81 | 684780.87 | 684780.93 | 0.1668 | 0.1564 |
| Earth | -2839-10-30 10:19 J | 684780.83 | 684780.93 | 684781.03 | 0.1668 | 0.1382 * |
| Venus | -2835-11-20 22:33 J | 686263.33 | 686263.44 | 686263.55 | 0.1607 | 0.1224 |

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|---------|---------------------|-----------|-----------|-----------|--------|--------|
| Venus | -2834-10-18 05:02 J | 686594.58 | 686594.71 | 686594.84 | 0.1916 | 0.1283 |
| Venus | -2833-09-20 06:43 J | 686932.62 | 686932.78 | 686932.94 | 0.1610 | 0.0565 |
| Mercury | -2830-03-16 20:23 J | 687840.34 | 687840.35 | 687840.36 | 0.1769 | 0.1763 |
| Mercury | -2829-01-24 03:07 J | 688153.51 | 688153.63 | 688153.74 | 0.1746 | 0.0037 |
| Mercury | -2820-06-15 13:26 J | 691583.95 | 691584.06 | 691584.16 | 0.1752 | 0.0555 |
| Mercury | -2819-07-14 08:23 J | 691977.77 | 691977.85 | 691977.93 | 0.1792 | 0.1568 |
| Mercury | -2818-05-21 19:26 J | 692289.27 | 692289.31 | 692289.36 | 0.1727 | 0.1572 |
| Mercury | -2811-11-05 23:16 J | 695014.39 | 695014.47 | 695014.56 | 0.1759 | 0.1105 |
| Mercury | -2810-12-04 04:04 J | 695407.51 | 695407.67 | 695407.83 | 0.1784 | 0.0443 |
| Mercury | -2809-10-11 06:00 J | 695719.67 | 695719.75 | 695719.84 | 0.1733 | 0.1073 |
| Venus | -2802-10-18 10:19 J | 698282.77 | 698282.93 | 698283.09 | 0.1919 | 0.0758 |
| Mercury | -2801-03-28 09:36 J | 698444.86 | 698444.90 | 698444.93 | 0.1765 | 0.1658 |
| Venus | -2801-09-18 21:21 J | 698619.22 | 698619.39 | 698619.56 | 0.1608 | 0.0288 |
| Mercury | -2800-04-25 00:28 J | 698837.36 | 698837.52 | 698837.68 | 0.1776 | 0.0631 |
| Mercury | -2799-03-03 16:33 J | 699150.08 | 699150.19 | 699150.30 | 0.1739 | 0.0564 |
| Venus | -2799-07-20 04:47 J | 699288.65 | 699288.70 | 699288.76 | 0.1613 | 0.1516 |
| Mercury | -2791-09-14 20:52 J | 702267.32 | 702267.37 | 702267.42 | 0.1769 | 0.1680 |
| Mercury | -2790-07-25 03:07 J | 702580.51 | 702580.63 | 702580.74 | 0.1746 | 0.0050 |
| Mercury | -2781-12-14 13:26 J | 706010.95 | 706011.06 | 706011.17 | 0.1752 | 0.0497 |
| Mercury | -2779-01-12 08:52 J | 706404.81 | 706404.87 | 706404.94 | 0.1792 | 0.1657 |
| Mercury | -2779-11-19 19:26 J | 706716.28 | 706716.31 | 706716.35 | 0.1727 | 0.1628 |
| Mercury | -2771-05-06 23:31 J | 709441.38 | 709441.48 | 709441.57 | 0.1759 | 0.1043 |
| Mercury | -2770-06-04 05:02 J | 709834.55 | 709834.71 | 709834.87 | 0.1784 | 0.0559 |
| Mercury | -2769-04-11 06:00 J | 710146.67 | 710146.75 | 710146.84 | 0.1733 | 0.1129 |
| Venus | -2769-09-17 11:31 J | 710305.86 | 710305.98 | 710306.10 | 0.1607 | 0.1133 |
| Venus | -2768-08-14 06:14 J | 710636.68 | 710636.76 | 710636.85 | 0.1916 | 0.1660 |
| Venus | -2767-07-18 19:26 J | 710975.16 | 710975.31 | 710975.47 | 0.1610 | 0.0660 |
| Mercury | -2762-09-27 09:21 J | 712871.85 | 712871.89 | 712871.94 | 0.1765 | 0.1605 |
| Mercury | -2761-10-24 01:12 J | 713264.39 | 713264.55 | 713264.71 | 0.1777 | 0.0534 |
| Mercury | -2760-09-01 16:33 J | 713577.08 | 713577.19 | 713577.30 | 0.1739 | 0.0619 |

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| Mercury | -2751-03-15 21:50 J | 716694.34 | 716694.41 | 716694.49 | 0.1769 | 0.1570 |
| Mercury | -2750-01-23 03:07 J | 717007.51 | 717007.63 | 717007.74 | 0.1745 | 0.0117 |
| Mercury | -2741-06-14 13:12 J | 720437.94 | 720438.05 | 720438.16 | 0.1752 | 0.0440 |
| Mercury | -2740-07-13 10:04 J | 720831.90 | 720831.92 | 720831.94 | 0.1792 | 0.1777 |
| Mercury | -2739-05-20 19:26 J | 721143.29 | 721143.31 | 721143.33 | 0.1727 | 0.1678 |
| Venus | -2736-08-14 11:31 J | 722324.81 | 722324.98 | 722325.15 | 0.1918 | 0.0378 |
| Venus | -2735-07-17 10:04 J | 722661.75 | 722661.92 | 722662.09 | 0.1608 | 0.0195 |
| Venus | -2733-05-16 17:45 J | 723331.24 | 723331.24 | 723331.24 | 0.1613 | 0.1613 |
| Mercury | -2732-11-04 23:31 J | 723868.38 | 723868.48 | 723868.57 | 0.1758 | 0.0981 |
| Mercury | -2731-12-03 05:31 J | 724261.58 | 724261.73 | 724261.89 | 0.1784 | 0.0644 |
| Mercury | -2730-10-11 06:00 J | 724573.67 | 724573.75 | 724573.84 | 0.1733 | 0.1186 |
| Mercury | -2722-03-28 09:21 J | 727298.84 | 727298.89 | 727298.95 | 0.1765 | 0.1545 |
| Mercury | -2721-04-24 01:55 J | 727691.42 | 727691.58 | 727691.75 | 0.1777 | 0.0431 |
| Mercury | -2720-03-02 16:33 J | 728004.09 | 728004.19 | 728004.30 | 0.1739 | 0.0678 |
| Moon | -2713-10-25 22:04 J | 730798.25 | 730798.42 | 730798.60 | 0.1680 | 0.0634 |
| Earth | -2713-10-26 04:04 J | 730798.50 | 730798.67 | 730798.84 | 0.1680 | 0.0719 * |
| Mercury | -2712-09-13 22:33 J | 731121.35 | 731121.44 | 731121.54 | 0.1769 | 0.1472 |
| Mercury | -2711-07-24 02:52 J | 731434.51 | 731434.62 | 731434.74 | 0.1745 | 0.0162 |
| Venus | -2703-07-16 00:28 J | 734348.39 | 734348.52 | 734348.65 | 0.1607 | 0.1044 |
| Mercury | -2702-12-14 13:12 J | 734864.94 | 734865.05 | 734865.17 | 0.1752 | 0.0384 |
| Venus | -2701-05-15 08:38 J | 735017.71 | 735017.86 | 735018.01 | 0.1611 | 0.0753 |
| Mercury | -2692-05-05 23:16 J | 738295.38 | 738295.47 | 738295.57 | 0.1759 | 0.0930 |
| Mercury | -2691-06-03 06:43 J | 738688.62 | 738688.78 | 738688.93 | 0.1785 | 0.0760 |
| Mercury | -2690-04-11 06:00 J | 739000.67 | 739000.75 | 739000.83 | 0.1733 | 0.1238 |
| Mercury | -2683-09-26 09:21 J | 741725.83 | 741725.89 | 741725.96 | 0.1765 | 0.1486 |
| Mercury | -2682-10-24 02:38 J | 742118.45 | 742118.61 | 742118.78 | 0.1777 | 0.0334 |
| Mercury | -2681-08-31 16:33 J | 742431.08 | 742431.19 | 742431.29 | 0.1739 | 0.0728 |
| Mercury | -2672-03-14 23:16 J | 745548.37 | 745548.47 | 745548.57 | 0.1769 | 0.1382 |
| Mercury | -2671-01-22 03:07 J | 745861.51 | 745861.63 | 745861.74 | 0.1745 | 0.0219 |
| Venus | -2670-06-11 12:28 J | 746366.84 | 746367.02 | 746367.20 | 0.1918 | 0.0030 |

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| Venus | -2669-05-13 23:16 J | 746704.30 | 746704.47 | 746704.64 | 0.1609 | 0.0107 |
| Mercury | -2662-06-14 13:12 J | 749291.94 | 749292.05 | 749292.17 | 0.1752 | 0.0326 |
| Mercury | -2653-11-03 23:16 J | 752722.38 | 752722.47 | 752722.57 | 0.1758 | 0.0872 |
| Mercury | -2652-12-02 07:26 J | 753115.66 | 753115.81 | 753115.96 | 0.1785 | 0.0862 |
| Mercury | -2651-10-10 06:00 J | 753427.68 | 753427.75 | 753427.82 | 0.1733 | 0.1290 |
| Mercury | -2643-03-27 09:21 J | 756152.83 | 756152.89 | 756152.96 | 0.1765 | 0.1429 |
| Mercury | -2642-04-24 03:36 J | 756545.48 | 756545.65 | 756545.82 | 0.1777 | 0.0227 |
| Mercury | -2641-03-01 16:33 J | 756858.09 | 756858.19 | 756858.29 | 0.1739 | 0.0786 |
| Venus | -2637-05-12 13:40 J | 758390.93 | 758391.07 | 758391.20 | 0.1607 | 0.0955 |
| Venus | -2635-03-12 21:36 J | 759060.25 | 759060.40 | 759060.54 | 0.1611 | 0.0848 |
| Earth | -2634-10-29 08:38 J | 759655.69 | 759655.86 | 759656.04 | 0.1676 | 0.0602 |
| Moon | -2634-10-29 10:47 J | 759655.76 | 759655.95 | 759656.14 | 0.1676 | 0.0483 * |
| Mercury | -2633-09-13 00:14 J | 759975.39 | 759975.51 | 759975.62 | 0.1770 | 0.1274 |
| Mercury | -2632-07-23 02:52 J | 760288.51 | 760288.62 | 760288.74 | 0.1745 | 0.0268 |
| Mercury | -2623-12-13 13:12 J | 763718.94 | 763719.05 | 763719.17 | 0.1752 | 0.0267 |
| Mercury | -2613-05-04 23:31 J | 767149.38 | 767149.48 | 767149.58 | 0.1758 | 0.0809 |
| Mercury | -2612-06-02 08:09 J | 767542.69 | 767542.84 | 767542.98 | 0.1785 | 0.0957 |
| Mercury | -2611-04-10 06:00 J | 767854.68 | 767854.75 | 767854.82 | 0.1732 | 0.1349 |
| Venus | -2604-04-07 14:09 J | 770408.91 | 770409.09 | 770409.26 | 0.1917 | 0.0393 |
| Mercury | -2604-09-25 09:21 J | 770579.82 | 770579.89 | 770579.96 | 0.1765 | 0.1371 |
| Venus | -2603-03-11 12:00 J | 770746.83 | 770747.00 | 770747.17 | 0.1609 | 0.0023 |
| Mercury | -2603-10-23 04:19 J | 770972.51 | 770972.68 | 770972.85 | 0.1777 | 0.0128 |
| Mercury | -2602-08-31 16:33 J | 771285.09 | 771285.19 | 771285.29 | 0.1739 | 0.0842 |
| Mercury | -2593-03-14 00:57 J | 774402.42 | 774402.54 | 774402.67 | 0.1770 | 0.1172 |
| Mercury | -2592-01-21 02:52 J | 774715.51 | 774715.62 | 774715.74 | 0.1745 | 0.0326 |
| Mercury | -2583-06-13 13:12 J | 778145.94 | 778146.05 | 778146.17 | 0.1752 | 0.0211 |
| Mercury | -2574-11-03 23:16 J | 781576.37 | 781576.47 | 781576.58 | 0.1758 | 0.0757 |
| Mercury | -2573-12-01 08:52 J | 781969.74 | 781969.87 | 781970.01 | 0.1785 | 0.1067 |
| Venus | -2572-04-07 19:55 J | 782097.25 | 782097.33 | 782097.41 | 0.1920 | 0.1681 |
| Mercury | -2572-10-09 06:00 J | 782281.68 | 782281.75 | 782281.81 | 0.1732 | 0.1400 |

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| Venus | -2571-03-10 02:23 J | 782433.46 | 782433.60 | 782433.75 | 0.1608 | 0.0865 |
| Venus | -2569-01-08 10:19 J | 783102.79 | 783102.93 | 783103.07 | 0.1612 | 0.0945 |
| Mercury | -2564-03-26 09:36 J | 785006.82 | 785006.90 | 785006.97 | 0.1765 | 0.1307 |
| Mercury | -2563-04-23 05:16 J | 785399.55 | 785399.72 | 785399.89 | 0.1777 | 0.0036 |
| Mercury | -2562-03-01 16:33 J | 785712.09 | 785712.19 | 785712.28 | 0.1739 | 0.0898 |
| Moon | -2561-04-27 01:40 J | 786134.37 | 786134.57 | 786134.77 | 0.1847 | 0.0231 |
| Earth | -2561-04-27 10:19 J | 786134.73 | 786134.93 | 786135.13 | 0.1847 | 0.0231 * |
| Mercury | -2554-09-13 01:26 J | 788829.43 | 788829.56 | 788829.70 | 0.1770 | 0.1087 |
| Mercury | -2553-07-22 02:52 J | 789142.51 | 789142.62 | 789142.74 | 0.1745 | 0.0386 |
| Mercury | -2544-12-12 13:12 J | 792572.94 | 792573.05 | 792573.16 | 0.1751 | 0.0152 |
| Venus | -2538-02-02 15:07 J | 794450.97 | 794451.13 | 794451.29 | 0.1916 | 0.0776 |
| Venus | -2537-01-07 01:12 J | 794789.38 | 794789.55 | 794789.72 | 0.1610 | 0.0085 |
| Mercury | -2534-05-04 23:31 J | 796003.37 | 796003.48 | 796003.58 | 0.1758 | 0.0697 |
| Mercury | -2533-06-01 10:04 J | 796396.79 | 796396.92 | 796397.05 | 0.1785 | 0.1180 |
| Mercury | -2532-04-09 06:00 J | 796708.69 | 796708.75 | 796708.81 | 0.1732 | 0.1457 |
| Mercury | -2525-09-24 09:21 J | 799433.81 | 799433.89 | 799433.97 | 0.1765 | 0.1255 |
| Mercury | -2524-10-22 06:00 J | 799826.58 | 799826.75 | 799826.92 | 0.1778 | 0.0083 |
| Mercury | -2523-08-30 16:33 J | 800139.09 | 800139.19 | 800139.28 | 0.1738 | 0.0953 |
| Mercury | -2514-03-14 02:38 J | 803256.47 | 803256.61 | 803256.75 | 0.1770 | 0.0974 |
| Mercury | -2513-01-21 02:52 J | 803569.51 | 803569.62 | 803569.73 | 0.1745 | 0.0434 |
| Earth | -2508-10-25 00:00 J | 805673.45 | 805673.50 | 805673.56 | 0.1689 | 0.1605 |
| Moon | -2508-10-25 05:02 J | 805673.67 | 805673.71 | 805673.75 | 0.1689 | 0.1641 |
| Venus | -2506-02-02 21:07 J | 806139.25 | 806139.38 | 806139.51 | 0.1919 | 0.1299 |
| Venus | -2505-01-05 15:36 J | 806476.00 | 806476.15 | 806476.30 | 0.1608 | 0.0775 |
| Mercury | -2504-06-12 13:12 J | 806999.94 | 807000.05 | 807000.17 | 0.1752 | 0.0095 |
| Venus | -2504-11-04 23:31 J | 807145.35 | 807145.48 | 807145.62 | 0.1613 | 0.1034 |
| Mercury | -2495-11-02 23:31 J | 810430.37 | 810430.48 | 810430.58 | 0.1758 | 0.0639 |
| Mercury | -2494-12-01 10:33 J | 810823.82 | 810823.94 | 810824.06 | 0.1785 | 0.1265 |
| Mercury | -2493-10-08 06:00 J | 811135.69 | 811135.75 | 811135.80 | 0.1732 | 0.1513 |
| Mercury | -2485-03-25 09:21 J | 813860.81 | 813860.89 | 813860.98 | 0.1765 | 0.1195 |

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| Mercury | -2484-04-22 06:43 J | 814253.62 | 814253.78 | 814253.95 | 0.1778 | 0.0188 |
| Mercury | -2483-02-28 16:33 J | 814566.09 | 814566.19 | 814566.28 | 0.1738 | 0.1010 |
| Mercury | -2476-08-15 19:26 J | 817291.30 | 817291.31 | 817291.31 | 0.1771 | 0.1764 |
| Mercury | -2475-09-12 03:21 J | 817683.49 | 817683.64 | 817683.79 | 0.1770 | 0.0874 |
| Mercury | -2474-07-22 02:52 J | 817996.51 | 817996.62 | 817996.73 | 0.1745 | 0.0491 |
| Venus | -2473-11-29 17:16 J | 818493.08 | 818493.22 | 818493.36 | 0.1915 | 0.1140 |
| Venus | -2472-11-03 14:09 J | 818831.92 | 818832.09 | 818832.26 | 0.1610 | 0.0172 |
| Mercury | -2465-12-11 13:12 J | 821426.94 | 821427.05 | 821427.17 | 0.1751 | 0.0038 |
| Mercury | -2455-05-03 23:16 J | 824857.36 | 824857.47 | 824857.58 | 0.1758 | 0.0583 |
| Mercury | -2454-06-01 11:31 J | 825250.88 | 825250.98 | 825251.09 | 0.1786 | 0.1384 |
| Mercury | -2453-04-08 05:45 J | 825562.70 | 825562.74 | 825562.79 | 0.1732 | 0.1567 |
| Mercury | -2446-09-24 09:21 J | 828287.81 | 828287.89 | 828287.98 | 0.1765 | 0.1136 |
| Mercury | -2445-10-21 07:26 J | 828680.65 | 828680.81 | 828680.98 | 0.1778 | 0.0282 |
| Mercury | -2444-08-29 16:19 J | 828993.09 | 828993.18 | 828993.27 | 0.1738 | 0.1063 |
| Venus | -2441-11-29 22:19 J | 830181.28 | 830181.43 | 830181.59 | 0.1919 | 0.0915 |
| Venus | -2440-11-02 04:47 J | 830518.55 | 830518.70 | 830518.86 | 0.1608 | 0.0687 |
| Venus | -2438-09-02 12:14 J | 831187.89 | 831188.01 | 831188.13 | 0.1613 | 0.1134 |
| Mercury | -2436-02-13 19:26 J | 831718.28 | 831718.31 | 831718.34 | 0.1771 | 0.1701 |
| Mercury | -2435-03-13 04:04 J | 832110.52 | 832110.67 | 832110.82 | 0.1770 | 0.0782 |
| Mercury | -2434-01-20 02:52 J | 832423.52 | 832423.62 | 832423.73 | 0.1745 | 0.0556 |
| Moon | -2429-10-27 03:07 J | 834530.45 | 834530.63 | 834530.80 | 0.1685 | 0.0149 |
| Earth | -2429-10-27 05:45 J | 834530.56 | 834530.74 | 834530.93 | 0.1685 | 0.0247 * |
| Mercury | -2425-06-11 13:12 J | 835853.93 | 835854.05 | 835854.16 | 0.1751 | 0.0033 |
| Mercury | -2416-11-01 23:16 J | 839284.36 | 839284.47 | 839284.58 | 0.1758 | 0.0526 |
| Mercury | -2415-11-30 12:28 J | 839677.93 | 839678.02 | 839678.11 | 0.1786 | 0.1487 |
| Mercury | -2414-10-08 05:45 J | 839989.70 | 839989.74 | 839989.78 | 0.1732 | 0.1619 |
| Venus | -2408-10-31 19:26 J | 842205.26 | 842205.31 | 842205.35 | 0.1607 | 0.1541 |
| Venus | -2407-09-26 18:28 J | 842535.16 | 842535.27 | 842535.38 | 0.1914 | 0.1522 |
| Mercury | -2406-03-25 09:21 J | 842714.80 | 842714.89 | 842714.98 | 0.1764 | 0.1079 |
| Venus | -2406-09-01 03:07 J | 842874.46 | 842874.63 | 842874.80 | 0.1611 | 0.0266 |

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|---------|---------------------|-----------|-----------|-----------|--------|----------|
| Mercury | -2405-04-21 08:23 J | 843107.69 | 843107.85 | 843108.02 | 0.1778 | 0.0390 |
| Mercury | -2404-02-27 16:19 J | 843420.10 | 843420.18 | 843420.27 | 0.1738 | 0.1122 |
| Mercury | -2397-08-14 19:26 J | 846145.27 | 846145.31 | 846145.35 | 0.1771 | 0.1646 |
| Mercury | -2396-09-11 05:02 J | 846537.55 | 846537.71 | 846537.86 | 0.1771 | 0.0674 |
| Mercury | -2395-07-21 02:52 J | 846850.51 | 846850.62 | 846850.73 | 0.1745 | 0.0603 |
| Mercury | -2386-02-01 01:40 J | 849967.53 | 849967.57 | 849967.61 | 0.1763 | 0.1704 |
| Mercury | -2386-12-11 13:12 J | 850280.94 | 850281.05 | 850281.16 | 0.1751 | 0.0078 |
| Mercury | -2376-05-02 23:31 J | 853711.36 | 853711.48 | 853711.59 | 0.1757 | 0.0466 |
| Mercury | -2375-05-31 13:12 J | 854104.97 | 854105.05 | 854105.12 | 0.1786 | 0.1584 |
| Venus | -2375-09-26 23:31 J | 854223.30 | 854223.48 | 854223.65 | 0.1918 | 0.0526 |
| Mercury | -2374-04-08 06:00 J | 854416.72 | 854416.75 | 854416.77 | 0.1732 | 0.1680 |
| Venus | -2374-08-30 18:00 J | 854561.09 | 854561.25 | 854561.41 | 0.1609 | 0.0598 |
| Venus | -2372-06-30 01:12 J | 855230.44 | 855230.55 | 855230.66 | 0.1614 | 0.1230 |
| Mercury | -2367-09-23 09:21 J | 857141.80 | 857141.89 | 857141.99 | 0.1764 | 0.1021 |
| Mercury | -2366-10-21 09:21 J | 857534.72 | 857534.89 | 857535.05 | 0.1778 | 0.0491 |
| Mercury | -2365-08-28 16:19 J | 857847.10 | 857847.18 | 857847.27 | 0.1738 | 0.1175 |
| Mercury | -2357-02-13 19:26 J | 860572.26 | 860572.31 | 860572.36 | 0.1771 | 0.1584 |
| Mercury | -2356-03-12 05:45 J | 860964.58 | 860964.74 | 860964.90 | 0.1771 | 0.0572 |
| Mercury | -2355-01-19 02:52 J | 861277.51 | 861277.62 | 861277.73 | 0.1744 | 0.0661 |
| Moon | -2350-10-30 04:04 J | 863387.50 | 863387.67 | 863387.83 | 0.1681 | 0.0806 |
| Earth | -2350-10-30 10:47 J | 863387.81 | 863387.95 | 863388.09 | 0.1681 | 0.1094 * |
| Mercury | -2347-08-02 02:38 J | 864394.54 | 864394.61 | 864394.68 | 0.1763 | 0.1597 |
| Mercury | -2346-06-11 13:12 J | 864707.93 | 864708.05 | 864708.16 | 0.1751 | 0.0138 |
| Venus | -2342-08-29 08:09 J | 866247.77 | 866247.84 | 866247.91 | 0.1607 | 0.1449 |
| Venus | -2341-07-23 20:09 J | 866577.32 | 866577.34 | 866577.36 | 0.1913 | 0.1894 |
| Venus | -2340-06-28 16:04 J | 866917.00 | 866917.17 | 866917.34 | 0.1611 | 0.0359 |
| Mercury | -2337-10-31 23:16 J | 868138.36 | 868138.47 | 868138.58 | 0.1758 | 0.0411 |
| Mercury | -2336-11-29 14:09 J | 868532.04 | 868532.09 | 868532.14 | 0.1786 | 0.1695 |
| Mercury | -2335-10-07 05:45 J | 868843.74 | 868843.74 | 868843.74 | 0.1732 | 0.1728 |
| Mercury | -2327-03-24 09:36 J | 871568.80 | 871568.90 | 871568.99 | 0.1764 | 0.0957 |

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|---------|---------------------|-----------|-----------|-----------|--------|----------|
| Mercury | -2326-04-21 10:04 J | 871961.76 | 871961.92 | 871962.08 | 0.1778 | 0.0591 |
| Mercury | -2325-02-27 16:19 J | 872274.10 | 872274.18 | 872274.26 | 0.1738 | 0.1231 |
| Mercury | -2318-08-14 19:26 J | 874999.25 | 874999.31 | 874999.36 | 0.1771 | 0.1528 |
| Mercury | -2317-09-10 06:14 J | 875391.60 | 875391.76 | 875391.93 | 0.1771 | 0.0484 |
| Mercury | -2316-07-20 02:52 J | 875704.52 | 875704.62 | 875704.72 | 0.1744 | 0.0719 |
| Venus | -2309-07-24 00:57 J | 878265.36 | 878265.54 | 878265.72 | 0.1917 | 0.0145 |
| Venus | -2308-06-27 06:43 J | 878603.62 | 878603.78 | 878603.94 | 0.1609 | 0.0502 |
| Mercury | -2307-01-31 03:36 J | 878821.56 | 878821.65 | 878821.73 | 0.1764 | 0.1496 |
| Mercury | -2307-12-10 13:12 J | 879134.93 | 879135.05 | 879135.16 | 0.1751 | 0.0194 |
| Venus | -2306-04-27 14:09 J | 879272.99 | 879273.09 | 879273.18 | 0.1615 | 0.1329 |
| Mercury | -2297-05-01 23:16 J | 882565.36 | 882565.47 | 882565.59 | 0.1757 | 0.0354 |
| Mercury | -2288-09-22 09:21 J | 885995.79 | 885995.89 | 885995.99 | 0.1764 | 0.0905 |
| Mercury | -2287-10-20 10:47 J | 886388.80 | 886388.95 | 886389.11 | 0.1779 | 0.0694 |
| Mercury | -2286-08-28 16:19 J | 886701.11 | 886701.18 | 886701.26 | 0.1738 | 0.1284 |
| Mercury | -2278-02-12 19:26 J | 889426.24 | 889426.31 | 889426.37 | 0.1771 | 0.1467 |
| Mercury | -2277-03-11 07:26 J | 889818.64 | 889818.81 | 889818.97 | 0.1771 | 0.0368 |
| Earth | -2277-04-26 22:04 J | 889865.22 | 889865.42 | 889865.62 | 0.1839 | 0.0171 |
| Moon | -2277-04-27 05:02 J | 889865.52 | 889865.71 | 889865.90 | 0.1839 | 0.0229 * |
| Mercury | -2276-01-18 02:52 J | 890131.51 | 890131.62 | 890131.72 | 0.1744 | 0.0773 |
| Venus | -2276-06-25 21:21 J | 890290.30 | 890290.39 | 890290.48 | 0.1608 | 0.1363 |
| Venus | -2274-04-26 05:02 J | 890959.55 | 890959.71 | 890959.88 | 0.1612 | 0.0456 |
| Mercury | -2268-08-01 04:04 J | 893248.57 | 893248.67 | 893248.77 | 0.1763 | 0.1405 |
| Mercury | -2267-06-10 13:12 J | 893561.94 | 893562.05 | 893562.16 | 0.1751 | 0.0250 |
| Mercury | -2258-10-31 23:16 J | 896992.36 | 896992.47 | 896992.59 | 0.1757 | 0.0298 |
| Mercury | -2248-03-23 09:21 J | 900422.79 | 900422.89 | 900422.99 | 0.1764 | 0.0845 |
| Mercury | -2247-04-20 11:45 J | 900815.84 | 900815.99 | 900816.14 | 0.1779 | 0.0805 |
| Mercury | -2246-02-26 16:19 J | 901128.11 | 901128.18 | 901128.25 | 0.1737 | 0.1342 |
| Venus | -2243-05-21 01:40 J | 902307.40 | 902307.57 | 902307.75 | 0.1916 | 0.0255 |
| Venus | -2242-04-24 19:55 J | 902646.17 | 902646.33 | 902646.50 | 0.1610 | 0.0414 |
| Venus | -2240-02-22 02:52 J | 903315.54 | 903315.62 | 903315.70 | 0.1616 | 0.1429 |

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|---------|---------------------|-----------|-----------|-----------|--------|----------|
| Mercury | -2239-08-13 19:26 J | 903853.24 | 903853.31 | 903853.38 | 0.1770 | 0.1408 |
| Mercury | -2238-09-10 08:09 J | 904245.67 | 904245.84 | 904246.01 | 0.1771 | 0.0269 |
| Mercury | -2237-07-19 02:52 J | 904558.52 | 904558.62 | 904558.72 | 0.1744 | 0.0830 |
| Mercury | -2228-01-30 05:02 J | 907675.59 | 907675.71 | 907675.82 | 0.1764 | 0.1303 |
| Mercury | -2228-12-09 13:12 J | 907988.93 | 907989.05 | 907989.16 | 0.1751 | 0.0308 |
| Earth | -2224-10-26 00:43 J | 909405.40 | 909405.53 | 909405.67 | 0.1694 | 0.1147 |
| Moon | -2224-10-26 02:52 J | 909405.49 | 909405.62 | 909405.76 | 0.1694 | 0.1253 * |
| Mercury | -2218-05-01 23:16 J | 911419.36 | 911419.47 | 911419.59 | 0.1757 | 0.0238 |
| Venus | -2211-05-21 08:09 J | 913995.80 | 913995.84 | 913995.89 | 0.1919 | 0.1852 |
| Venus | -2210-04-23 10:19 J | 914332.83 | 914332.93 | 914333.03 | 0.1608 | 0.1272 |
| Mercury | -2209-09-21 09:36 J | 914849.79 | 914849.90 | 914850.00 | 0.1764 | 0.0784 |
| Venus | -2208-02-20 18:00 J | 915002.09 | 915002.25 | 915002.41 | 0.1613 | 0.0551 |
| Mercury | -2208-10-19 12:28 J | 915242.88 | 915243.02 | 915243.17 | 0.1779 | 0.0899 |
| Mercury | -2207-08-27 16:19 J | 915555.11 | 915555.18 | 915555.25 | 0.1738 | 0.1396 |
| Mercury | -2199-02-11 19:26 J | 918280.24 | 918280.31 | 918280.38 | 0.1770 | 0.1347 |
| Mercury | -2198-03-11 08:52 J | 918672.70 | 918672.87 | 918673.04 | 0.1771 | 0.0175 |
| Mercury | -2197-01-18 02:52 J | 918985.52 | 918985.62 | 918985.72 | 0.1744 | 0.0890 |
| Mercury | -2189-07-31 06:00 J | 922102.62 | 922102.75 | 922102.87 | 0.1764 | 0.1197 |
| Mercury | -2188-06-09 13:12 J | 922415.93 | 922416.05 | 922416.16 | 0.1750 | 0.0365 |
| Mercury | -2179-10-30 23:16 J | 925846.36 | 925846.47 | 925846.59 | 0.1757 | 0.0182 |
| Venus | -2177-03-17 03:50 J | 926349.49 | 926349.66 | 926349.83 | 0.1914 | 0.0621 |
| Venus | -2176-02-19 08:38 J | 926688.69 | 926688.86 | 926689.03 | 0.1610 | 0.0317 |
| Venus | -2175-12-20 15:50 J | 927358.11 | 927358.16 | 927358.21 | 0.1617 | 0.1529 |
| Mercury | -2169-03-22 09:21 J | 929276.79 | 929276.89 | 929277.00 | 0.1764 | 0.0729 |
| Mercury | -2168-04-19 13:26 J | 929669.92 | 929670.06 | 929670.20 | 0.1779 | 0.1010 |
| Mercury | -2167-02-25 16:19 J | 929982.12 | 929982.18 | 929982.24 | 0.1737 | 0.1453 |
| Mercury | -2160-08-12 19:26 J | 932707.23 | 932707.31 | 932707.39 | 0.1771 | 0.1291 |
| Mercury | -2159-09-09 09:50 J | 933099.74 | 933099.91 | 933100.08 | 0.1772 | 0.0067 |
| Mercury | -2158-07-19 02:38 J | 933412.52 | 933412.61 | 933412.71 | 0.1744 | 0.0941 |
| Mercury | -2149-01-30 06:28 J | 936529.64 | 936529.77 | 936529.90 | 0.1764 | 0.1112 |

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|---------|---------------------|-----------|-----------|-----------|--------|----------|
| Mercury | -2149-12-08 13:12 J | 936842.94 | 936843.05 | 936843.16 | 0.1750 | 0.0422 |
| Venus | -2145-03-17 09:21 J | 938037.78 | 938037.89 | 938038.01 | 0.1918 | 0.1460 |
| Earth | -2145-10-28 06:57 J | 938262.61 | 938262.79 | 938262.98 | 0.1690 | 0.0228 |
| Moon | -2145-10-28 13:26 J | 938262.89 | 938263.06 | 938263.24 | 0.1689 | 0.0477 * |
| Venus | -2144-02-17 23:16 J | 938375.36 | 938375.47 | 938375.59 | 0.1608 | 0.1183 |
| Venus | -2143-12-19 06:57 J | 939044.63 | 939044.79 | 939044.95 | 0.1614 | 0.0649 |
| Mercury | -2139-04-30 23:31 J | 940273.36 | 940273.48 | 940273.59 | 0.1757 | 0.0131 |
| Mercury | -2130-09-21 09:21 J | 943703.79 | 943703.89 | 943704.00 | 0.1764 | 0.0670 |
| Mercury | -2129-10-18 14:09 J | 944096.96 | 944097.09 | 944097.23 | 0.1780 | 0.1115 |
| Mercury | -2128-08-26 16:19 J | 944409.12 | 944409.18 | 944409.23 | 0.1737 | 0.1506 |
| Mercury | -2120-02-10 19:26 J | 947134.23 | 947134.31 | 947134.39 | 0.1770 | 0.1229 |
| Mercury | -2119-03-10 10:33 J | 947526.77 | 947526.94 | 947527.11 | 0.1772 | 0.0047 |
| Mercury | -2118-01-17 02:52 J | 947839.52 | 947839.62 | 947839.71 | 0.1744 | 0.1001 |
| Venus | -2111-01-12 05:02 J | 950391.56 | 950391.71 | 950391.86 | 0.1913 | 0.1006 |
| Venus | -2111-12-17 21:50 J | 950731.24 | 950731.41 | 950731.58 | 0.1611 | 0.0227 |
| Mercury | -2110-07-31 07:26 J | 950956.67 | 950956.81 | 950956.95 | 0.1764 | 0.1000 |
| Mercury | -2109-06-08 13:12 J | 951269.94 | 951270.05 | 951270.16 | 0.1750 | 0.0478 |
| Mercury | -2100-10-29 23:16 J | 954700.36 | 954700.47 | 954700.59 | 0.1757 | 0.0067 |
| Mercury | -2090-03-22 09:36 J | 958130.79 | 958130.90 | 958131.01 | 0.1763 | 0.0607 |
| Mercury | -2089-04-18 15:07 J | 958524.00 | 958524.13 | 958524.25 | 0.1779 | 0.1213 |
| Mercury | -2088-02-24 16:19 J | 958836.13 | 958836.18 | 958836.23 | 0.1737 | 0.1563 |
| Mercury | -2081-08-11 19:26 J | 961561.22 | 961561.31 | 961561.39 | 0.1770 | 0.1173 |
| Mercury | -2080-09-08 11:16 J | 961953.80 | 961953.97 | 961954.14 | 0.1772 | 0.0131 |
| Venus | -2079-01-12 10:47 J | 962079.80 | 962079.95 | 962080.09 | 0.1918 | 0.1076 |
| Mercury | -2079-07-18 02:52 J | 962266.53 | 962266.62 | 962266.71 | 0.1743 | 0.1058 |
| Venus | -2079-12-16 12:28 J | 962417.90 | 962418.02 | 962418.15 | 0.1609 | 0.1093 |
| Venus | -2077-10-15 20:09 J | 963087.19 | 963087.34 | 963087.49 | 0.1614 | 0.0741 |
| Mercury | -2071-01-02 05:16 J | 964991.70 | 964991.72 | 964991.74 | 0.1777 | 0.1744 |
| Mercury | -2070-01-29 08:23 J | 965383.70 | 965383.85 | 965383.99 | 0.1764 | 0.0899 |
| Mercury | -2070-12-08 12:57 J | 965696.94 | 965697.04 | 965697.15 | 0.1750 | 0.0536 |

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|---------|---------------------|-----------|-----------|-----------|--------|----------|
| Earth | -2066-10-31 13:12 J | 967119.99 | 967120.05 | 967120.11 | 0.1686 | 0.1594 |
| Moon | -2066-10-31 14:23 J | 967120.01 | 967120.10 | 967120.19 | 0.1686 | 0.1428 * |
| Mercury | -2060-04-29 23:16 J | 969127.36 | 969127.47 | 969127.59 | 0.1757 | 0.0061 |
| Mercury | -2051-09-20 09:21 J | 972557.78 | 972557.89 | 972558.00 | 0.1763 | 0.0555 |
| Mercury | -2050-10-18 15:50 J | 972951.05 | 972951.16 | 972951.28 | 0.1780 | 0.1319 |
| Mercury | -2049-08-25 16:19 J | 973263.14 | 973263.18 | 973263.22 | 0.1737 | 0.1617 |
| Venus | -2046-11-09 07:40 J | 974433.70 | 974433.82 | 974433.94 | 0.1912 | 0.1366 |
| Venus | -2045-10-14 10:47 J | 974773.78 | 974773.95 | 974774.13 | 0.1612 | 0.0137 |
| Mercury | -2041-02-10 19:26 J | 975988.22 | 975988.31 | 975988.40 | 0.1770 | 0.1110 |
| Mercury | -2040-03-09 12:14 J | 976380.85 | 976381.01 | 976381.18 | 0.1772 | 0.0246 |
| Mercury | -2039-01-16 02:38 J | 976693.53 | 976693.61 | 976693.70 | 0.1744 | 0.1111 |
| Mercury | -2032-07-03 05:16 J | 979418.69 | 979418.72 | 979418.76 | 0.1777 | 0.1684 |
| Mercury | -2031-07-30 08:52 J | 979810.72 | 979810.87 | 979811.02 | 0.1764 | 0.0810 |
| Mercury | -2030-06-08 13:12 J | 980123.94 | 980124.05 | 980124.15 | 0.1750 | 0.0593 |
| Mercury | -2021-10-28 23:16 J | 983554.36 | 983554.47 | 983554.59 | 0.1756 | 0.0070 |
| Venus | -2014-11-09 12:14 J | 986121.85 | 986122.01 | 986122.18 | 0.1917 | 0.0691 |
| Venus | -2013-10-13 01:40 J | 986460.44 | 986460.57 | 986460.70 | 0.1609 | 0.1002 |
| Mercury | -2011-03-21 09:21 J | 986984.78 | 986984.89 | 986985.00 | 0.1763 | 0.0495 |
| Venus | -2011-08-13 08:38 J | 987129.72 | 987129.86 | 987130.01 | 0.1615 | 0.0845 |
| Mercury | -2010-04-18 16:47 J | 987378.11 | 987378.20 | 987378.30 | 0.1780 | 0.1433 |
| Mercury | -2009-02-24 16:19 J | 987690.15 | 987690.18 | 987690.21 | 0.1737 | 0.1674 |
| Mercury | -2002-08-11 19:26 J | 990415.22 | 990415.31 | 990415.40 | 0.1770 | 0.1054 |
| Mercury | -2001-09-07 12:57 J | 990807.88 | 990808.04 | 990808.21 | 0.1772 | 0.0345 |

2ND MILLENNIUM BCE

This is a list of transits visible from Mars in the 2nd millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|---|------------|------------|------------|--------|--------|---|
| Mercury | -2000-07-17 02:38 J | | 991120.53 | 991120.61 | 991120.70 | 0.1743 | 0.1167 | |
| Earth | -1993-04-26 12:14 J | | 993595.82 | 993596.01 | 993596.21 | 0.1831 | 0.0478 | |
| Moon | -1993-04-26 13:12 J | | 993595.83 | 993596.05 | 993596.27 | 0.1831 | 0.0188 | * |
| Mercury | -1992-01-01 05:16 J | | 993845.68 | 993845.72 | 993845.76 | 0.1777 | 0.1628 | |
| Mercury | -1991-01-28 09:50 J | | 994237.75 | 994237.91 | 994238.06 | 0.1765 | 0.0705 | |
| Mercury | -1991-12-07 12:57 J | | 994550.94 | 994551.04 | 994551.15 | 0.1750 | 0.0647 | |
| Mercury | -1982-06-20 07:12 J | | 997667.76 | 997667.80 | 997667.83 | 0.1757 | 0.1705 | |
| Mercury | -1981-04-28 23:16 J | | 997981.36 | 997981.47 | 997981.59 | 0.1757 | 0.0117 | |
| Venus | -1980-09-05 08:52 J | | 998475.80 | 998475.87 | 998475.94 | 0.1910 | 0.1749 | |
| Venus | -1979-08-11 23:45 J | | 998816.32 | 998816.49 | 998816.66 | 0.1612 | 0.0039 | |
| Mercury | -1972-09-19 09:36 J | | 1001411.78 | 1001411.90 | 1001412.01 | 0.1763 | 0.0434 | |
| Mercury | -1971-10-17 17:31 J | | 1001805.14 | 1001805.23 | 1001805.32 | 0.1780 | 0.1523 | |
| Mercury | -1970-08-25 16:19 J | | 1002117.17 | 1002117.18 | 1002117.18 | 0.1737 | 0.1729 | |
| Mercury | -1962-02-09 19:26 J | | 1004842.22 | 1004842.31 | 1004842.40 | 0.1770 | 0.0994 | |
| Mercury | -1961-03-08 13:40 J | | 1005234.91 | 1005235.07 | 1005235.24 | 0.1773 | 0.0440 | |
| Mercury | -1960-01-15 02:52 J | | 1005547.54 | 1005547.62 | 1005547.70 | 0.1743 | 0.1227 | |
| Mercury | -1953-07-02 05:16 J | | 1008272.67 | 1008272.72 | 1008272.77 | 0.1777 | 0.1568 | |
| Mercury | -1952-07-29 10:47 J | | 1008664.79 | 1008664.95 | 1008665.11 | 0.1765 | 0.0596 | |
| Mercury | -1951-06-07 12:57 J | | 1008977.94 | 1008978.04 | 1008978.15 | 0.1750 | 0.0703 | |
| Venus | -1948-09-05 13:26 J | | 1010163.88 | 1010164.06 | 1010164.23 | 0.1916 | 0.0300 | |
| Venus | -1947-08-10 14:38 J | | 1010502.97 | 1010503.11 | 1010503.25 | 0.1610 | 0.0911 | |
| Venus | -1945-06-09 21:50 J | | 1011172.27 | 1011172.41 | 1011172.55 | 0.1616 | 0.0940 | |
| Mercury | -1943-12-19 07:40 J | | 1012094.76 | 1012094.82 | 1012094.89 | 0.1757 | 0.1611 | |
| Mercury | -1942-10-28 23:16 J | | 1012408.36 | 1012408.47 | 1012408.59 | 0.1756 | 0.0177 | |
| Moon | -1940-10-26 18:57 J | | 1013137.14 | 1013137.29 | 1013137.45 | 0.1699 | 0.0916 | |
| Earth | -1940-10-27 01:40 J | | 1013137.40 | 1013137.57 | 1013137.74 | 0.1699 | 0.0677 | * |

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| Mercury | -1932-03-20 09:21 J | 1015838.78 | 1015838.89 | 1015839.00 | 0.1763 | 0.0379 |
| Mercury | -1931-04-17 18:28 J | 1016232.21 | 1016232.27 | 1016232.34 | 0.1780 | 0.1635 |
| Mercury | -1923-08-10 19:26 J | 1019269.21 | 1019269.31 | 1019269.41 | 0.1770 | 0.0936 |
| Mercury | -1922-09-07 14:38 J | 1019661.95 | 1019662.11 | 1019662.27 | 0.1773 | 0.0550 |
| Mercury | -1921-07-16 02:38 J | 1019974.53 | 1019974.61 | 1019974.69 | 0.1743 | 0.1275 |
| Mercury | -1913-01-01 05:31 J | 1022699.67 | 1022699.73 | 1022699.79 | 0.1776 | 0.1504 |
| Venus | -1913-06-08 12:43 J | 1022858.86 | 1022859.03 | 1022859.21 | 0.1613 | 0.0069 |
| Mercury | -1912-01-27 11:16 J | 1023091.81 | 1023091.97 | 1023092.13 | 0.1765 | 0.0512 |
| Mercury | -1912-12-06 13:12 J | 1023404.94 | 1023405.05 | 1023405.15 | 0.1750 | 0.0763 |
| Mercury | -1903-06-19 08:38 J | 1026521.78 | 1026521.86 | 1026521.94 | 0.1758 | 0.1508 |
| Mercury | -1902-04-28 23:16 J | 1026835.36 | 1026835.47 | 1026835.59 | 0.1756 | 0.0235 |
| Mercury | -1893-09-18 09:21 J | 1030265.78 | 1030265.89 | 1030266.01 | 0.1763 | 0.0322 |
| Mercury | -1892-10-16 19:26 J | 1030659.28 | 1030659.31 | 1030659.34 | 0.1781 | 0.1741 |
| Mercury | -1883-02-08 19:26 J | 1033696.21 | 1033696.31 | 1033696.41 | 0.1769 | 0.0876 |
| Mercury | -1882-03-08 15:36 J | 1034088.99 | 1034089.15 | 1034089.31 | 0.1773 | 0.0652 |
| Venus | -1882-07-03 15:07 J | 1034205.95 | 1034206.13 | 1034206.31 | 0.1914 | 0.0085 |
| Mercury | -1881-01-15 02:38 J | 1034401.54 | 1034401.61 | 1034401.68 | 0.1743 | 0.1336 |
| Venus | -1881-06-07 03:36 J | 1034545.50 | 1034545.65 | 1034545.80 | 0.1610 | 0.0816 |
| Venus | -1879-04-07 10:33 J | 1035214.81 | 1035214.94 | 1035215.07 | 0.1617 | 0.1043 |
| Mercury | -1874-07-02 05:16 J | 1037126.66 | 1037126.72 | 1037126.79 | 0.1776 | 0.1450 |
| Mercury | -1873-07-28 12:14 J | 1037518.85 | 1037519.01 | 1037519.18 | 0.1765 | 0.0398 |
| Mercury | -1872-06-06 12:57 J | 1037831.94 | 1037832.04 | 1037832.14 | 0.1749 | 0.0817 |
| Mercury | -1864-12-18 09:21 J | 1040948.79 | 1040948.89 | 1040948.98 | 0.1758 | 0.1416 |
| Mercury | -1863-10-27 23:16 J | 1041262.36 | 1041262.47 | 1041262.58 | 0.1756 | 0.0283 |
| Moon | -1861-10-29 05:31 J | 1041994.57 | 1041994.73 | 1041994.90 | 0.1695 | 0.0884 |
| Earth | -1861-10-29 07:40 J | 1041994.66 | 1041994.82 | 1041994.99 | 0.1695 | 0.0702 * |
| Mercury | -1853-03-19 09:36 J | 1044692.78 | 1044692.90 | 1044693.01 | 0.1763 | 0.0261 |
| Venus | -1847-04-06 01:40 J | 1046901.40 | 1046901.57 | 1046901.74 | 0.1614 | 0.0156 |
| Mercury | -1844-08-09 19:26 J | 1048123.21 | 1048123.31 | 1048123.41 | 0.1769 | 0.0819 |
| Mercury | -1843-09-06 16:19 J | 1048516.02 | 1048516.18 | 1048516.33 | 0.1773 | 0.0749 |

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| Mercury | -1842-07-16 02:38 J | 1048828.55 | 1048828.61 | 1048828.68 | 0.1743 | 0.1393 |
| Mercury | -1835-12-31 05:16 J | 1051553.65 | 1051553.72 | 1051553.79 | 0.1776 | 0.1388 |
| Mercury | -1833-01-27 13:12 J | 1051945.88 | 1051946.05 | 1051946.21 | 0.1765 | 0.0302 |
| Mercury | -1833-12-05 12:57 J | 1052258.94 | 1052259.04 | 1052259.14 | 0.1749 | 0.0872 |
| Mercury | -1824-06-18 10:04 J | 1055375.81 | 1055375.92 | 1055376.03 | 0.1758 | 0.1314 |
| Mercury | -1823-04-27 23:16 J | 1055689.36 | 1055689.47 | 1055689.59 | 0.1756 | 0.0345 |
| Venus | -1816-04-29 16:04 J | 1058248.00 | 1058248.17 | 1058248.34 | 0.1913 | 0.0481 |
| Venus | -1815-04-04 16:47 J | 1058588.04 | 1058588.20 | 1058588.35 | 0.1611 | 0.0726 |
| Mercury | -1814-09-18 09:21 J | 1059119.78 | 1059119.89 | 1059120.01 | 0.1763 | 0.0206 |
| Venus | -1813-02-02 23:16 J | 1059257.35 | 1059257.47 | 1059257.59 | 0.1618 | 0.1144 |
| Mercury | -1804-02-07 19:26 J | 1062550.21 | 1062550.31 | 1062550.42 | 0.1769 | 0.0757 |
| Mercury | -1803-03-07 17:16 J | 1062943.07 | 1062943.22 | 1062943.37 | 0.1773 | 0.0858 |
| Mercury | -1802-01-14 02:38 J | 1063255.55 | 1063255.61 | 1063255.67 | 0.1743 | 0.1445 |
| Mercury | -1795-07-01 05:16 J | 1065980.65 | 1065980.72 | 1065980.80 | 0.1776 | 0.1329 |
| Mercury | -1794-07-28 13:40 J | 1066372.90 | 1066373.07 | 1066373.24 | 0.1765 | 0.0208 |
| Mercury | -1793-06-05 13:12 J | 1066685.95 | 1066686.05 | 1066686.14 | 0.1749 | 0.0934 |
| Mercury | -1785-12-17 10:47 J | 1069802.83 | 1069802.95 | 1069803.07 | 0.1758 | 0.1217 |
| Venus | -1784-04-29 22:04 J | 1069936.33 | 1069936.42 | 1069936.51 | 0.1917 | 0.1625 |
| Mercury | -1784-10-26 23:16 J | 1070116.36 | 1070116.47 | 1070116.58 | 0.1756 | 0.0399 |
| Venus | -1783-04-03 07:12 J | 1070274.78 | 1070274.80 | 1070274.82 | 0.1609 | 0.1592 |
| Venus | -1781-02-01 14:38 J | 1070943.94 | 1070944.11 | 1070944.28 | 0.1615 | 0.0251 |
| Mercury | -1774-03-19 09:21 J | 1073546.78 | 1073546.89 | 1073547.01 | 0.1762 | 0.0154 |
| Mercury | -1765-08-08 19:26 J | 1076977.21 | 1076977.31 | 1076977.42 | 0.1769 | 0.0701 |
| Mercury | -1764-09-05 18:00 J | 1077370.11 | 1077370.25 | 1077370.39 | 0.1773 | 0.0957 |
| Mercury | -1763-07-15 02:38 J | 1077682.55 | 1077682.61 | 1077682.67 | 0.1743 | 0.1500 |
| Mercury | -1756-12-30 05:16 J | 1080407.64 | 1080407.72 | 1080407.80 | 0.1776 | 0.1271 |
| Mercury | -1754-01-26 14:38 J | 1080799.94 | 1080800.11 | 1080800.28 | 0.1766 | 0.0102 |
| Mercury | -1754-12-05 12:57 J | 1081112.95 | 1081113.04 | 1081113.14 | 0.1749 | 0.0983 |
| Venus | -1750-02-24 18:14 J | 1082290.10 | 1082290.26 | 1082290.42 | 0.1911 | 0.0849 |
| Venus | -1749-01-31 05:31 J | 1082630.57 | 1082630.73 | 1082630.88 | 0.1612 | 0.0629 |

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| Venus | -1748-11-30 12:00 J | 1083299.90 | 1083300.00 | 1083300.11 | 0.1619 | 0.1246 |
| Mercury | -1745-06-17 11:45 J | 1084229.86 | 1084229.99 | 1084230.12 | 0.1758 | 0.1116 |
| Mercury | -1744-04-26 23:16 J | 1084543.36 | 1084543.47 | 1084543.58 | 0.1756 | 0.0458 |
| Mercury | -1735-09-17 09:21 J | 1087973.78 | 1087973.89 | 1087974.01 | 0.1762 | 0.0111 |
| Earth | -1735-10-25 18:28 J | 1088012.22 | 1088012.27 | 1088012.31 | 0.1709 | 0.1656 |
| Moon | -1735-10-26 01:26 J | 1088012.46 | 1088012.56 | 1088012.67 | 0.1709 | 0.1406 |
| Mercury | -1725-02-07 19:26 J | 1091404.20 | 1091404.31 | 1091404.42 | 0.1769 | 0.0642 |
| Mercury | -1724-03-06 18:43 J | 1091797.15 | 1091797.28 | 1091797.42 | 0.1774 | 0.1057 |
| Mercury | -1723-01-13 02:38 J | 1092109.56 | 1092109.61 | 1092109.66 | 0.1742 | 0.1559 |
| Venus | -1718-02-24 23:16 J | 1093978.34 | 1093978.47 | 1093978.61 | 0.1916 | 0.1232 |
| Venus | -1717-01-29 20:09 J | 1094317.28 | 1094317.34 | 1094317.40 | 0.1609 | 0.1502 |
| Mercury | -1716-06-30 05:16 J | 1094834.64 | 1094834.72 | 1094834.81 | 0.1776 | 0.1212 |
| Venus | -1716-11-29 03:35 J | 1094986.48 | 1094986.65 | 1094986.81 | 0.1616 | 0.0354 |
| Mercury | -1715-07-27 15:35 J | 1095226.98 | 1095227.15 | 1095227.32 | 0.1766 | 0.0009 |
| Mercury | -1714-06-05 12:57 J | 1095539.95 | 1095540.04 | 1095540.13 | 0.1749 | 0.1041 |
| Moon | -1709-04-25 21:21 J | 1097326.21 | 1097326.39 | 1097326.57 | 0.1822 | 0.0585 |
| Earth | -1709-04-26 04:47 J | 1097326.52 | 1097326.70 | 1097326.89 | 0.1823 | 0.0706 * |
| Mercury | -1706-12-17 12:28 J | 1098656.88 | 1098657.02 | 1098657.15 | 0.1758 | 0.1023 |
| Mercury | -1705-10-25 23:16 J | 1098970.36 | 1098970.47 | 1098970.58 | 0.1756 | 0.0513 |
| Mercury | -1695-03-18 09:21 J | 1102400.78 | 1102400.89 | 1102401.01 | 0.1762 | 0.0041 |
| Mercury | -1686-08-08 19:26 J | 1105831.20 | 1105831.31 | 1105831.42 | 0.1769 | 0.0583 |
| Mercury | -1685-09-04 19:40 J | 1106224.19 | 1106224.32 | 1106224.45 | 0.1774 | 0.1165 |
| Venus | -1685-12-21 19:55 J | 1106332.19 | 1106332.33 | 1106332.46 | 0.1909 | 0.1232 |
| Mercury | -1684-07-14 02:38 J | 1106536.57 | 1106536.61 | 1106536.65 | 0.1743 | 0.1611 |
| Venus | -1684-11-27 18:43 J | 1106673.11 | 1106673.28 | 1106673.44 | 0.1613 | 0.0538 |
| Venus | -1682-09-28 00:57 J | 1107342.45 | 1107342.54 | 1107342.63 | 0.1621 | 0.1349 |
| Mercury | -1677-12-29 05:31 J | 1109261.64 | 1109261.73 | 1109261.81 | 0.1775 | 0.1147 |
| Mercury | -1675-01-25 16:04 J | 1109654.00 | 1109654.17 | 1109654.34 | 0.1766 | 0.0095 |
| Mercury | -1675-12-04 12:57 J | 1109966.96 | 1109967.04 | 1109967.13 | 0.1749 | 0.1102 |
| Mercury | -1667-05-21 15:07 J | 1112692.11 | 1112692.13 | 1112692.15 | 0.1783 | 0.1736 |

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| Mercury | -1666-06-17 13:26 J | 1113083.91 | 1113084.06 | 1113084.20 | 0.1759 | 0.0918 |
| Mercury | -1665-04-25 23:16 J | 1113397.36 | 1113397.47 | 1113397.58 | 0.1755 | 0.0571 |
| Mercury | -1656-09-16 09:21 J | 1116827.78 | 1116827.89 | 1116828.01 | 0.1762 | 0.0034 |
| Earth | -1656-10-28 01:12 J | 1116869.37 | 1116869.55 | 1116869.74 | 0.1705 | 0.0228 |
| Moon | -1656-10-28 03:35 J | 1116869.48 | 1116869.65 | 1116869.82 | 0.1704 | 0.0394 * |
| Venus | -1653-12-22 00:57 J | 1118020.38 | 1118020.54 | 1118020.70 | 0.1915 | 0.0848 |
| Venus | -1652-11-26 09:21 J | 1118359.81 | 1118359.89 | 1118359.97 | 0.1610 | 0.1413 |
| Venus | -1650-09-26 16:33 J | 1119029.03 | 1119029.19 | 1119029.36 | 0.1617 | 0.0448 |
| Mercury | -1646-02-06 19:26 J | 1120258.20 | 1120258.31 | 1120258.42 | 0.1769 | 0.0526 |
| Mercury | -1645-03-05 20:24 J | 1120651.24 | 1120651.35 | 1120651.47 | 0.1774 | 0.1268 |
| Mercury | -1644-01-12 02:38 J | 1120963.58 | 1120963.61 | 1120963.64 | 0.1742 | 0.1668 |
| Mercury | -1637-06-29 05:16 J | 1123688.63 | 1123688.72 | 1123688.81 | 0.1776 | 0.1095 |
| Mercury | -1636-07-26 17:02 J | 1124081.04 | 1124081.21 | 1124081.38 | 0.1766 | 0.0206 |
| Mercury | -1635-06-04 12:57 J | 1124393.96 | 1124394.04 | 1124394.13 | 0.1749 | 0.1152 |
| Moon | -1630-04-30 04:33 J | 1126184.57 | 1126184.69 | 1126184.82 | 0.1829 | 0.1509 |
| Mercury | -1628-11-19 15:07 J | 1127119.10 | 1127119.13 | 1127119.17 | 0.1782 | 0.1672 |
| Mercury | -1627-12-16 13:55 J | 1127510.93 | 1127511.08 | 1127511.23 | 0.1758 | 0.0828 |
| Mercury | -1626-10-25 23:16 J | 1127824.36 | 1127824.47 | 1127824.57 | 0.1756 | 0.0626 |
| Venus | -1619-10-18 22:19 J | 1130374.34 | 1130374.43 | 1130374.53 | 0.1907 | 0.1592 |
| Venus | -1618-09-25 07:26 J | 1130715.65 | 1130715.81 | 1130715.98 | 0.1613 | 0.0440 |
| Mercury | -1616-03-17 09:35 J | 1131254.78 | 1131254.90 | 1131255.01 | 0.1762 | 0.0109 |
| Venus | -1616-07-25 13:40 J | 1131384.99 | 1131385.07 | 1131385.14 | 0.1622 | 0.1455 |
| Mercury | -1607-08-07 19:26 J | 1134685.20 | 1134685.31 | 1134685.42 | 0.1769 | 0.0468 |
| Mercury | -1606-09-04 21:07 J | 1135078.28 | 1135078.38 | 1135078.49 | 0.1774 | 0.1366 |
| Mercury | -1605-07-13 02:38 J | 1135390.60 | 1135390.61 | 1135390.62 | 0.1742 | 0.1724 |
| Mercury | -1598-12-29 05:31 J | 1138115.63 | 1138115.73 | 1138115.82 | 0.1775 | 0.1033 |
| Mercury | -1596-01-24 17:45 J | 1138508.08 | 1138508.24 | 1138508.41 | 0.1766 | 0.0308 |
| Mercury | -1596-12-03 12:57 J | 1138820.96 | 1138821.04 | 1138821.12 | 0.1749 | 0.1208 |
| Mercury | -1588-05-20 15:07 J | 1141546.08 | 1141546.13 | 1141546.17 | 0.1782 | 0.1617 |
| Mercury | -1587-06-16 14:52 J | 1141937.97 | 1141938.12 | 1141938.27 | 0.1759 | 0.0722 |

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| Venus | -1587-10-19 02:24 J | 1142062.43 | 1142062.60 | 1142062.77 | 0.1914 | 0.0457 |
| Mercury | -1586-04-25 23:16 J | 1142251.36 | 1142251.47 | 1142251.58 | 0.1755 | 0.0685 |
| Venus | -1586-09-23 22:19 J | 1142402.33 | 1142402.43 | 1142402.53 | 0.1611 | 0.1318 |
| Venus | -1584-07-24 05:02 J | 1143071.55 | 1143071.71 | 1143071.87 | 0.1618 | 0.0555 |
| Mercury | -1578-11-06 12:14 J | 1145367.98 | 1145368.01 | 1145368.05 | 0.1751 | 0.1709 |
| Mercury | -1577-09-15 09:21 J | 1145681.78 | 1145681.89 | 1145682.00 | 0.1762 | 0.0142 |
| Moon | -1577-10-30 02:38 J | 1145726.50 | 1145726.61 | 1145726.72 | 0.1701 | 0.1327 |
| Earth | -1577-10-30 08:09 J | 1145726.71 | 1145726.84 | 1145726.97 | 0.1700 | 0.1175 * |
| Mercury | -1567-02-05 19:26 J | 1149112.20 | 1149112.31 | 1149112.43 | 0.1769 | 0.0409 |
| Mercury | -1566-03-05 22:04 J | 1149505.33 | 1149505.42 | 1149505.51 | 0.1774 | 0.1472 |
| Mercury | -1558-06-29 05:16 J | 1152542.63 | 1152542.72 | 1152542.82 | 0.1775 | 0.0976 |
| Mercury | -1557-07-25 18:28 J | 1152935.11 | 1152935.27 | 1152935.43 | 0.1766 | 0.0397 |
| Mercury | -1556-06-03 12:57 J | 1153247.96 | 1153248.04 | 1153248.12 | 0.1749 | 0.1269 |
| Venus | -1552-07-22 20:09 J | 1154758.17 | 1154758.34 | 1154758.51 | 0.1614 | 0.0341 |
| Venus | -1550-05-23 02:09 J | 1155427.55 | 1155427.59 | 1155427.64 | 0.1623 | 0.1564 |
| Mercury | -1549-11-18 15:07 J | 1155973.08 | 1155973.13 | 1155973.18 | 0.1782 | 0.1556 |
| Mercury | -1548-12-15 15:35 J | 1156364.99 | 1156365.15 | 1156365.31 | 0.1759 | 0.0624 |
| Mercury | -1547-10-24 23:16 J | 1156678.36 | 1156678.47 | 1156678.57 | 0.1755 | 0.0740 |
| Mercury | -1538-05-07 13:12 J | 1159794.99 | 1159795.05 | 1159795.11 | 0.1752 | 0.1610 |
| Mercury | -1537-03-16 09:21 J | 1160108.78 | 1160108.89 | 1160109.01 | 0.1762 | 0.0205 |
| Mercury | -1528-08-06 19:26 J | 1163539.20 | 1163539.31 | 1163539.42 | 0.1768 | 0.0352 |
| Mercury | -1527-09-03 22:47 J | 1163932.38 | 1163932.45 | 1163932.53 | 0.1774 | 0.1574 |
| Venus | -1521-08-15 03:21 J | 1166104.47 | 1166104.64 | 1166104.82 | 0.1912 | 0.0075 |
| Venus | -1520-07-21 11:16 J | 1166444.86 | 1166444.97 | 1166445.08 | 0.1611 | 0.1225 |
| Mercury | -1519-12-28 05:16 J | 1166969.63 | 1166969.72 | 1166969.82 | 0.1775 | 0.0918 |
| Venus | -1518-05-21 18:00 J | 1167114.09 | 1167114.25 | 1167114.41 | 0.1619 | 0.0654 |
| Mercury | -1517-01-24 19:26 J | 1167362.15 | 1167362.31 | 1167362.47 | 0.1767 | 0.0505 |
| Mercury | -1517-12-02 12:57 J | 1167674.97 | 1167675.04 | 1167675.11 | 0.1748 | 0.1320 |
| Mercury | -1509-05-19 15:07 J | 1170400.07 | 1170400.13 | 1170400.19 | 0.1782 | 0.1493 |
| Mercury | -1508-06-15 16:19 J | 1170792.02 | 1170792.18 | 1170792.34 | 0.1759 | 0.0528 |

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| Mercury | -1507-04-24 23:16 J | 1171105.37 | 1171105.47 | 1171105.57 | 0.1755 | 0.0799 |
| Mercury | -1499-11-05 13:40 J | 1174221.99 | 1174222.07 | 1174222.15 | 0.1752 | 0.1526 |
| Mercury | -1498-09-15 09:21 J | 1174535.78 | 1174535.89 | 1174536.01 | 0.1762 | 0.0265 |
| Mercury | -1488-02-04 19:26 J | 1177966.20 | 1177966.31 | 1177966.42 | 0.1768 | 0.0292 |
| Mercury | -1487-03-04 23:45 J | 1178359.43 | 1178359.49 | 1178359.54 | 0.1775 | 0.1676 |
| Venus | -1486-05-20 09:07 J | 1178800.71 | 1178800.88 | 1178801.05 | 0.1615 | 0.0246 |
| Mercury | -1479-06-28 05:16 J | 1181396.62 | 1181396.72 | 1181396.83 | 0.1775 | 0.0859 |
| Mercury | -1478-07-25 20:24 J | 1181789.19 | 1181789.35 | 1181789.51 | 0.1767 | 0.0612 |
| Mercury | -1477-06-02 12:57 J | 1182101.97 | 1182102.04 | 1182102.11 | 0.1748 | 0.1377 |
| Mercury | -1470-11-18 15:07 J | 1184827.06 | 1184827.13 | 1184827.20 | 0.1782 | 0.1440 |
| Mercury | -1469-12-14 17:02 J | 1185219.05 | 1185219.21 | 1185219.37 | 0.1759 | 0.0432 |
| Mercury | -1468-10-23 23:16 J | 1185532.37 | 1185532.47 | 1185532.57 | 0.1755 | 0.0854 |
| Mercury | -1459-05-06 14:38 J | 1188649.02 | 1188649.11 | 1188649.21 | 0.1752 | 0.1417 |
| Mercury | -1458-03-16 09:21 J | 1188962.78 | 1188962.89 | 1188963.00 | 0.1762 | 0.0315 |
| Venus | -1455-06-12 05:16 J | 1190146.54 | 1190146.72 | 1190146.89 | 0.1910 | 0.0324 |
| Venus | -1454-05-19 00:14 J | 1190487.39 | 1190487.51 | 1190487.63 | 0.1612 | 0.1127 |
| Venus | -1452-03-18 06:28 J | 1191156.62 | 1191156.77 | 1191156.92 | 0.1620 | 0.0762 |
| Moon | -1451-10-26 14:38 J | 1191743.95 | 1191744.11 | 1191744.26 | 0.1715 | 0.1080 |
| Earth | -1451-10-26 16:33 J | 1191744.06 | 1191744.19 | 1191744.31 | 0.1715 | 0.1244 * |
| Mercury | -1449-08-05 19:26 J | 1192393.20 | 1192393.31 | 1192393.43 | 0.1768 | 0.0236 |
| Mercury | -1440-12-27 05:31 J | 1195823.62 | 1195823.73 | 1195823.83 | 0.1775 | 0.0798 |
| Mercury | -1438-01-23 20:38 J | 1196216.21 | 1196216.36 | 1196216.52 | 0.1767 | 0.0695 |
| Mercury | -1438-12-02 12:57 J | 1196528.98 | 1196529.04 | 1196529.10 | 0.1748 | 0.1434 |
| Mercury | -1430-05-19 15:07 J | 1199254.06 | 1199254.13 | 1199254.20 | 0.1782 | 0.1379 |
| Mercury | -1429-06-14 18:00 J | 1199646.09 | 1199646.25 | 1199646.42 | 0.1760 | 0.0325 |
| Mercury | -1428-04-23 23:16 J | 1199959.37 | 1199959.47 | 1199959.56 | 0.1755 | 0.0912 |
| Earth | -1425-04-25 21:50 J | 1201057.24 | 1201057.41 | 1201057.59 | 0.1815 | 0.0899 |
| Moon | -1425-04-26 05:16 J | 1201057.54 | 1201057.72 | 1201057.90 | 0.1815 | 0.0595 * |
| Venus | -1423-06-12 09:50 J | 1201834.85 | 1201834.91 | 1201834.98 | 0.1916 | 0.1764 |
| Venus | -1420-03-16 21:50 J | 1202843.24 | 1202843.41 | 1202843.58 | 0.1616 | 0.0140 |

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|---------|---------------------|------------|------------|------------|--------|----------|
| Mercury | -1420-11-04 15:21 J | 1203076.03 | 1203076.14 | 1203076.25 | 0.1752 | 0.1324 |
| Mercury | -1419-09-14 09:21 J | 1203389.78 | 1203389.89 | 1203390.00 | 0.1761 | 0.0373 |
| Mercury | -1409-02-04 19:26 J | 1206820.20 | 1206820.31 | 1206820.43 | 0.1768 | 0.0176 |
| Mercury | -1400-06-27 05:16 J | 1210250.62 | 1210250.72 | 1210250.83 | 0.1775 | 0.0743 |
| Mercury | -1399-07-24 21:50 J | 1210643.26 | 1210643.41 | 1210643.56 | 0.1767 | 0.0810 |
| Mercury | -1398-06-02 12:43 J | 1210955.98 | 1210956.03 | 1210956.09 | 0.1748 | 0.1487 |
| Mercury | -1391-11-17 15:07 J | 1213681.06 | 1213681.13 | 1213681.21 | 0.1782 | 0.1316 |
| Mercury | -1390-12-14 18:28 J | 1214073.11 | 1214073.27 | 1214073.44 | 0.1759 | 0.0241 |
| Venus | -1389-04-08 06:28 J | 1214188.60 | 1214188.77 | 1214188.93 | 0.1908 | 0.0721 |
| Mercury | -1389-10-22 23:02 J | 1214386.37 | 1214386.46 | 1214386.56 | 0.1755 | 0.0968 |
| Venus | -1388-03-15 12:57 J | 1214529.91 | 1214530.04 | 1214530.17 | 0.1613 | 0.1032 |
| Venus | -1386-01-13 19:12 J | 1215199.15 | 1215199.30 | 1215199.44 | 0.1621 | 0.0866 |
| Mercury | -1380-05-05 16:04 J | 1217503.05 | 1217503.17 | 1217503.29 | 0.1752 | 0.1232 |
| Mercury | -1379-03-15 09:21 J | 1217816.78 | 1217816.89 | 1217817.00 | 0.1761 | 0.0437 |
| Earth | -1372-10-28 23:45 J | 1220601.31 | 1220601.49 | 1220601.68 | 0.1710 | 0.0215 |
| Moon | -1372-10-29 06:00 J | 1220601.55 | 1220601.75 | 1220601.94 | 0.1710 | 0.0070 * |
| Mercury | -1370-08-05 19:26 J | 1221247.19 | 1221247.31 | 1221247.42 | 0.1768 | 0.0121 |
| Mercury | -1361-12-26 05:16 J | 1224677.62 | 1224677.72 | 1224677.83 | 0.1775 | 0.0683 |
| Mercury | -1359-01-22 22:33 J | 1225070.30 | 1225070.44 | 1225070.59 | 0.1767 | 0.0910 |
| Mercury | -1359-12-01 12:43 J | 1225382.98 | 1225383.03 | 1225383.09 | 0.1748 | 0.1543 |
| Venus | -1357-04-08 11:45 J | 1225876.87 | 1225876.99 | 1225877.11 | 0.1914 | 0.1382 |
| Venus | -1354-01-12 10:47 J | 1226885.77 | 1226885.95 | 1226886.12 | 0.1617 | 0.0048 |
| Mercury | -1351-05-18 15:07 J | 1228108.05 | 1228108.13 | 1228108.21 | 0.1782 | 0.1261 |
| Mercury | -1350-06-14 19:26 J | 1228500.15 | 1228500.31 | 1228500.48 | 0.1760 | 0.0134 |
| Mercury | -1349-04-22 23:02 J | 1228813.37 | 1228813.46 | 1228813.56 | 0.1755 | 0.1025 |
| Moon | -1346-04-30 00:28 J | 1229915.40 | 1229915.52 | 1229915.64 | 0.1821 | 0.1401 |
| Earth | -1346-04-30 03:21 J | 1229915.54 | 1229915.64 | 1229915.73 | 0.1821 | 0.1579 * |
| Mercury | -1341-11-03 16:47 J | 1231930.08 | 1231930.20 | 1231930.33 | 0.1752 | 0.1133 |
| Mercury | -1340-09-13 09:21 J | 1232243.78 | 1232243.89 | 1232244.00 | 0.1761 | 0.0486 |
| Mercury | -1330-02-03 19:26 J | 1235674.20 | 1235674.31 | 1235674.43 | 0.1768 | 0.0064 |

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|---------|---------------------|------------|------------|------------|--------|--------|
| Venus | -1323-02-03 08:38 J | 1238230.71 | 1238230.86 | 1238231.00 | 0.1906 | 0.1090 |
| Venus | -1322-01-11 01:40 J | 1238572.43 | 1238572.57 | 1238572.71 | 0.1614 | 0.0932 |
| Mercury | -1321-06-26 05:16 J | 1239104.62 | 1239104.72 | 1239104.83 | 0.1775 | 0.0625 |
| Venus | -1321-11-10 07:55 J | 1239241.69 | 1239241.83 | 1239241.97 | 0.1622 | 0.0969 |
| Mercury | -1320-07-23 23:16 J | 1239497.33 | 1239497.47 | 1239497.61 | 0.1767 | 0.1002 |
| Mercury | -1319-06-01 12:57 J | 1239809.99 | 1239810.04 | 1239810.08 | 0.1748 | 0.1602 |
| Mercury | -1312-11-16 15:07 J | 1242535.05 | 1242535.13 | 1242535.22 | 0.1782 | 0.1201 |
| Mercury | -1311-12-13 20:09 J | 1242927.18 | 1242927.34 | 1242927.51 | 0.1760 | 0.0054 |
| Mercury | -1310-10-22 23:02 J | 1243240.37 | 1243240.46 | 1243240.55 | 0.1754 | 0.1076 |
| Mercury | -1301-05-04 17:45 J | 1246357.10 | 1246357.24 | 1246357.37 | 0.1752 | 0.1034 |
| Mercury | -1300-03-14 09:21 J | 1246670.78 | 1246670.89 | 1246671.00 | 0.1761 | 0.0545 |
| Earth | -1293-10-31 06:57 J | 1249458.74 | 1249458.79 | 1249458.84 | 0.1706 | 0.1631 |
| Venus | -1291-02-03 12:57 J | 1249918.89 | 1249919.04 | 1249919.19 | 0.1913 | 0.0983 |
| Mercury | -1291-08-04 19:26 J | 1250101.19 | 1250101.31 | 1250101.42 | 0.1768 | 0.0024 |
| Venus | -1289-11-08 23:31 J | 1250928.31 | 1250928.48 | 1250928.65 | 0.1618 | 0.0060 |
| Mercury | -1282-12-26 05:16 J | 1253531.61 | 1253531.72 | 1253531.83 | 0.1775 | 0.0566 |
| Mercury | -1280-01-22 00:14 J | 1253924.38 | 1253924.51 | 1253924.64 | 0.1768 | 0.1109 |
| Mercury | -1280-11-30 12:43 J | 1254237.00 | 1254237.03 | 1254237.07 | 0.1748 | 0.1651 |
| Mercury | -1272-05-17 15:07 J | 1256962.05 | 1256962.13 | 1256962.22 | 0.1781 | 0.1140 |
| Mercury | -1271-06-13 20:52 J | 1257354.20 | 1257354.37 | 1257354.54 | 0.1760 | 0.0070 |
| Mercury | -1270-04-22 23:02 J | 1257667.38 | 1257667.46 | 1257667.55 | 0.1755 | 0.1136 |
| Mercury | -1263-10-08 00:43 J | 1260392.51 | 1260392.53 | 1260392.56 | 0.1788 | 0.1735 |
| Mercury | -1262-11-03 18:14 J | 1260784.12 | 1260784.26 | 1260784.40 | 0.1753 | 0.0946 |
| Mercury | -1261-09-12 09:21 J | 1261097.78 | 1261097.89 | 1261098.00 | 0.1761 | 0.0603 |
| Venus | -1258-12-01 10:33 J | 1262272.82 | 1262272.94 | 1262273.05 | 0.1904 | 0.1471 |
| Venus | -1257-11-07 14:52 J | 1262614.97 | 1262615.12 | 1262615.26 | 0.1615 | 0.0840 |
| Venus | -1255-09-07 20:24 J | 1263284.23 | 1263284.35 | 1263284.48 | 0.1624 | 0.1079 |
| Mercury | -1251-02-02 19:26 J | 1264528.19 | 1264528.31 | 1264528.42 | 0.1768 | 0.0056 |
| Mercury | -1242-06-26 05:16 J | 1267958.61 | 1267958.72 | 1267958.83 | 0.1774 | 0.0508 |
| Mercury | -1241-07-23 00:57 J | 1268351.42 | 1268351.54 | 1268351.67 | 0.1768 | 0.1216 |

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|---------|---------------------|------------|------------|------------|--------|----------|
| Mercury | -1240-05-31 12:43 J | 1268664.01 | 1268664.03 | 1268664.05 | 0.1748 | 0.1708 |
| Mercury | -1233-11-15 15:07 J | 1271389.04 | 1271389.13 | 1271389.22 | 0.1782 | 0.1086 |
| Mercury | -1232-12-12 21:35 J | 1271781.24 | 1271781.40 | 1271781.57 | 0.1760 | 0.0169 |
| Mercury | -1231-10-21 23:02 J | 1272094.38 | 1272094.46 | 1272094.54 | 0.1754 | 0.1188 |
| Venus | -1226-12-01 14:38 J | 1273960.94 | 1273961.11 | 1273961.28 | 0.1912 | 0.0598 |
| Mercury | -1223-04-08 00:57 J | 1274819.50 | 1274819.54 | 1274819.57 | 0.1788 | 0.1672 |
| Venus | -1223-09-06 12:28 J | 1274970.84 | 1274971.02 | 1274971.19 | 0.1619 | 0.0166 |
| Mercury | -1222-05-04 19:12 J | 1275211.15 | 1275211.30 | 1275211.45 | 0.1753 | 0.0839 |
| Mercury | -1221-03-13 09:21 J | 1275524.78 | 1275524.89 | 1275524.99 | 0.1761 | 0.0659 |
| Mercury | -1212-08-03 19:26 J | 1278955.19 | 1278955.31 | 1278955.42 | 0.1768 | 0.0115 |
| Mercury | -1203-12-25 05:16 J | 1282385.61 | 1282385.72 | 1282385.84 | 0.1774 | 0.0450 |
| Mercury | -1201-01-22 01:26 J | 1282778.45 | 1282778.56 | 1282778.68 | 0.1768 | 0.1299 |
| Mercury | -1193-05-16 15:07 J | 1285816.04 | 1285816.13 | 1285816.23 | 0.1781 | 0.1024 |
| Mercury | -1192-06-12 22:47 J | 1286208.28 | 1286208.45 | 1286208.61 | 0.1761 | 0.0274 |
| Venus | -1192-09-27 12:57 J | 1286315.00 | 1286315.04 | 1286315.09 | 0.1902 | 0.1831 |
| Mercury | -1191-04-21 23:02 J | 1286521.38 | 1286521.46 | 1286521.54 | 0.1754 | 0.1246 |
| Venus | -1191-09-05 03:21 J | 1286657.49 | 1286657.64 | 1286657.80 | 0.1615 | 0.0739 |
| Venus | -1189-07-05 09:07 J | 1287326.76 | 1287326.88 | 1287326.99 | 0.1625 | 0.1188 |
| Mercury | -1184-10-07 00:43 J | 1289246.49 | 1289246.53 | 1289246.58 | 0.1788 | 0.1616 |
| Mercury | -1183-11-02 19:55 J | 1289638.18 | 1289638.33 | 1289638.48 | 0.1753 | 0.0746 |
| Mercury | -1182-09-12 09:21 J | 1289951.78 | 1289951.89 | 1289951.99 | 0.1761 | 0.0716 |
| Mercury | -1173-03-24 17:45 J | 1293068.21 | 1293068.24 | 1293068.26 | 0.1746 | 0.1714 |
| Mercury | -1172-02-01 19:26 J | 1293382.19 | 1293382.31 | 1293382.42 | 0.1767 | 0.0173 |
| Moon | -1167-10-27 07:55 J | 1295475.67 | 1295475.83 | 1295475.99 | 0.1721 | 0.0689 |
| Earth | -1167-10-27 12:43 J | 1295475.86 | 1295476.03 | 1295476.19 | 0.1721 | 0.0859 * |
| Mercury | -1163-06-25 05:16 J | 1296812.61 | 1296812.72 | 1296812.83 | 0.1775 | 0.0391 |
| Mercury | -1162-07-23 02:38 J | 1297205.51 | 1297205.61 | 1297205.71 | 0.1768 | 0.1416 |
| Venus | -1160-09-27 16:19 J | 1298003.00 | 1298003.18 | 1298003.35 | 0.1910 | 0.0211 |
| Venus | -1157-07-04 00:43 J | 1299013.36 | 1299013.53 | 1299013.70 | 0.1620 | 0.0271 |
| Mercury | -1154-11-15 15:07 J | 1300243.04 | 1300243.13 | 1300243.23 | 0.1781 | 0.0964 |

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|---------|---------------------|------------|------------|------------|--------|----------|
| Mercury | -1153-12-11 23:16 J | 1300635.30 | 1300635.47 | 1300635.63 | 0.1760 | 0.0357 |
| Mercury | -1152-10-20 23:02 J | 1300948.38 | 1300948.46 | 1300948.53 | 0.1754 | 0.1302 |
| Mercury | -1144-04-07 00:43 J | 1303673.48 | 1303673.53 | 1303673.59 | 0.1788 | 0.1555 |
| Mercury | -1143-05-03 20:38 J | 1304065.20 | 1304065.36 | 1304065.51 | 0.1753 | 0.0653 |
| Mercury | -1142-03-13 09:21 J | 1304378.79 | 1304378.89 | 1304378.99 | 0.1760 | 0.0774 |
| Moon | -1141-04-25 13:55 J | 1304787.91 | 1304788.08 | 1304788.26 | 0.1806 | 0.1092 |
| Earth | -1141-04-25 16:19 J | 1304788.02 | 1304788.18 | 1304788.34 | 0.1806 | 0.1038 * |
| Mercury | -1134-09-23 18:28 J | 1307495.21 | 1307495.27 | 1307495.33 | 0.1746 | 0.1618 |
| Mercury | -1133-08-02 19:12 J | 1307809.19 | 1307809.30 | 1307809.42 | 0.1767 | 0.0236 |
| Venus | -1125-07-02 16:04 J | 1310700.02 | 1310700.17 | 1310700.33 | 0.1616 | 0.0640 |
| Mercury | -1124-12-24 05:16 J | 1311239.61 | 1311239.72 | 1311239.84 | 0.1774 | 0.0333 |
| Venus | -1123-05-02 21:35 J | 1311369.30 | 1311369.40 | 1311369.50 | 0.1626 | 0.1300 |
| Mercury | -1122-01-21 03:21 J | 1311632.55 | 1311632.64 | 1311632.72 | 0.1768 | 0.1514 |
| Mercury | -1114-05-16 15:07 J | 1314670.03 | 1314670.13 | 1314670.23 | 0.1781 | 0.0908 |
| Mercury | -1113-06-12 00:00 J | 1315062.34 | 1315062.50 | 1315062.67 | 0.1761 | 0.0466 |
| Mercury | -1112-04-20 23:02 J | 1315375.39 | 1315375.46 | 1315375.53 | 0.1754 | 0.1357 |
| Mercury | -1105-10-06 00:43 J | 1318100.47 | 1318100.53 | 1318100.60 | 0.1788 | 0.1496 |
| Mercury | -1104-11-01 21:21 J | 1318492.23 | 1318492.39 | 1318492.55 | 0.1753 | 0.0554 |
| Mercury | -1103-09-11 09:07 J | 1318805.78 | 1318805.88 | 1318805.98 | 0.1761 | 0.0826 |
| Mercury | -1094-03-24 18:57 J | 1321922.21 | 1321922.29 | 1321922.37 | 0.1746 | 0.1532 |
| Venus | -1094-07-25 17:31 J | 1322045.06 | 1322045.23 | 1322045.41 | 0.1908 | 0.0192 |
| Mercury | -1093-02-01 19:26 J | 1322236.20 | 1322236.31 | 1322236.42 | 0.1767 | 0.0289 |
| Venus | -1093-07-01 07:26 J | 1322386.76 | 1322386.81 | 1322386.86 | 0.1613 | 0.1533 |
| Venus | -1091-05-01 13:40 J | 1323055.90 | 1323056.07 | 1323056.23 | 0.1622 | 0.0374 |
| Moon | -1088-10-29 15:35 J | 1324332.96 | 1324333.15 | 1324333.34 | 0.1716 | 0.0347 |
| Earth | -1088-10-29 21:21 J | 1324333.22 | 1324333.39 | 1324333.57 | 0.1716 | 0.0640 * |
| Mercury | -1084-06-24 05:16 J | 1325666.61 | 1325666.72 | 1325666.84 | 0.1774 | 0.0274 |
| Mercury | -1083-07-22 03:50 J | 1326059.60 | 1326059.66 | 1326059.73 | 0.1768 | 0.1608 |
| Mercury | -1075-11-14 15:07 J | 1329097.03 | 1329097.13 | 1329097.23 | 0.1781 | 0.0848 |
| Mercury | -1074-12-12 00:57 J | 1329489.38 | 1329489.54 | 1329489.70 | 0.1761 | 0.0562 |

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|---------|---------------------|------------|------------|------------|--------|--------|
| Mercury | -1073-10-19 22:47 J | 1329802.39 | 1329802.45 | 1329802.52 | 0.1754 | 0.1412 |
| Mercury | -1065-04-06 00:43 J | 1332527.47 | 1332527.53 | 1332527.60 | 0.1788 | 0.1436 |
| Mercury | -1064-05-02 22:04 J | 1332919.26 | 1332919.42 | 1332919.59 | 0.1753 | 0.0455 |
| Mercury | -1063-03-12 09:07 J | 1333232.79 | 1333232.88 | 1333232.98 | 0.1760 | 0.0888 |
| Earth | -1062-04-29 20:24 J | 1333646.22 | 1333646.35 | 1333646.48 | 0.1813 | 0.1351 |
| Moon | -1062-04-30 04:47 J | 1333646.58 | 1333646.70 | 1333646.81 | 0.1814 | 0.1472 |
| Venus | -1062-07-25 22:19 J | 1333733.42 | 1333733.43 | 1333733.43 | 0.1914 | 0.1911 |
| Venus | -1059-04-30 05:02 J | 1334742.55 | 1334742.71 | 1334742.87 | 0.1617 | 0.0537 |
| Venus | -1057-02-28 09:50 J | 1335411.83 | 1335411.91 | 1335412.00 | 0.1628 | 0.1414 |
| Mercury | -1055-09-22 19:55 J | 1336349.23 | 1336349.33 | 1336349.42 | 0.1746 | 0.1431 |
| Mercury | -1054-08-02 19:12 J | 1336663.19 | 1336663.30 | 1336663.42 | 0.1767 | 0.0346 |
| Mercury | -1045-12-23 05:16 J | 1340093.61 | 1340093.72 | 1340093.84 | 0.1774 | 0.0216 |
| Mercury | -1043-01-20 04:47 J | 1340486.66 | 1340486.70 | 1340486.74 | 0.1769 | 0.1714 |
| Mercury | -1035-05-15 15:07 J | 1343524.03 | 1343524.13 | 1343524.24 | 0.1781 | 0.0787 |
| Mercury | -1034-06-12 01:40 J | 1343916.41 | 1343916.57 | 1343916.72 | 0.1761 | 0.0657 |
| Mercury | -1033-04-19 23:02 J | 1344229.40 | 1344229.46 | 1344229.52 | 0.1754 | 0.1471 |
| Venus | -1028-05-21 19:12 J | 1346087.13 | 1346087.30 | 1346087.47 | 0.1905 | 0.0576 |
| Venus | -1027-04-28 20:09 J | 1346429.26 | 1346429.34 | 1346429.42 | 0.1614 | 0.1432 |
| Mercury | -1026-10-06 00:43 J | 1346954.46 | 1346954.53 | 1346954.60 | 0.1788 | 0.1378 |
| Venus | -1025-02-27 01:40 J | 1347098.41 | 1347098.57 | 1347098.74 | 0.1623 | 0.0488 |
| Mercury | -1025-10-31 22:47 J | 1347346.29 | 1347346.45 | 1347346.61 | 0.1754 | 0.0362 |
| Mercury | -1024-09-10 09:21 J | 1347659.79 | 1347659.89 | 1347659.98 | 0.1760 | 0.0945 |
| Mercury | -1015-03-23 20:38 J | 1350776.25 | 1350776.36 | 1350776.47 | 0.1746 | 0.1332 |
| Mercury | -1014-01-31 19:12 J | 1351090.19 | 1351090.30 | 1351090.42 | 0.1767 | 0.0404 |
| Mercury | -1005-06-23 05:16 J | 1354520.61 | 1354520.72 | 1354520.84 | 0.1774 | 0.0159 |

1ST MILLENNIUM BCE

This is a list of transits visible from Mars in the 1st millennium BCE.

| PLANET | MAX- TRANSIT TIME | C | START | MAX | END | SUNRAD | DEPTH | S |
|---------|-------------------------|---|------------|------------|------------|--------|--------|---|
| Venus | -996-05-21 23:16 J | | 1357775.36 | 1357775.47 | 1357775.57 | 0.1912 | 0.1505 | |
| Mercury | -996-11-13 15:07 J | | 1357951.02 | 1357951.13 | 1357951.23 | 0.1781 | 0.0733 | |
| Mercury | -995-12-11 02:24 J | | 1358343.45 | 1358343.60 | 1358343.75 | 0.1761 | 0.0758 | |
| Mercury | -994-10-19 22:47 J | | 1358656.40 | 1358656.45 | 1358656.51 | 0.1754 | 0.1524 | |
| Venus | -993-02-25 17:31 J | | 1358785.06 | 1358785.23 | 1358785.40 | 0.1619 | 0.0431 | |
| Venus | -992-12-25 22:19 J | | 1359454.37 | 1359454.43 | 1359454.48 | 0.1629 | 0.1531 | |
| Mercury | -986-04-06 00:57 J | | 1361381.46 | 1361381.54 | 1361381.61 | 0.1788 | 0.1314 | |
| Mercury | -985-05-01 23:45 J | | 1361773.32 | 1361773.49 | 1361773.65 | 0.1754 | 0.0259 | |
| Mercury | -984-03-11 09:07 J | | 1362086.79 | 1362086.88 | 1362086.98 | 0.1760 | 0.0997 | |
| Mercury | -976-09-21 21:07 J | | 1365203.26 | 1365203.38 | 1365203.49 | 0.1746 | 0.1251 | |
| Mercury | -975-08-01 19:26 J | | 1365517.20 | 1365517.31 | 1365517.42 | 0.1767 | 0.0462 | |
| Mercury | -966-12-23 05:16 J | | 1368947.61 | 1368947.72 | 1368947.84 | 0.1774 | 0.0099 | |
| Venus | -962-03-18 20:52 J | | 1370129.22 | 1370129.37 | 1370129.52 | 0.1903 | 0.0966 | |
| Venus | -961-02-24 08:52 J | | 1370471.78 | 1370471.87 | 1370471.97 | 0.1615 | 0.1337 | |
| Venus | -960-12-24 14:24 J | | 1371140.94 | 1371141.10 | 1371141.27 | 0.1624 | 0.0595 | |
| Mercury | -956-05-14 15:07 J | | 1372378.03 | 1372378.13 | 1372378.24 | 0.1781 | 0.0670 | |
| Mercury | -955-06-11 03:21 J | | 1372770.49 | 1372770.64 | 1372770.79 | 0.1762 | 0.0868 | |
| Mercury | -954-04-19 22:47 J | | 1373083.41 | 1373083.45 | 1373083.50 | 0.1753 | 0.1580 | |
| Mercury | -947-10-05 00:43 J | | 1375808.45 | 1375808.53 | 1375808.61 | 0.1787 | 0.1260 | |
| Mercury | -946-11-01 00:14 J | | 1376200.35 | 1376200.51 | 1376200.68 | 0.1754 | 0.0172 | |
| Mercury | -945-09-09 09:07 J | | 1376513.79 | 1376513.88 | 1376513.97 | 0.1760 | 0.1053 | |
| Mercury | -936-03-22 22:04 J | | 1379630.29 | 1379630.42 | 1379630.55 | 0.1747 | 0.1144 | |

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|---------|--------------------|------------|------------|------------|--------|----------|
| Mercury | -935-01-30 19:12 J | 1379944.19 | 1379944.30 | 1379944.41 | 0.1767 | 0.0513 |
| Venus | -930-03-19 01:26 J | 1381817.42 | 1381817.56 | 1381817.70 | 0.1910 | 0.1126 |
| Venus | -928-12-23 06:28 J | 1382827.60 | 1382827.77 | 1382827.93 | 0.1620 | 0.0332 |
| Mercury | -926-06-23 05:16 J | 1383374.61 | 1383374.72 | 1383374.84 | 0.1774 | 0.0042 |
| Mercury | -917-11-12 15:07 J | 1386805.02 | 1386805.13 | 1386805.24 | 0.1780 | 0.0611 |
| Mercury | -916-12-10 03:50 J | 1387197.52 | 1387197.66 | 1387197.80 | 0.1761 | 0.0950 |
| Mercury | -915-10-18 22:47 J | 1387510.42 | 1387510.45 | 1387510.49 | 0.1753 | 0.1636 |
| Mercury | -907-04-05 00:43 J | 1390235.45 | 1390235.53 | 1390235.62 | 0.1787 | 0.1199 |
| Mercury | -906-05-02 01:12 J | 1390627.38 | 1390627.55 | 1390627.72 | 0.1754 | 0.0072 |
| Mercury | -905-03-10 09:07 J | 1390940.80 | 1390940.88 | 1390940.97 | 0.1760 | 0.1113 |
| Mercury | -897-09-20 22:47 J | 1394057.32 | 1394057.45 | 1394057.59 | 0.1747 | 0.1048 |
| Venus | -896-01-12 23:16 J | 1394171.35 | 1394171.47 | 1394171.60 | 0.1901 | 0.1332 |
| Mercury | -896-07-31 19:12 J | 1394371.19 | 1394371.30 | 1394371.41 | 0.1767 | 0.0570 |
| Venus | -896-12-21 21:35 J | 1394514.29 | 1394514.40 | 1394514.51 | 0.1616 | 0.1234 |
| Venus | -894-10-22 03:07 J | 1395183.48 | 1395183.63 | 1395183.79 | 0.1626 | 0.0701 |
| Mercury | -887-12-22 05:16 J | 1397801.61 | 1397801.72 | 1397801.84 | 0.1773 | 0.0019 |
| Earth | -883-10-28 08:24 J | 1399207.67 | 1399207.85 | 1399208.03 | 0.1727 | 0.0471 |
| Moon | -883-10-28 14:09 J | 1399207.91 | 1399208.09 | 1399208.27 | 0.1727 | 0.0157 * |
| Mercury | -877-05-13 15:07 J | 1401232.02 | 1401232.13 | 1401232.24 | 0.1781 | 0.0556 |
| Mercury | -876-06-10 04:47 J | 1401624.57 | 1401624.70 | 1401624.83 | 0.1762 | 0.1061 |
| Mercury | -875-04-18 22:47 J | 1401937.43 | 1401937.45 | 1401937.48 | 0.1753 | 0.1690 |
| Mercury | -868-10-04 00:43 J | 1404662.45 | 1404662.53 | 1404662.62 | 0.1787 | 0.1139 |
| Mercury | -867-10-31 01:55 J | 1405054.41 | 1405054.58 | 1405054.75 | 0.1754 | 0.0032 |
| Mercury | -866-09-09 09:07 J | 1405367.79 | 1405367.88 | 1405367.96 | 0.1760 | 0.1164 |
| Venus | -864-01-13 02:38 J | 1405859.45 | 1405859.61 | 1405859.78 | 0.1908 | 0.0731 |
| Venus | -862-10-20 18:57 J | 1406870.12 | 1406870.29 | 1406870.47 | 0.1621 | 0.0228 |
| Mercury | -858-02-24 10:33 J | 1408092.91 | 1408092.94 | 1408092.96 | 0.1794 | 0.1733 |
| Mercury | -857-03-21 23:31 J | 1408484.34 | 1408484.48 | 1408484.61 | 0.1747 | 0.0962 |
| Moon | -857-04-25 06:57 J | 1408518.67 | 1408518.79 | 1408518.92 | 0.1798 | 0.1308 |
| Earth | -857-04-25 13:40 J | 1408518.91 | 1408519.07 | 1408519.23 | 0.1798 | 0.1095 * |

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| Mercury | -856-01-29 19:26 J | 1408798.20 | 1408798.31 | 1408798.41 | 0.1767 | 0.0636 |
| Mercury | -847-06-22 05:16 J | 1412228.60 | 1412228.72 | 1412228.83 | 0.1773 | 0.0076 |
| Mercury | -838-11-12 15:07 J | 1415659.02 | 1415659.13 | 1415659.24 | 0.1780 | 0.0495 |
| Mercury | -837-12-09 05:31 J | 1416051.61 | 1416051.73 | 1416051.86 | 0.1762 | 0.1164 |
| Mercury | -836-10-17 22:47 J | 1416364.44 | 1416364.45 | 1416364.46 | 0.1753 | 0.1743 |
| Venus | -831-11-10 01:26 J | 1418213.49 | 1418213.56 | 1418213.64 | 0.1898 | 0.1708 |
| Venus | -830-10-19 10:33 J | 1418556.82 | 1418556.94 | 1418557.06 | 0.1617 | 0.1139 |
| Mercury | -828-04-04 00:43 J | 1419089.44 | 1419089.53 | 1419089.63 | 0.1787 | 0.1080 |
| Venus | -828-08-18 15:35 J | 1419226.00 | 1419226.15 | 1419226.30 | 0.1627 | 0.0814 |
| Mercury | -827-05-01 02:38 J | 1419481.45 | 1419481.61 | 1419481.78 | 0.1754 | 0.0141 |
| Mercury | -826-03-10 09:07 J | 1419794.80 | 1419794.88 | 1419794.96 | 0.1760 | 0.1225 |
| Mercury | -819-08-25 10:19 J | 1422519.89 | 1422519.93 | 1422519.97 | 0.1794 | 0.1678 |
| Mercury | -818-09-21 00:14 J | 1422911.37 | 1422911.51 | 1422911.66 | 0.1747 | 0.0859 |
| Mercury | -817-07-30 19:12 J | 1423225.19 | 1423225.30 | 1423225.41 | 0.1767 | 0.0682 |
| Mercury | -808-12-21 05:16 J | 1426655.60 | 1426655.72 | 1426655.83 | 0.1774 | 0.0133 |
| Moon | -804-10-30 16:33 J | 1428065.04 | 1428065.19 | 1428065.34 | 0.1722 | 0.0813 |
| Earth | -804-10-30 17:31 J | 1428065.08 | 1428065.23 | 1428065.38 | 0.1722 | 0.1048 * |
| Venus | -799-11-10 04:47 J | 1429901.53 | 1429901.70 | 1429901.88 | 0.1907 | 0.0348 |
| Mercury | -798-05-13 15:07 J | 1430086.02 | 1430086.13 | 1430086.25 | 0.1780 | 0.0435 |
| Mercury | -797-06-09 06:14 J | 1430478.64 | 1430478.76 | 1430478.88 | 0.1762 | 0.1256 |
| Venus | -796-08-17 07:40 J | 1430912.65 | 1430912.82 | 1430912.99 | 0.1622 | 0.0124 |
| Mercury | -789-10-03 00:43 J | 1433516.44 | 1433516.53 | 1433516.63 | 0.1787 | 0.1022 |
| Mercury | -788-10-30 03:21 J | 1433908.47 | 1433908.64 | 1433908.81 | 0.1755 | 0.0228 |
| Mercury | -787-09-08 09:07 J | 1434221.80 | 1434221.88 | 1434221.96 | 0.1760 | 0.1280 |
| Mercury | -779-02-23 10:33 J | 1436946.89 | 1436946.94 | 1436946.98 | 0.1794 | 0.1615 |
| Mercury | -778-03-22 01:12 J | 1437338.40 | 1437338.55 | 1437338.70 | 0.1747 | 0.0761 |
| Moon | -778-04-29 07:40 J | 1437376.67 | 1437376.82 | 1437376.97 | 0.1804 | 0.1243 |
| Earth | -778-04-29 15:07 J | 1437376.99 | 1437377.13 | 1437377.28 | 0.1805 | 0.1188 |
| Mercury | -777-01-29 19:12 J | 1437652.20 | 1437652.30 | 1437652.40 | 0.1766 | 0.0742 |
| Mercury | -769-08-10 23:02 J | 1440768.44 | 1440768.46 | 1440768.48 | 0.1740 | 0.1717 |

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|---------|--------------------|------------|------------|------------|--------|--------|
| Mercury | -768-06-21 05:16 J | 1441082.60 | 1441082.72 | 1441082.83 | 0.1773 | 0.0191 |
| Venus | -764-08-15 23:02 J | 1442599.33 | 1442599.46 | 1442599.59 | 0.1618 | 0.1035 |
| Venus | -762-06-16 04:04 J | 1443268.53 | 1443268.67 | 1443268.81 | 0.1628 | 0.0924 |
| Mercury | -759-11-11 15:07 J | 1444513.02 | 1444513.13 | 1444513.24 | 0.1780 | 0.0380 |
| Mercury | -758-12-09 07:12 J | 1444905.69 | 1444905.80 | 1444905.90 | 0.1762 | 0.1360 |
| Mercury | -749-04-03 00:57 J | 1447943.44 | 1447943.54 | 1447943.63 | 0.1787 | 0.0957 |
| Mercury | -748-04-30 04:19 J | 1448335.51 | 1448335.68 | 1448335.84 | 0.1755 | 0.0330 |
| Mercury | -747-03-09 09:07 J | 1448648.81 | 1448648.88 | 1448648.95 | 0.1760 | 0.1335 |
| Mercury | -740-08-24 10:19 J | 1451373.88 | 1451373.93 | 1451373.99 | 0.1794 | 0.1556 |
| Mercury | -739-09-20 01:40 J | 1451765.41 | 1451765.57 | 1451765.72 | 0.1747 | 0.0677 |
| Mercury | -738-07-30 19:12 J | 1452079.20 | 1452079.30 | 1452079.40 | 0.1766 | 0.0802 |
| Venus | -733-09-06 06:28 J | 1453943.60 | 1453943.77 | 1453943.95 | 0.1904 | 0.0060 |
| Venus | -730-06-14 20:09 J | 1454955.17 | 1454955.34 | 1454955.52 | 0.1623 | 0.0032 |
| Mercury | -729-02-09 23:45 J | 1455195.44 | 1455195.49 | 1455195.55 | 0.1740 | 0.1621 |
| Mercury | -729-12-20 05:16 J | 1455509.61 | 1455509.72 | 1455509.83 | 0.1773 | 0.0249 |
| Mercury | -719-05-12 15:07 J | 1458940.02 | 1458940.13 | 1458940.24 | 0.1780 | 0.0317 |
| Mercury | -718-06-09 08:09 J | 1459332.75 | 1459332.84 | 1459332.93 | 0.1762 | 0.1469 |
| Mercury | -710-10-03 00:43 J | 1462370.43 | 1462370.53 | 1462370.63 | 0.1787 | 0.0904 |
| Mercury | -709-10-29 05:02 J | 1462762.54 | 1462762.71 | 1462762.87 | 0.1755 | 0.0427 |
| Mercury | -708-09-07 09:07 J | 1463075.81 | 1463075.88 | 1463075.95 | 0.1759 | 0.1392 |
| Mercury | -700-02-22 10:19 J | 1465800.87 | 1465800.93 | 1465801.00 | 0.1794 | 0.1496 |
| Mercury | -699-03-21 02:38 J | 1466192.45 | 1466192.61 | 1466192.77 | 0.1747 | 0.0566 |
| Mercury | -698-01-28 19:12 J | 1466506.20 | 1466506.30 | 1466506.40 | 0.1766 | 0.0856 |
| Venus | -698-06-13 12:00 J | 1466641.86 | 1466642.00 | 1466642.14 | 0.1619 | 0.0934 |
| Venus | -696-04-12 16:33 J | 1467311.06 | 1467311.19 | 1467311.32 | 0.1630 | 0.1040 |
| Mercury | -690-08-11 00:28 J | 1469622.44 | 1469622.52 | 1469622.60 | 0.1740 | 0.1533 |
| Mercury | -689-06-20 05:16 J | 1469936.61 | 1469936.72 | 1469936.83 | 0.1773 | 0.0308 |
| Mercury | -680-11-10 15:07 J | 1473367.02 | 1473367.13 | 1473367.25 | 0.1780 | 0.0259 |
| Mercury | -679-12-08 08:38 J | 1473759.78 | 1473759.86 | 1473759.93 | 0.1762 | 0.1552 |
| Earth | -678-10-26 18:00 J | 1474082.19 | 1474082.25 | 1474082.31 | 0.1739 | 0.1639 |

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| Mercury | -670-04-03 00:43 J | 1476797.43 | 1476797.53 | 1476797.64 | 0.1787 | 0.0842 |
| Mercury | -669-04-29 05:45 J | 1477189.58 | 1477189.74 | 1477189.90 | 0.1755 | 0.0530 |
| Mercury | -668-03-08 09:07 J | 1477502.82 | 1477502.88 | 1477502.94 | 0.1759 | 0.1450 |
| Venus | -667-07-04 08:24 J | 1477985.68 | 1477985.85 | 1477986.02 | 0.1902 | 0.0435 |
| Venus | -664-04-11 08:52 J | 1478997.70 | 1478997.87 | 1478998.05 | 0.1625 | 0.0100 |
| Mercury | -661-08-23 10:33 J | 1480227.87 | 1480227.94 | 1480228.00 | 0.1794 | 0.1435 |
| Mercury | -660-09-19 03:21 J | 1480619.48 | 1480619.64 | 1480619.80 | 0.1748 | 0.0470 |
| Mercury | -659-07-29 19:12 J | 1480933.20 | 1480933.30 | 1480933.40 | 0.1766 | 0.0913 |
| Mercury | -650-02-09 01:12 J | 1484049.46 | 1484049.55 | 1484049.64 | 0.1740 | 0.1436 |
| Mercury | -650-12-20 05:16 J | 1484363.61 | 1484363.72 | 1484363.83 | 0.1773 | 0.0365 |
| Mercury | -640-05-11 15:07 J | 1487794.01 | 1487794.13 | 1487794.24 | 0.1780 | 0.0203 |
| Mercury | -639-06-08 09:35 J | 1488186.85 | 1488186.90 | 1488186.95 | 0.1763 | 0.1668 |
| Venus | -635-07-04 12:14 J | 1489673.92 | 1489674.01 | 1489674.10 | 0.1909 | 0.1655 |
| Venus | -632-04-10 00:43 J | 1490684.38 | 1490684.53 | 1490684.67 | 0.1620 | 0.0831 |
| Mercury | -631-10-02 00:57 J | 1491224.43 | 1491224.54 | 1491224.64 | 0.1787 | 0.0778 |
| Venus | -630-02-08 05:02 J | 1491353.59 | 1491353.71 | 1491353.83 | 0.1632 | 0.1155 |
| Mercury | -630-10-29 06:28 J | 1491616.62 | 1491616.77 | 1491616.93 | 0.1755 | 0.0625 |
| Mercury | -629-09-06 09:07 J | 1491929.82 | 1491929.88 | 1491929.93 | 0.1759 | 0.1505 |
| Mercury | -621-02-22 10:33 J | 1494654.86 | 1494654.94 | 1494655.01 | 0.1793 | 0.1372 |
| Mercury | -620-03-20 03:50 J | 1495046.50 | 1495046.66 | 1495046.83 | 0.1748 | 0.0383 |
| Mercury | -619-01-27 19:12 J | 1495360.21 | 1495360.30 | 1495360.40 | 0.1766 | 0.0976 |
| Mercury | -611-08-10 02:09 J | 1498476.48 | 1498476.59 | 1498476.69 | 0.1741 | 0.1336 |
| Mercury | -610-06-20 05:16 J | 1498790.61 | 1498790.72 | 1498790.83 | 0.1773 | 0.0423 |
| Venus | -601-04-30 10:19 J | 1502027.77 | 1502027.93 | 1502028.09 | 0.1900 | 0.0816 |
| Mercury | -601-11-09 15:07 J | 1502221.02 | 1502221.13 | 1502221.25 | 0.1780 | 0.0141 |
| Earth | -599-10-29 04:04 J | 1502939.48 | 1502939.67 | 1502939.85 | 0.1733 | 0.0084 |
| Moon | -599-10-29 04:47 J | 1502939.50 | 1502939.70 | 1502939.90 | 0.1733 | 0.0146 * |
| Venus | -598-02-06 21:07 J | 1503040.21 | 1503040.38 | 1503040.55 | 0.1626 | 0.0209 |
| Mercury | -591-04-02 00:57 J | 1505651.43 | 1505651.54 | 1505651.64 | 0.1786 | 0.0723 |
| Mercury | -590-04-29 07:26 J | 1506043.65 | 1506043.81 | 1506043.96 | 0.1755 | 0.0728 |

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| Mercury | -589-03-07 09:07 J | 1506356.83 | 1506356.88 | 1506356.93 | 0.1759 | 0.1563 |
| Mercury | -582-08-23 10:33 J | 1509081.86 | 1509081.94 | 1509082.01 | 0.1794 | 0.1317 |
| Mercury | -581-09-18 04:47 J | 1509473.54 | 1509473.70 | 1509473.87 | 0.1748 | 0.0278 |
| Mercury | -580-07-28 19:12 J | 1509787.20 | 1509787.30 | 1509787.39 | 0.1766 | 0.1026 |
| Earth | -573-04-25 13:12 J | 1512249.89 | 1512250.05 | 1512250.21 | 0.1790 | 0.1084 |
| Moon | -573-04-25 21:21 J | 1512250.24 | 1512250.39 | 1512250.53 | 0.1791 | 0.1186 |
| Mercury | -571-02-08 02:38 J | 1512903.50 | 1512903.61 | 1512903.72 | 0.1740 | 0.1250 |
| Mercury | -571-12-19 05:16 J | 1513217.61 | 1513217.72 | 1513217.83 | 0.1773 | 0.0483 |
| Venus | -569-04-30 13:26 J | 1513715.93 | 1513716.06 | 1513716.20 | 0.1907 | 0.1253 |
| Venus | -566-02-05 13:12 J | 1514726.90 | 1514727.05 | 1514727.20 | 0.1622 | 0.0725 |
| Venus | -565-12-05 17:16 J | 1515396.11 | 1515396.22 | 1515396.32 | 0.1633 | 0.1274 |
| Mercury | -561-05-10 15:07 J | 1516648.02 | 1516648.13 | 1516648.25 | 0.1779 | 0.0093 |
| Mercury | -552-10-01 00:43 J | 1520078.43 | 1520078.53 | 1520078.64 | 0.1787 | 0.0666 |
| Mercury | -551-10-28 08:09 J | 1520470.69 | 1520470.84 | 1520470.99 | 0.1756 | 0.0825 |
| Mercury | -550-09-06 08:52 J | 1520783.83 | 1520783.87 | 1520783.92 | 0.1759 | 0.1619 |
| Mercury | -542-02-21 10:33 J | 1523508.86 | 1523508.94 | 1523509.02 | 0.1793 | 0.1251 |
| Mercury | -541-03-19 05:45 J | 1523900.57 | 1523900.74 | 1523900.90 | 0.1748 | 0.0180 |
| Mercury | -540-01-26 19:12 J | 1524214.21 | 1524214.30 | 1524214.39 | 0.1766 | 0.1087 |
| Venus | -535-02-25 12:28 J | 1526069.88 | 1526070.02 | 1526070.16 | 0.1897 | 0.1196 |
| Venus | -533-12-04 09:50 J | 1527082.74 | 1527082.91 | 1527083.08 | 0.1628 | 0.0317 |
| Mercury | -532-08-09 03:35 J | 1527330.52 | 1527330.65 | 1527330.77 | 0.1741 | 0.1147 |
| Mercury | -531-06-19 05:16 J | 1527644.61 | 1527644.72 | 1527644.83 | 0.1772 | 0.0539 |
| Mercury | -522-11-09 15:07 J | 1531075.01 | 1531075.13 | 1531075.24 | 0.1780 | 0.0041 |
| Earth | -520-10-31 13:26 J | 1531796.97 | 1531797.06 | 1531797.16 | 0.1728 | 0.1465 |
| Moon | -520-10-31 20:38 J | 1531797.24 | 1531797.36 | 1531797.48 | 0.1728 | 0.1313 |
| Mercury | -512-04-01 00:57 J | 1534505.43 | 1534505.54 | 1534505.65 | 0.1786 | 0.0597 |
| Mercury | -511-04-28 08:52 J | 1534897.73 | 1534897.87 | 1534898.02 | 0.1756 | 0.0926 |
| Mercury | -510-03-07 08:52 J | 1535210.84 | 1535210.87 | 1535210.91 | 0.1759 | 0.1675 |
| Venus | -503-02-25 16:04 J | 1537758.01 | 1537758.17 | 1537758.33 | 0.1905 | 0.0881 |
| Mercury | -503-08-22 10:33 J | 1537935.85 | 1537935.94 | 1537936.02 | 0.1793 | 0.1193 |

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|---------|--------------------|------------|------------|------------|--------|----------|
| Mercury | -502-09-18 06:14 J | 1538327.59 | 1538327.76 | 1538327.93 | 0.1748 | 0.0090 |
| Mercury | -501-07-27 19:12 J | 1538641.21 | 1538641.30 | 1538641.39 | 0.1766 | 0.1147 |
| Venus | -501-12-03 02:09 J | 1538769.43 | 1538769.59 | 1538769.75 | 0.1623 | 0.0624 |
| Venus | -499-10-03 06:00 J | 1539438.66 | 1539438.75 | 1539438.84 | 0.1635 | 0.1388 |
| Moon | -494-04-29 11:45 J | 1541107.87 | 1541107.99 | 1541108.12 | 0.1796 | 0.1315 |
| Earth | -494-04-29 13:26 J | 1541107.90 | 1541108.06 | 1541108.21 | 0.1796 | 0.1120 * |
| Mercury | -493-01-12 19:55 J | 1541366.33 | 1541366.33 | 1541366.34 | 0.1800 | 0.1798 |
| Mercury | -492-02-07 04:19 J | 1541757.55 | 1541757.68 | 1541757.81 | 0.1741 | 0.1050 |
| Mercury | -492-12-18 05:16 J | 1542071.61 | 1542071.72 | 1542071.83 | 0.1772 | 0.0598 |
| Mercury | -482-05-10 15:07 J | 1545502.02 | 1545502.13 | 1545502.25 | 0.1779 | 0.0041 |
| Mercury | -473-09-30 00:43 J | 1548932.43 | 1548932.53 | 1548932.64 | 0.1786 | 0.0549 |
| Mercury | -472-10-27 09:35 J | 1549324.77 | 1549324.90 | 1549325.04 | 0.1756 | 0.1026 |
| Mercury | -471-09-05 08:52 J | 1549637.86 | 1549637.87 | 1549637.89 | 0.1759 | 0.1731 |
| Venus | -470-12-23 15:21 J | 1550112.04 | 1550112.14 | 1550112.24 | 0.1894 | 0.1554 |
| Venus | -469-12-01 17:45 J | 1550456.19 | 1550456.24 | 1550456.29 | 0.1618 | 0.1542 |
| Venus | -467-10-01 22:33 J | 1551125.27 | 1551125.44 | 1551125.60 | 0.1629 | 0.0430 |
| Mercury | -463-02-20 10:33 J | 1552362.85 | 1552362.94 | 1552363.03 | 0.1793 | 0.1130 |
| Mercury | -462-03-19 07:12 J | 1552754.63 | 1552754.80 | 1552754.97 | 0.1748 | 0.0027 |
| Mercury | -461-01-26 19:12 J | 1553068.21 | 1553068.30 | 1553068.38 | 0.1765 | 0.1200 |
| Mercury | -454-07-13 19:55 J | 1555793.31 | 1555793.33 | 1555793.36 | 0.1800 | 0.1736 |
| Mercury | -453-08-08 04:47 J | 1556184.57 | 1556184.70 | 1556184.84 | 0.1741 | 0.0964 |
| Mercury | -452-06-18 05:16 J | 1556498.61 | 1556498.72 | 1556498.83 | 0.1772 | 0.0657 |
| Mercury | -443-11-08 15:07 J | 1559929.02 | 1559929.13 | 1559929.25 | 0.1779 | 0.0097 |
| Venus | -438-12-23 18:00 J | 1561800.08 | 1561800.25 | 1561800.42 | 0.1903 | 0.0491 |
| Venus | -435-09-30 14:38 J | 1562811.95 | 1562812.11 | 1562812.28 | 0.1624 | 0.0517 |
| Mercury | -433-03-31 00:57 J | 1563359.43 | 1563359.54 | 1563359.65 | 0.1786 | 0.0482 |
| Venus | -433-07-30 17:45 J | 1563481.18 | 1563481.24 | 1563481.31 | 0.1637 | 0.1511 |
| Mercury | -432-04-27 10:33 J | 1563751.82 | 1563751.94 | 1563752.07 | 0.1756 | 0.1133 |
| Mercury | -424-08-21 10:33 J | 1566789.85 | 1566789.94 | 1566790.03 | 0.1793 | 0.1071 |
| Mercury | -423-09-17 07:55 J | 1567181.66 | 1567181.83 | 1567182.00 | 0.1748 | 0.0117 |

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| Mercury | -422-07-27 19:12 J | 1567495.22 | 1567495.30 | 1567495.38 | 0.1765 | 0.1258 |
| Mercury | -414-01-11 19:55 J | 1570220.29 | 1570220.33 | 1570220.37 | 0.1800 | 0.1678 |
| Mercury | -413-02-07 05:45 J | 1570611.59 | 1570611.74 | 1570611.88 | 0.1741 | 0.0863 |
| Mercury | -413-12-17 05:16 J | 1570925.61 | 1570925.72 | 1570925.82 | 0.1772 | 0.0714 |
| Mercury | -403-05-09 15:07 J | 1574356.02 | 1574356.13 | 1574356.24 | 0.1779 | 0.0153 |
| Venus | -403-09-29 06:43 J | 1574498.70 | 1574498.78 | 1574498.85 | 0.1620 | 0.1445 |
| Venus | -401-07-29 10:47 J | 1575167.78 | 1575167.95 | 1575168.11 | 0.1631 | 0.0544 |
| Mercury | -394-09-30 00:57 J | 1577786.43 | 1577786.54 | 1577786.65 | 0.1786 | 0.0418 |
| Earth | -394-10-27 12:28 J | 1577813.89 | 1577814.02 | 1577814.15 | 0.1745 | 0.1273 |
| Moon | -394-10-27 11:31 J | 1577813.90 | 1577813.98 | 1577814.07 | 0.1745 | 0.1530 * |
| Mercury | -393-10-26 11:16 J | 1578178.85 | 1578178.97 | 1578179.09 | 0.1756 | 0.1224 |
| Mercury | -384-02-19 10:33 J | 1581216.85 | 1581216.94 | 1581217.04 | 0.1793 | 0.1009 |
| Mercury | -383-03-18 08:38 J | 1581608.69 | 1581608.86 | 1581609.02 | 0.1749 | 0.0208 |
| Mercury | -382-01-25 19:12 J | 1581922.23 | 1581922.30 | 1581922.38 | 0.1765 | 0.1319 |
| Mercury | -375-07-12 19:55 J | 1584647.29 | 1584647.33 | 1584647.38 | 0.1800 | 0.1617 |
| Mercury | -374-08-08 06:43 J | 1585038.63 | 1585038.78 | 1585038.93 | 0.1741 | 0.0759 |
| Mercury | -373-06-17 05:16 J | 1585352.61 | 1585352.72 | 1585352.82 | 0.1772 | 0.0772 |
| Venus | -372-10-19 20:24 J | 1585842.17 | 1585842.35 | 1585842.52 | 0.1901 | 0.0117 |
| Venus | -369-07-28 03:21 J | 1586854.47 | 1586854.64 | 1586854.81 | 0.1625 | 0.0410 |
| Venus | -367-05-28 06:14 J | 1587523.75 | 1587523.76 | 1587523.77 | 0.1639 | 0.1630 |
| Mercury | -365-12-28 04:47 J | 1588468.67 | 1588468.70 | 1588468.73 | 0.1734 | 0.1705 |
| Mercury | -364-11-07 15:07 J | 1588783.02 | 1588783.13 | 1588783.25 | 0.1779 | 0.0214 |
| Mercury | -354-03-31 00:57 J | 1592213.42 | 1592213.54 | 1592213.65 | 0.1786 | 0.0363 |
| Mercury | -353-04-26 12:14 J | 1592605.90 | 1592606.01 | 1592606.12 | 0.1756 | 0.1330 |
| Mercury | -345-08-20 10:33 J | 1595643.84 | 1595643.94 | 1595644.04 | 0.1793 | 0.0951 |
| Mercury | -344-09-16 09:35 J | 1596035.73 | 1596035.90 | 1596036.06 | 0.1749 | 0.0314 |
| Mercury | -343-07-26 19:12 J | 1596349.22 | 1596349.30 | 1596349.37 | 0.1765 | 0.1371 |
| Venus | -337-07-26 18:57 J | 1598541.20 | 1598541.29 | 1598541.39 | 0.1621 | 0.1339 |
| Mercury | -335-01-10 20:09 J | 1599074.28 | 1599074.34 | 1599074.40 | 0.1800 | 0.1547 |
| Venus | -335-05-26 23:16 J | 1599210.32 | 1599210.47 | 1599210.63 | 0.1632 | 0.0657 |

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| Mercury | -334-02-06 07:12 J | 1599465.64 | 1599465.80 | 1599465.95 | 0.1741 | 0.0675 |
| Mercury | -334-12-17 05:16 J | 1599779.62 | 1599779.72 | 1599779.82 | 0.1772 | 0.0833 |
| Mercury | -325-06-28 05:31 J | 1602895.67 | 1602895.73 | 1602895.79 | 0.1734 | 0.1611 |
| Mercury | -324-05-08 15:07 J | 1603210.02 | 1603210.13 | 1603210.25 | 0.1779 | 0.0277 |
| Mercury | -315-09-29 00:57 J | 1606640.42 | 1606640.54 | 1606640.65 | 0.1786 | 0.0306 |
| Moon | -315-10-29 15:50 J | 1606670.98 | 1606671.16 | 1606671.34 | 0.1740 | 0.0451 |
| Earth | -315-10-29 23:02 J | 1606671.27 | 1606671.46 | 1606671.64 | 0.1740 | 0.0319 * |
| Mercury | -314-10-26 12:57 J | 1607032.95 | 1607033.04 | 1607033.14 | 0.1757 | 0.1432 |
| Venus | -306-08-16 22:33 J | 1609884.26 | 1609884.44 | 1609884.61 | 0.1898 | 0.0273 |
| Mercury | -305-02-19 10:33 J | 1610070.84 | 1610070.94 | 1610071.04 | 0.1792 | 0.0889 |
| Mercury | -304-03-17 10:19 J | 1610462.77 | 1610462.93 | 1610463.10 | 0.1749 | 0.0416 |
| Mercury | -303-01-24 19:12 J | 1610776.23 | 1610776.30 | 1610776.36 | 0.1765 | 0.1432 |
| Venus | -303-05-25 15:50 J | 1610896.99 | 1610897.16 | 1610897.33 | 0.1627 | 0.0297 |
| Mercury | -296-07-11 19:55 J | 1613501.27 | 1613501.33 | 1613501.40 | 0.1800 | 0.1497 |
| Mercury | -295-08-07 08:09 J | 1613892.68 | 1613892.84 | 1613893.00 | 0.1742 | 0.0570 |
| Mercury | -294-06-17 05:16 J | 1614206.62 | 1614206.72 | 1614206.82 | 0.1772 | 0.0888 |
| Moon | -289-04-25 13:26 J | 1615980.91 | 1615981.06 | 1615981.21 | 0.1782 | 0.1286 |
| Earth | -289-04-25 15:07 J | 1615980.97 | 1615981.13 | 1615981.29 | 0.1782 | 0.1000 * |
| Mercury | -286-12-28 06:14 J | 1617322.68 | 1617322.76 | 1617322.84 | 0.1734 | 0.1518 |
| Mercury | -285-11-06 15:07 J | 1617637.02 | 1617637.13 | 1617637.24 | 0.1779 | 0.0328 |
| Mercury | -275-03-30 00:57 J | 1621067.43 | 1621067.54 | 1621067.66 | 0.1786 | 0.0240 |
| Mercury | -274-04-26 13:40 J | 1621459.99 | 1621460.07 | 1621460.16 | 0.1757 | 0.1532 |
| Venus | -274-08-17 00:57 J | 1621572.48 | 1621572.54 | 1621572.60 | 0.1906 | 0.1798 |
| Venus | -271-05-24 07:55 J | 1622583.72 | 1622583.83 | 1622583.94 | 0.1622 | 0.1237 |
| Venus | -269-03-23 11:31 J | 1623252.83 | 1623252.98 | 1623253.13 | 0.1634 | 0.0777 |
| Mercury | -266-08-20 10:33 J | 1624497.84 | 1624497.94 | 1624498.05 | 0.1792 | 0.0830 |
| Mercury | -265-09-15 11:02 J | 1624889.80 | 1624889.96 | 1624890.12 | 0.1749 | 0.0505 |
| Mercury | -264-07-25 19:12 J | 1625203.24 | 1625203.30 | 1625203.36 | 0.1765 | 0.1490 |
| Mercury | -256-01-09 20:09 J | 1627928.27 | 1627928.34 | 1627928.41 | 0.1799 | 0.1429 |
| Mercury | -255-02-05 08:52 J | 1628319.71 | 1628319.87 | 1628320.03 | 0.1742 | 0.0472 |

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| Mercury | -255-12-16 05:16 J | 1628633.62 | 1628633.72 | 1628633.81 | 0.1772 | 0.0946 |
| Mercury | -246-06-28 06:57 J | 1631749.70 | 1631749.79 | 1631749.89 | 0.1735 | 0.1420 |
| Mercury | -245-05-07 15:07 J | 1632064.02 | 1632064.13 | 1632064.24 | 0.1778 | 0.0392 |
| Venus | -240-06-13 00:43 J | 1633926.36 | 1633926.53 | 1633926.69 | 0.1896 | 0.0656 |
| Venus | -237-03-22 04:19 J | 1634939.51 | 1634939.68 | 1634939.86 | 0.1629 | 0.0192 |
| Mercury | -236-09-28 00:57 J | 1635494.42 | 1635494.54 | 1635494.65 | 0.1786 | 0.0184 |
| Moon | -236-11-01 05:31 J | 1635528.68 | 1635528.73 | 1635528.77 | 0.1735 | 0.1686 |
| Mercury | -235-10-25 14:38 J | 1635887.05 | 1635887.11 | 1635887.17 | 0.1757 | 0.1632 |
| Mercury | -226-02-18 10:33 J | 1638924.84 | 1638924.94 | 1638925.05 | 0.1793 | 0.0769 |
| Mercury | -225-03-16 12:00 J | 1639316.84 | 1639317.00 | 1639317.16 | 0.1749 | 0.0613 |
| Mercury | -224-01-23 19:12 J | 1639630.24 | 1639630.30 | 1639630.35 | 0.1765 | 0.1544 |
| Mercury | -217-07-10 20:09 J | 1642355.27 | 1642355.34 | 1642355.41 | 0.1799 | 0.1367 |
| Mercury | -216-08-06 09:35 J | 1642746.73 | 1642746.90 | 1642747.06 | 0.1742 | 0.0386 |
| Mercury | -215-06-16 05:16 J | 1643060.63 | 1643060.72 | 1643060.81 | 0.1772 | 0.1007 |
| Earth | -210-04-29 13:55 J | 1644838.93 | 1644839.08 | 1644839.23 | 0.1788 | 0.1124 |
| Moon | -210-04-29 21:35 J | 1644839.30 | 1644839.40 | 1644839.50 | 0.1789 | 0.1531 |
| Venus | -208-06-13 03:21 J | 1645614.53 | 1645614.64 | 1645614.76 | 0.1904 | 0.1420 |
| Mercury | -207-12-27 07:40 J | 1646176.72 | 1646176.82 | 1646176.93 | 0.1735 | 0.1329 |
| Mercury | -206-11-06 15:07 J | 1646491.02 | 1646491.13 | 1646491.24 | 0.1778 | 0.0452 |
| Venus | -205-03-20 20:24 J | 1646626.23 | 1646626.35 | 1646626.47 | 0.1623 | 0.1130 |
| Venus | -203-01-19 00:00 J | 1647295.36 | 1647295.50 | 1647295.65 | 0.1636 | 0.0892 |
| Mercury | -196-03-29 00:57 J | 1649921.43 | 1649921.54 | 1649921.66 | 0.1785 | 0.0121 |
| Mercury | -195-04-25 15:35 J | 1650314.13 | 1650314.15 | 1650314.17 | 0.1757 | 0.1740 |
| Mercury | -187-08-19 10:33 J | 1653351.84 | 1653351.94 | 1653352.05 | 0.1792 | 0.0711 |
| Mercury | -186-09-15 12:43 J | 1653743.88 | 1653744.03 | 1653744.18 | 0.1749 | 0.0710 |
| Mercury | -185-07-24 19:12 J | 1654057.25 | 1654057.30 | 1654057.34 | 0.1765 | 0.1602 |
| Mercury | -177-01-09 20:09 J | 1656782.26 | 1656782.34 | 1656782.42 | 0.1799 | 0.1309 |
| Mercury | -176-02-04 10:19 J | 1657173.77 | 1657173.93 | 1657174.10 | 0.1742 | 0.0281 |
| Mercury | -176-12-15 05:16 J | 1657487.63 | 1657487.72 | 1657487.81 | 0.1771 | 0.1062 |
| Venus | -174-04-10 03:07 J | 1657968.48 | 1657968.63 | 1657968.77 | 0.1893 | 0.1031 |

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| Venus | -171-01-17 16:47 J | 1658982.02 | 1658982.20 | 1658982.37 | 0.1630 | 0.0085 |
| Mercury | -167-06-27 08:38 J | 1660603.74 | 1660603.86 | 1660603.97 | 0.1735 | 0.1229 |
| Mercury | -166-05-07 15:07 J | 1660918.02 | 1660918.13 | 1660918.24 | 0.1779 | 0.0508 |
| Mercury | -157-09-27 00:57 J | 1664348.43 | 1664348.54 | 1664348.66 | 0.1785 | 0.0078 |
| Mercury | -147-02-17 10:33 J | 1667778.84 | 1667778.94 | 1667779.05 | 0.1792 | 0.0650 |
| Mercury | -146-03-16 13:26 J | 1668170.91 | 1668171.06 | 1668171.21 | 0.1750 | 0.0805 |
| Mercury | -145-01-23 19:12 J | 1668484.26 | 1668484.30 | 1668484.33 | 0.1764 | 0.1663 |
| Venus | -142-04-10 05:16 J | 1669656.57 | 1669656.72 | 1669656.87 | 0.1902 | 0.1021 |
| Venus | -139-01-16 09:07 J | 1670668.74 | 1670668.88 | 1670669.01 | 0.1625 | 0.1024 |
| Mercury | -138-07-10 20:09 J | 1671209.26 | 1671209.34 | 1671209.42 | 0.1799 | 0.1246 |
| Venus | -138-11-16 12:14 J | 1671337.88 | 1671338.01 | 1671338.15 | 0.1638 | 0.1013 |
| Mercury | -137-08-05 11:16 J | 1671600.80 | 1671600.97 | 1671601.14 | 0.1742 | 0.0176 |
| Mercury | -136-06-15 05:16 J | 1671914.63 | 1671914.72 | 1671914.80 | 0.1771 | 0.1121 |
| Mercury | -128-12-26 09:07 J | 1675030.76 | 1675030.88 | 1675031.01 | 0.1735 | 0.1140 |
| Mercury | -127-11-05 15:07 J | 1675345.02 | 1675345.13 | 1675345.24 | 0.1778 | 0.0566 |
| Mercury | -117-03-28 00:57 J | 1678775.43 | 1678775.54 | 1678775.66 | 0.1785 | 0.0016 |
| Earth | -110-10-28 06:00 J | 1681545.59 | 1681545.75 | 1681545.91 | 0.1752 | 0.0920 |
| Moon | -110-10-28 12:43 J | 1681545.88 | 1681546.03 | 1681546.19 | 0.1751 | 0.1047 * |
| Venus | -108-02-04 05:31 J | 1682010.61 | 1682010.73 | 1682010.84 | 0.1890 | 0.1405 |
| Mercury | -108-08-18 10:47 J | 1682205.84 | 1682205.95 | 1682206.05 | 0.1792 | 0.0589 |
| Mercury | -107-09-14 14:24 J | 1682597.95 | 1682598.10 | 1682598.24 | 0.1750 | 0.0912 |
| Mercury | -106-07-24 18:57 J | 1682911.27 | 1682911.29 | 1682911.32 | 0.1764 | 0.1716 |
| Venus | -106-11-15 05:16 J | 1683024.55 | 1683024.72 | 1683024.90 | 0.1632 | 0.0046 |
| Mercury | -98-01-08 20:24 J | 1685636.26 | 1685636.35 | 1685636.43 | 0.1799 | 0.1182 |
| Mercury | -97-02-04 11:45 J | 1686027.82 | 1686027.99 | 1686028.16 | 0.1742 | 0.0094 |
| Mercury | -97-12-14 05:16 J | 1686341.63 | 1686341.72 | 1686341.80 | 0.1771 | 0.1181 |
| Mercury | -89-05-31 05:31 J | 1689066.73 | 1689066.73 | 1689066.73 | 0.1806 | 0.1803 |
| Mercury | -88-06-26 10:04 J | 1689457.79 | 1689457.92 | 1689458.05 | 0.1735 | 0.1040 |
| Mercury | -87-05-06 15:07 J | 1689772.03 | 1689772.13 | 1689772.24 | 0.1778 | 0.0629 |
| Mercury | -78-09-27 00:57 J | 1693202.43 | 1693202.54 | 1693202.66 | 0.1785 | 0.0059 |

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| Venus | -76-02-04 07:55 J | 1693698.67 | 1693698.83 | 1693699.00 | 0.1900 | 0.0655 |
| Venus | -74-11-13 21:50 J | 1694711.27 | 1694711.41 | 1694711.56 | 0.1626 | 0.0922 |
| Venus | -72-09-13 00:43 J | 1695380.41 | 1695380.53 | 1695380.66 | 0.1639 | 0.1130 |
| Mercury | -68-02-16 10:47 J | 1696632.84 | 1696632.95 | 1696633.06 | 0.1792 | 0.0525 |
| Mercury | -67-03-15 15:07 J | 1697024.99 | 1697025.13 | 1697025.27 | 0.1750 | 0.1012 |
| Mercury | -59-07-09 20:09 J | 1700063.25 | 1700063.34 | 1700063.43 | 0.1799 | 0.1127 |
| Mercury | -58-08-05 12:43 J | 1700454.86 | 1700455.03 | 1700455.20 | 0.1743 | 0.0015 |
| Mercury | -57-06-14 05:16 J | 1700768.64 | 1700768.72 | 1700768.80 | 0.1771 | 0.1236 |
| Mercury | -50-11-30 05:45 J | 1703493.71 | 1703493.74 | 1703493.77 | 0.1806 | 0.1737 |
| Mercury | -49-12-25 10:47 J | 1703884.81 | 1703884.95 | 1703885.09 | 0.1735 | 0.0948 |
| Mercury | -48-11-04 15:07 J | 1704199.02 | 1704199.13 | 1704199.24 | 0.1778 | 0.0682 |
| Venus | -43-12-02 08:52 J | 1706052.81 | 1706052.87 | 1706052.93 | 0.1887 | 0.1752 |
| Venus | -40-09-11 17:45 J | 1707067.07 | 1707067.24 | 1707067.41 | 0.1633 | 0.0151 |
| Mercury | -38-03-28 01:12 J | 1707629.43 | 1707629.55 | 1707629.66 | 0.1785 | 0.0131 |
| Earth | -31-10-30 17:31 J | 1710403.06 | 1710403.23 | 1710403.40 | 0.1746 | 0.0713 |
| Moon | -31-10-30 20:52 J | 1710403.23 | 1710403.37 | 1710403.52 | 0.1746 | 0.0947 * |
| Mercury | -29-08-17 10:47 J | 1711059.83 | 1711059.95 | 1711060.06 | 0.1792 | 0.0472 |
| Mercury | -28-09-13 15:35 J | 1711452.03 | 1711452.15 | 1711452.29 | 0.1750 | 0.1105 |
| Mercury | -19-01-07 20:09 J | 1714490.25 | 1714490.34 | 1714490.44 | 0.1799 | 0.1064 |
| Mercury | -18-02-03 13:26 J | 1714881.90 | 1714882.06 | 1714882.23 | 0.1743 | 0.0120 |
| Mercury | -18-12-14 05:02 J | 1715195.64 | 1715195.71 | 1715195.79 | 0.1771 | 0.1294 |
| Venus | -11-12-02 10:19 J | 1717740.76 | 1717740.93 | 1717741.11 | 0.1897 | 0.0271 |
| Mercury | -10-05-31 05:31 J | 1717920.69 | 1717920.73 | 1717920.77 | 0.1806 | 0.1680 |
| Mercury | -9-06-25 11:31 J | 1718311.84 | 1718311.98 | 1718312.13 | 0.1736 | 0.0848 |
| Mercury | -8-05-05 15:07 J | 1718626.03 | 1718626.13 | 1718626.24 | 0.1778 | 0.0747 |
| Venus | -8-09-10 10:19 J | 1718753.78 | 1718753.93 | 1718754.08 | 0.1628 | 0.0811 |
| Venus | -6-07-11 12:43 J | 1719422.92 | 1719423.03 | 1719423.14 | 0.1641 | 0.1259 |
| Moon | -5-04-25 14:09 J | 1719711.95 | 1719712.09 | 1719712.22 | 0.1774 | 0.1194 |
| Earth | -5-04-25 19:40 J | 1719712.14 | 1719712.32 | 1719712.49 | 0.1775 | 0.0854 * |